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INDEX

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SBUS has always believed and invested in the power of knowledge, in the importance of encouraging scientific research to achieve a more competitive, advanced and fair Brazil. Acting in a manner consistent with its principles, SBUS spares no effort and has done its part, promoting and/or supporting the most varied scientific events, including seminars, courses, meetings and congresses. from October 26th to 29th, we will resume the face-to-face format of the two largest USG events in Brazil, the 26th SBUS Brazilian Ultrasonography Congress and the 18th FISUSAL International Ultrasonography Congress.

The Brazilian Journal of Ultrasonography – RBUS, widely known as Revista Azul, is part of this story that seeks, ultimately, to increasingly scientifically train Brazilian ultrasonographers so that we can offer even more humanized and quality care to our patients.

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CASE REPORT

BRAZILIAN JOURNAL OF ULTRASONOGRAPHY 2022; 33: 07-09 - **DOI** - 10.29327/275505.30.33-1

NON-HODGKIN LYMPHOMA IN A CHILD: A CASE REPORT

DENISE LIMA DE OLIVEIRA, LORENA RODRIGUES NAVES MARTINS SOARES, FRANCISCO MAUAD FILHO, AUGUSTO CÉSAR GARCIA SAAB BENEDETI, RODRIGO JOSÉ SIMMI, FERNANDO MARUM MAUAD

ABSTRACT

INTRODUCTION: Lymphomas are neoplasms of the immune system originating from B, T, or Natural Killer cells that lead to the appearance of tumor masses. They can be classified as Hodgkin and Non-Hodgkin. It is a general way, however, being more common in children and presents a distinct way of distinct diagnoses.

CASE REPORT: In this report, the objective is related to the case of a three-year-old child affected by ovarian Non-Hodgkin's Lymphoma. And show the importance of early diagnosis concerning treatment.

DISCUSSION: A variety of different ovarian diagnoses are observed when there is an extensive treatment of pathologies. Consequently, there are imaging tests capable of providing an adequate type of diagnosis. The importance of an accurate diagnosis, ideally, is linked early to a good prognosis and successful cure.

CONCLUSION: The evaluation of early diagnosis reflects a response to treatment, since behavioral behaviors may be unexpected, relating to their aggressiveness and response to the treatment of neoplasms.

KEYWORDS: LYMPHOMA, PEDIATRIC, NON-HODGKIN, OVARIAN NEOPLASM

INTRODUCTION

Hodgkin's lymphoma (HL) is a type of cancer that originates in the lymphatic system, a set made up of organs, lymph nodes or nodes, and tissues that produce the cells responsible for immunity and vessels that carry these cells through the body. [1]

Its main characteristic is to proliferate in an orderly way, from one group of lymph nodes to another group, through the lymphatic vessels. The oncogenesis of Hodgkin's lymphoma arises when a lymphocyte, most often a type B, turns into a malignant cell capable of multiplying uncontrollably, identical cells, spreading throughout the individual's body. [1]

Non-Hodgkin's lymphoma (NHL) is a type of cancer that originates in the cells of the lymphatic system and spreads in an unorganized manner. There are over 20 different types of NHL.

The lymphatic system is part of the immune system, which helps the body fight disease. Because lymphatic tissue is found throughout the body, lymphoma can start anywhere. It can occur in children, adolescents and adults. Overall, NHL becomes more common as people age. [1]

These types of lymphoma can occur in any age group, being more common among adolescents and young adults, aged 15 to 29 years, in adults between 30 and 33 years and in the elderly aged 75 years and over. However, this disease is more prevalent in men than in women.

CASE REPORT

MSC three-year-old patient has a history of chronic constipation, with a worsening of the clinical picture five days before the date of admission. Imaging tests were requested, including: X-ray of the abdomen, ultrasound of the total abdomen, tomography of the abdomen and magnetic resonance of the abdomen, for better elucidation of the case (Figures 1-5).

In view of the clinical picture and complementary exams, an ovarian mass was found that, due to its characteristics, would need to be referred for surgery and the excision of the lesion should be performed and the specimen sent for biopsy (figure 6).

After the anatomopathological results, it was found that the ovarian mass was a diffuse malignant non-Hodgkin's lymphoma of small non cleaved cells.

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Figure 1 – Complementary exams: X-ray of the total abdomen.

Figure 2 – Complementary exams: Comparison of abdominal X-ray with abdominal tomography.

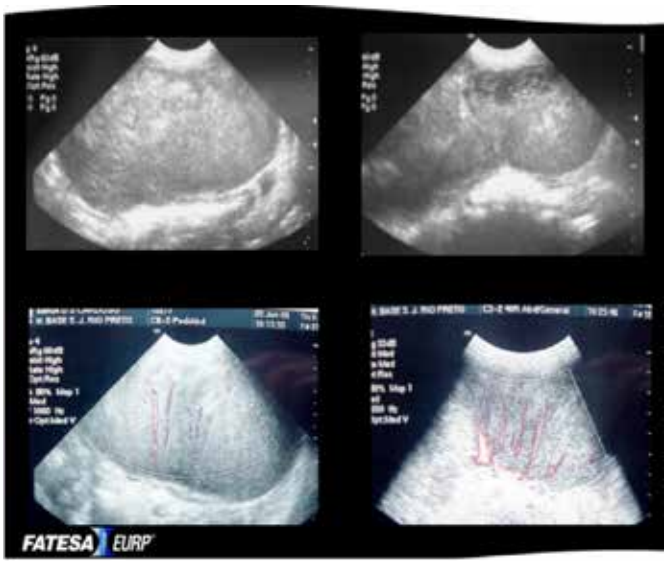

Figure 3 – Complementary exams: total abdomen ultrasound.

Figure 4 – Complementary tests: use of the Doppler study in abdominal ultrasound.

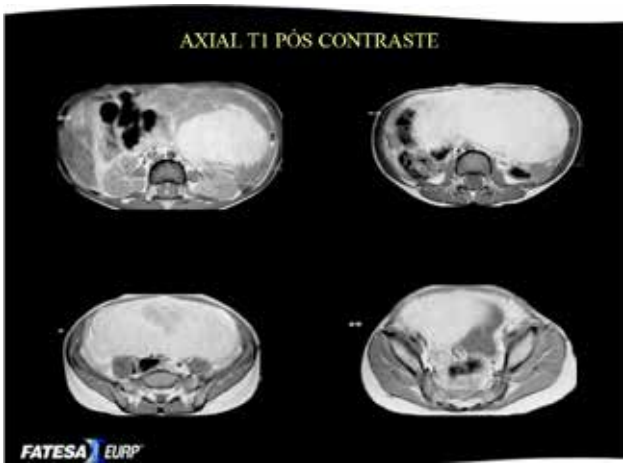

Figure 5 – Complementary tests: the use of magnetic resonance in the evaluation of ovarian mass.

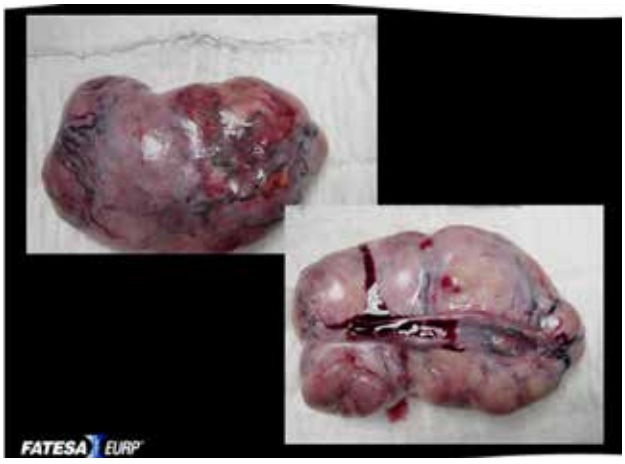

Figure 6 – Anatomopathological: Diffuse malignant non-Hodgkin lymphoma of small non cleaved cells.

DISCUSSION

Regarding the case, we can highlight the different differential diagnoses of ovarian masses in childhood, a topic of paramount importance for obtaining an early diagnosis and performing an appropriate treatment.

Among the differential diagnoses, the following stand out: benign ovarian teratomas, dysgerminomas, embryonal carcinoma, endodermal sinus tumor, ovarian epithelial tumors, theca granulosa cell tumors, arrhenoblastoma, gonadoblastoma and acute leukemia/lymphoma. [3]

Differentiating from other pathologies, ovarian lymphoma, out of 2,680 ovarian neoplasms, only 1.5% were diagnosed in children. In two series of 541 ovarian neoplasms in children, only four lymphomas were diagnosed. In a series of 42 ovarian lymphomas 38% were children. Despite being a relatively rare pathology, its frequency in childhood is something remarkable and worthy of attention. [3]

Its presentation as a primary neoplasm is two cases in 12,447 children. And its most common initial clinical presentation is as an occult nodal neoplasm, in which the primary site is unknown. And later, it manifests as a disseminated systemic lymphoma. [3-4]

In view of the clinical findings, the following are noted: palpable mass with or without pain in 67% of cases, vaginal bleeding, amenorrhea, osteoarticular pain and ascites. [3]

The following imaging findings are visible:

- Ultrasound: Hypoechoic, homogeneous and poorly vascularized lesion on Doppler study;

- Tomography: Homogeneous lesion without necrosis, hemorrhage, or significant calcifications;

- MRI: Hypointense on T1 and Hyperintense on T2, medium to moderate enhancement.

It manifests bilaterally in 55% of cases, presents as a solid and lobulated mass, associated with foci of hemorrhage, necrosis and presence of cystic areas, with an average diameter of 15 cm, around 33%.

Among children, non-Hodgkin's lymphoma of small non cleaved cells, Burkitt or non-Burkitt, corresponds to the majority (38%).

Treatment is surgery in combination with adjuvant chemotherapy. In surgery, two factors show that the tumor did not arise in the ovary: if the ovarian involvement is bilateral and/or if there is an increase in regional lymph nodes.[4] Remembering that, for the treatment, a bilateral salpingo-oophorectomy is performed. Associated with follow-up with chemotherapy. [2]

The signs of a poor prognosis are: bilaterality, presence of systemic symptoms, non-B lymphocytic type and acute onset.

Epithelial tumors have a higher frequency, being bilateral in 33% of cases and classified in FIGO stages I and II. In 67% of cases they are in stages III and IV, these rarely occur in children. [4]

It is worth noting the greater focus and special emphasis on diagnosis in addition to therapeutic strategies. Ovarian neoplasms in children may present unexpected behaviors in relation to their aggressiveness and response to treatment, different from the adult population. This shows its relevance in the search for early diagnosis.

CONCLUSIONS

Therefore, early investigation is of paramount importance, in which there is a significant improvement, being important to evaluate staging.

It is worth noting that the notoriety of the study of ovarian masses is based on obtaining an early diagnosis of lymphoma and, thus, obtaining treatment in a timely manner. Thus, treatment success rates and better quality of life for the patient are increased.

Acknowledgements

First of all, to God and to the FATESA teaching team for all their learning and patience.

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CASE REPORT

THIRD TRIMESTER PRENATAL DIAGNOSIS OF CLASSIC CONGENITAL MESOBLASTIC NEPHROMA: A CASE STUDY

MARCELLO VIGGIANO[1], GUSTAVO TEIXEIRA[2], BRUNA TAVARES[2], ROGÉRIO FAGUNDES[3]

ABSTRACT

INTRODUCTION: Congenital mesoblastic nephroma is the main cause of kidney tumors in the first year of life, often associated with polyhydramnios, preterm birth, and neonatal hypertension.

CASE REPORT: In this paper, we report a case of volumetric enlargement of the left kidney with gastric bubble compression in a fetus at 38 weeks and 5 days, suggestive of renal tumor. With the interruption of pregnancy, surgical treatment was performed and a classic variant congenital mesoblastic nephroma was confirmed.

DISCUSSION: Despite the difficulty in diagnosis, congenital mesoblastic nephroma can be suspected even in the prenatal period through the identification of a solid, unilateral, encapsulated mass, with homogeneous echogenicity and located in the renal fossa on ultrasound. Usually, the treatment of this type of tumor is surgical and the prognosis is usually good, especially if the tumor is of the classic histological subtype.

CONCLUSION: A rare disease that can lead to adverse pregnancy outcomes during pregnancy, it is concluded that congenital mesoblastic nephroma, despite ultrasound suspicion during the prenatal period, is difficult to diagnose and is only confirmed in the postnatal period, with surgery treatment and anatomopathological study.

KEYWORDS: MESOBLASTIC NEPHROMA, KIDNEY, RENAL NEOPLASMS, PRENATAL DIAGNOSIS, PREMATURITY

INTRODUCTION

Differentiated from Wilms tumor (WT) in 1967 and known as Bolande's tumor [1], congenital mesoblastic nephroma (CMN), despite its low prevalence, is the most frequent renal tumor in newborns, representing 3-10% of all pediatric renal neoplasms [1-2]. Unlike TW that manifests in preschool children (1-4 years old), 90% of CMN cases are diagnosed within the first year of life, especially in children under six months of age [1-3] .

CMN predominantly affects males, and most cases are associated with polyhydramnios, premature birth and neonatal hypertension [2-4]. In addition, it has three histological subtypes: classic, cellular and mixed, being the cell with the worst prognosis given its capacity for recurrence and metastasis [2-4].

The identification of the tumor can be done through clinical evaluation, and the presence of an abdominal mass is evident, which can also be identified on prenatal ultrasound. In addition, it is common for pediatric patients to have hematuria, which may or may not be associated with a paraneoplastic syndrome such as hypertension or hypercalcemia[3].

Defined as a benign tumor, its prognosis is favorable, and expectant management and immediate postnatal excision of the tumor (nephrectomy or radical nephroureterectomy)[4-5] followed by adjuvant chemotherapy are indicated in the prenatal period if the pathological findings predict metastasis or recurrence [6].

Thus, the objective of this study is to report the prenatal diagnosis of the third trimester of congenital mesoblastic nephroma and thus disseminate information that may eventually help professionals in the differentiation of childhood renal neoplasms, since the differential diagnosis is essential to develop the most effective therapeutic approach.

CASE REPORT

A 36-year-old secundigested patient, with a history of previous cesarean delivery four years ago, was referred to the Hospital Estadual Da Mulher, Goiás, at 38 weeks and 2 days of gestation by ultrasound showing an enlargement of the fetal left kidney, compressing a gastric bubble suggestive of a Wilms tumor.

The ultrasound examination performed at the unit revealed a heterogeneous mass in the left renal chamber, with a diameter of 8.1 cm, adequate fetal weight for gestational age, normal amniotic fluid and Doppler study with normal uteroplacental and fetoplacental flows (Figures 1-2).

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Figure 1. Ultrasonographic image of a unilateral solid mass in the renal sinus.

Figure 2. Ultrasonographic image of a unilateral solid mass in the renal sinus.

Taking into account the term, it was then decided to terminate the pregnancy, followed by intervention in the newborn by the pediatric surgery team. Thus, a left supraumbilical transverse laparotomy was performed, when a large tumor of the left kidney with a pseudocapsule was observed, without adrenal invasion, and probable invasion of the capsule and perirenal fat. Complete resection of the tumor was performed, with ligatures of the hilum and ureter (Figure 3).

Subsequently, the anatomopathological report showed a histopathological picture compatible with congenital mesoblastic nephroma, a classic variant.

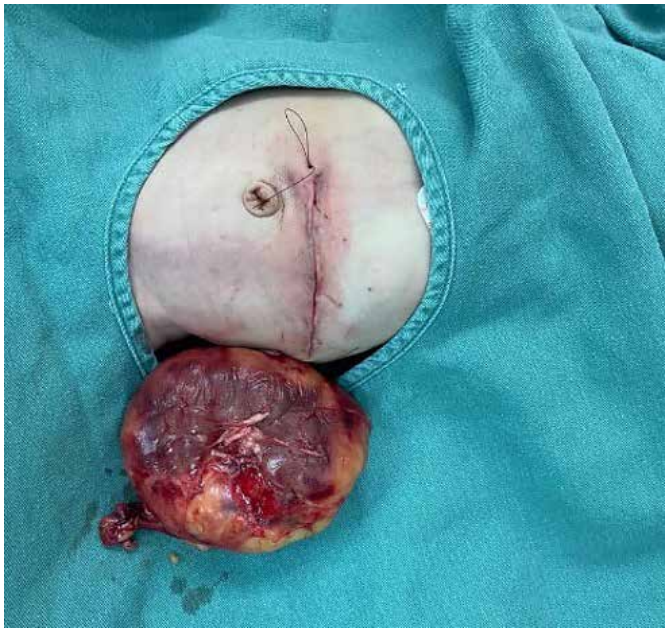

Figura 3. Renal tumor and kidney removed

DISCUSSION

It is known that 90% of pediatric abdominal masses are located in the retroperitoneal region and that in one in two cases they are located in the urinary system [8]. While Wilms' tumor is more frequent in the age group between 1-4 years, congenital mesoblastic nephroma is responsible for 90% of cases within the first year of life [5].

In most cases, the diagnostic suspicion can be made even in the prenatal period, since the sensitivity of ultrasound to detect urinary tract anomalies increases with gestational age, reaching 80% at 28 weeks [7].

The ultrasound finding is a solid, unilateral, encapsulated mass, with homogeneous echogenicity and located in the renal fossa. However, the diagnosis can only be established by anatomopathological study and age of onset offers important data to establish the diagnostic suspicion [8].

Usually, the treatment for this type of tumor is surgical, with nephrectomy or total nephroureterectomy, which, in addition to reducing the possibility of recurrence, will also serve as a treatment for hypertension secondary to hyperreninism. With resection, the prognosis is usually good, especially if the tumor is of the classic histologic subtype. Poor prognostic factors are related to age, the presence of positive surgical margins and the mixed histological type[1].

CONCLUSION

Congenital mesoblastic nephroblastoma is a rare disease, predominant in males, and which, during pregnancy, can lead to adverse pregnancy outcomes such as premature delivery. Its diagnosis can be suspected even during pregnancy, through ultrasound, however, in view of the differential diagnoses such as Wilms tumor, only the anatomopathological

study, after surgical treatment in the postnatal period, can confirm such a diagnosis.

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CASE REPORT

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MYOMETRIAL LEIOMYOSARCOMA - CASE REPORT

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ABSTRACT

INTRODUCTION: Leiomyosarcomas are reported between 3% to 7% of all uterine cancers, usually occurring in women over 40 years of age. Furthermore, there are case reports in the literature on young women and even children.

CASE REPORT: The present report addresses a severe and rare case of myometrial leiomyosarcoma in a 32-year-old woman.

DISCUSSION: Tumor staging is the single most important prognostic factor. If we focus on the differentiation between leiomyoma and leiomyosarcoma through two-dimensional and color Doppler ultrasound, it is demonstrated that the detection of hypervascularization combined with other ultrasound findings suspicious of uterine smooth muscle tumors requires an additional diagnostic evaluation before starting treatment.

CONCLUSION: The importance of early diagnosis is noted and it is emphasized that the investigation and follow-up of uterine nodular images, following the recommendation of FEBRASGO, is directly related to the improvement of the prognosis in this population.

KEYWORDS: LEIOMYOSARCOMA, MYOMETRIUM, YOUNG WOMAN, MALIGNANT NEOPLASM, ENDOVAGINAL ULTRASOUND.

INTRODUCTION

Leiomyosarcoma has become the second most common subtype (first is carcinosarcoma) of uterine sarcomas, accounting for only 1% to 2% of these malignancies. Approximately 1:800 uterine smooth muscle tumors are leiomyosarcoma [1-4].

They are rare, only 13% among uterine sarcomas (when studying the cervix, endometrium and myometrium) in women, and represent 3% to 7% of all uterine malignancies. Although it usually occurs in women over 40 years of age, there are cases in the literature described in young women and even in children [5].

Leiomyosarcomas have particular evolutionary characteristics: aggressiveness, with hasty dissemination and poor prognosis 1. It is also inferred about the origin of leiomyosarcomas: mesenchymal tissue and malignant degeneration of a leiomyoma [2].

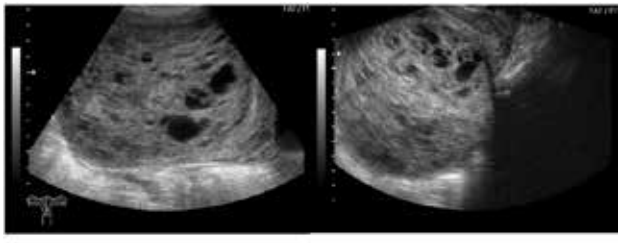
Physical manifestations are commonly vague: genital bleeding, increased uterine volume, and gastrointestinal and urinary complaints. The use of diagnostic imaging evaluation is not accurate to elucidate cases, but rather optimizes the tracking and follow-up of nodular image, suggestive of leiomyosarcoma.

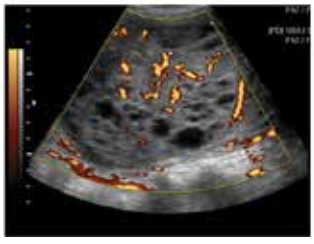
OBJECTIVE

To address a severe and rare case of myometrial leiomyosarcoma in a young woman.

CASE REPORT

A 32-year-old married patient (G1 P1), reporting a two-month menstrual delay, currently with mild vaginal bleeding. Presenting a hemogram with anisocytosis and moderate hypochromia, normal urogram, grade I colpocytology and other normal exams. On ultrasound examination, a nodular image with heterogeneity and intermingled cystic areas is observed in the myometrial region, with the presence of anarchic vascular flow on the Doppler study (figure 1-4).





Figures 1-3: Echographic study demonstrating myometrial nodular image with intermingled cystic areas and anarchic flow on Doppler study.

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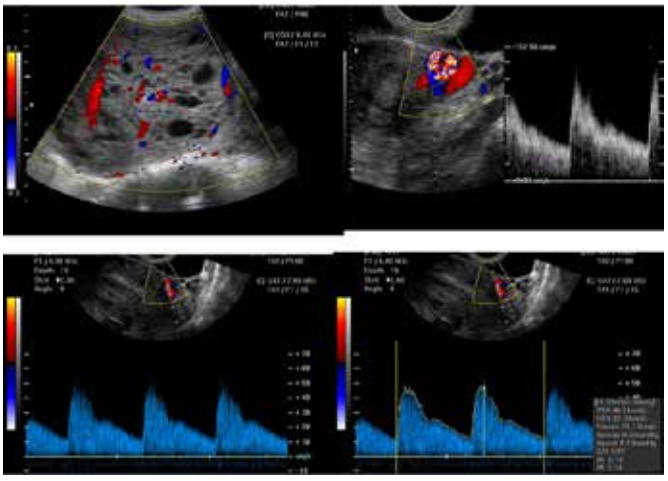

Figures 4 – Echographic study demonstrating vascularization of nodular image on Doppler study, showing high-resistance vessels.

In view of the reported complaints, in the case of a patient of reproductive age, the clinical thought, why not be a trophoblastic disease? A study with B-hCG was performed, with a negative result.

Another diagnostic possibility would be adenomyosis due to the following findings: globose uterus, intermingling myometrial cysts, loss or irregularity of the endometrial-myometrial junctional zone and translesional vascularization.

The patient was followed up and investigated for a myometrial mass and then referred for surgery (figure 5). The anatomopathological result showed leiomyosarcoma.

Figures 5 – Anatomical part of the total hysterectomy.

DISCUSSION

The World Health Organization (WHO) classifies cancer as one of the leading causes of death in the world. There is evidence that they have multifactorial triggers, including risk factors such as physical inactivity, advanced age, obesity and smoking, associated with these, the use of coloring substances, hormone therapy, menopause and genetic abnormalities that influence the cellular evolutionary cycle and somatic cell metabolism.

The vascular behavior in leiomyosarcoma should be considered as a fibromuscular neoplasm, because it presents a variable pattern depending on the evolution of the tumor. On Doppler velocimetry, alternating vascular resistivity may be observed depending on perivascular fibrosis. The same vascular behavior can occur with leiomyomas, mainly due to the degenerative processes that they may be subject to [8].

It should be remembered that myometrial nodular pathology is not always a leiomyoma, and according to FEBRASGO's recommendation, these findings should be followed up with 1) quarterly ultrasound reassessment in the 1st year, and 2) an increase in nodular volume above 25% quarterly suggests leiomyosarcoma.

Despite controversies, most myometrial leiomyosarcomas are not associated with pre-existing leiomyomas and there is no biological evidence associating leiomyosarcomas with benign smooth muscle tumors.

Preoperative imaging tests such as ultrasound and PET scan, using current resources, are incapable of differentiating benign and malignant tumors in smooth muscle, for such magnetic resonance could bring greater subsidies, however, without scientific evidence.

Two main ways of evaluating the malignant potential of leiomyosarcomas are observed, which stand out: tumor size and mitotic index. However, the absolute minimum criteria for malignancy are still not well elucidated. [5]

In an attempt to stage the tumor lesion, as well as assess its prognosis, the following variables were evaluated: patient age, peritoneal cytological findings, cell type, mitotic index of sarcomatous elements, grade of mixed mesodermal tumor sarcoma (MMT), size and location tumor size, depth of myometrial invasion (MMT only), lymphatic-vascular space involvement, adnexal spread, lymph node metastasis, site of recurrence, and adverse effects of surgery. [6]

After studying all factors in a control group, it was noticed that the most effective surgical treatment, except for metastatic lesions, would be extrafascial hysterectomy with bilateral salpingo-oophorectomy. In cases of MMT, selective pelvic and aortic lymphadenectomy may be helpful in determining the need for postoperative therapy. It is a procedure that can be performed without significant morbidity by trained surgeons on properly selected patients. [6]

It was also analyzed for lymph node positivity, strongly suggesting the use of uterine factors to select patients at high risk of recurrence to be included in subsequent adjuvant treatment studies, in a clear attempt to identify a truly effective adjuvant therapy. [6]

CONCLUSION

Despite the low prevalence of leiomyosarcoma in young women and given the aforementioned differential diagnoses, as well as the ultrasound findings, irregular contours and cystic degenerations, the importance of early diagnosis is highlighted and it is emphasized that the investigation and follow-up of uterine nodular images , following the rec-

ommendation of FEBRASGO, is directly related to the improvement of the prognosis in this population.

Therefore, it is concluded that the gold standard for the definitive diagnosis remains the anatomopathological one.

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CASE REPORT

BRAZILIAN JOURNAL OF ULTRASONOGRAPHY 2022; 33: 16-18 - DOI - 10.29327/275505.30.33-4

INTESTINAL INTUSSUSCEPTION IN ADULTS – ULTRASONOGRAPHY DIAGNOSIS

BRUNA SUDA RODRIGUES[1], MÁRCIO LUÍS DUARTE[2], ÉLCIO ROBERTO DUARTE[1]

ABSTRACT

INTRODUCTION: Intussusception is a rare pathology in adults. It can be defined as a telescoping (intussusceptum) of the proximal intestine with its mesenteric fold within the lumen of an adjacent segment (intussuscipiens).

CASE REPORT: A 58-year-old patient with abdominal pain for seven days is reported, referring to constipation and feeling of bloating. Ultrasonography detected intussusception, and computed tomography showed expansive formation at the root of the mesentery. An enterectomy and right colectomy with anastomosis were performed and the patient was discharged three days later.

DISCUSSION: Computed tomography and ultrasonography are the most used diagnostic methods, with an accuracy of 77.8% and 49.2%, respectively. Although the "target" image cannot be considered pathognomonic, it is suggestive of the disease on ultrasound which has the advantage of being able to be performed at the patient's bedside and do not use ionizing radiation such as computed tomography.

CONCLUSION: Although intussusception is not a routine diagnosis in adults, it is a disease that should be investigated in patients with significant abdominal distention. When characterized in this age group, the investigation of the causes of intussusception is necessary for the cure of the patient.

KEYWORDS: INTUSSUSCEPTION; NEOPLASIA; DIAGNOSIS; ULTRASONOGRAPHY

INTRODUCTION

Intussusception is a rare pathology in adults and, when present, has a defined etiology in about 90% of cases,1 with benign and malignant tumors being the main cause – 60%.[2]

In the infant population, intestinal intussusception is common and occurs when the proximal segment of the intestine invaginates into the distal segment. [1]

Intussusception can be described as an "introversion" of the proximal bowel with its mesenteric fold into the lumen of the adjacent distal bowel as a result of excessive or impaired peristalsis, further obstructing the free passage of intestinal contents. [3]

CASE REPORT

A 58-year-old male with abdominal pain for seven days reporting constipation and a feeling of bloating for one day. Physical examination demonstrates only abdominal distention, with no pain on palpation.

Ultrasonography detected thickened thin intestinal loops, with adjacent fluid, with diffuse blurring of the mesenteric fat, with dilatation of the intestinal loops upstream compatible with intussusception (Figure 1).

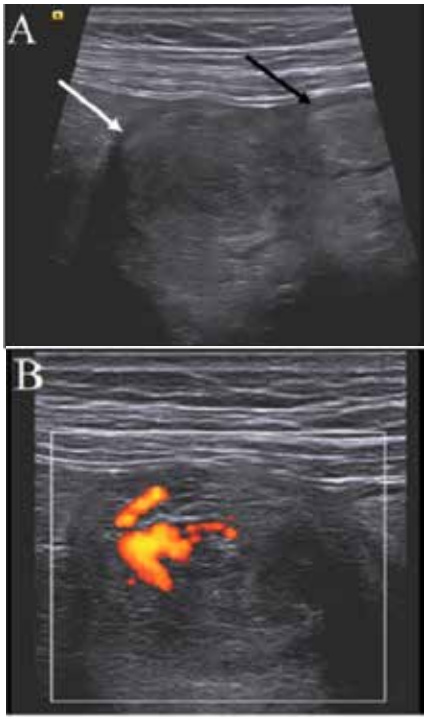

Figure 1: In A, ultrasonography detected a "target" lesion (white arrow) with dilatation of the upstream intestinal loop (black arrow). In B, ultrasound demonstrates Doppler vascularization of the "target" lesion – target sign.

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Computed tomography showed expansive formation in the root of the mesentery (Figure 2).

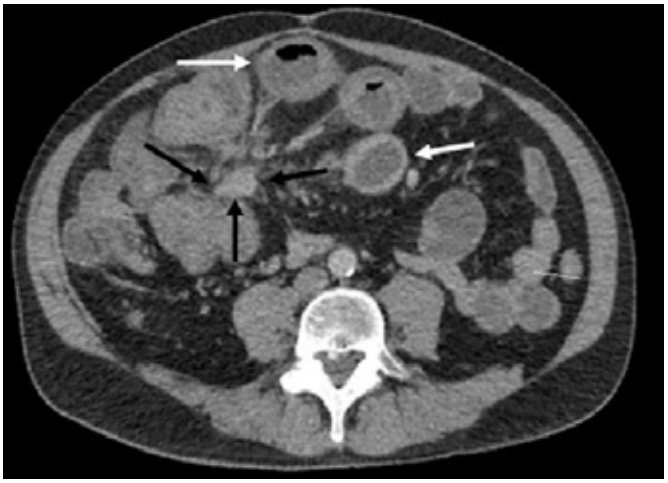

Figure 2: Computed tomography in the axial section detects an infiltrative formation in the root of the mesentery (black arrows), which determines a reduction in the amplitude of the small bowel loops and promotes upstream distension (white arrows).

This was followed by an enterectomy and right colectomy with anastomosis and the patient was discharged three days later. The anatomopathological study detected grade I neuroendocrine neoplasia and a bone scintigraphy was performed two months later, which was normal. The patient remains under outpatient follow-up.

DISCUSSION

Intussusception is classified according to its location, and may be enteric, ileocolic, ileocecal and colocolic, with the ileocecal region being the most common location. [4] Small bowel intussusceptions in adults are mostly self-limiting, without an underlying etiology. [5] The symptoms of intussusception in adults, unlike in children, are generally nonspecific and chronic, such as pain, nausea and vomiting. [6]

According to the systematic review by Hong et al., computed tomography and ultrasound are the most used diagnostic methods, with an accuracy of 77.8% and 49.2%, respectively.[6] It should be taken into account that ultrasound is dependent on the examiner's experience in diagnosing intussusception and the "target" image cannot be considered pathognomonic but is suggestive of the disease. [1] Computed tomography is the gold standard and reveals the location and cause of the intussusception (underlying pathology), in addition to the diagnosis itself. [1,7] The barium enema has an accuracy of 59.4% and colonoscopy of 52.6% (Table 1). [6]

Diagnostic Method	Accuracy
Computed tomography	77,8%
Ultrasonography	49,2%
Barium enema	59,4%
Colonoscopy	52,6%

Table 1: Diagnostic accuracy in intestinal intussession. [6]

Regarding the etiology of adult intussusception, the proportions of malignant tumor, benign tumor and idiopathic causes are 32.9%, 37.4% and 15.1%, respectively, according to the meta-analysis by Hong et al. [6]

In relation to enteric, ileocolic and local colonic diseases, they are 49.5%, 29.1% and 19.9%, respectively. When dividing the etiologies by location of malignant tumor into enteric, ileocolic and colonic types, they are 22.5%, 36.9% and 46.5%, respectively, and those of benign tumors are 39.4%, 34.4% and 36.8%, respectively 6 (Table 2).

Etiology	Enteric	Ileocolic	Colonic
Malignant tumor	22.5%	36.9%	46.5%
Benign tumor	3.94%	34.4%	36.8%

Table 2: Percentage of tumor etiologies causing intussusception according to their location. [6]

Metastatic carcinoma is the most common tumor cause in enteric manifestation (48.7%) followed by lymphoma (26.2%), gastrointestinal stromal tumor - GIST (21.3%) and primary adenocarcinoma (26.6%) according to the systematic review by Hong et al. [6] On the other hand, primary adenocarcinoma is the main cause of malignant tumor in the ileum (61.7%), followed by lymphoma (28.1%) and GIST (14.8%), and in the colon (78.8%). %) followed by lymphoma (28.1%) and GIST (14.8%) (Table 3). This systematic review also verified studies that reported ischemia in the intussuscepted bowel, with an intestinal ischemia rate of 15.0%.[6]

Etiology	Enteric	Ileocolic	Colonic
Metastatic carcinoma	48.7%	13.4%	14.4%
Lymphoma	26.2%	28.1%	16.8%
GIST	21.3%	14.8%	0.0%
Primary adenocarcinoma	16.6%	61.7%	78.8%

Table 3: Percentage of malignant tumors causing intussusception according to their location. [6]

Conservative treatment works in only 4.6% of intussusception cases. In surgical cases, its approach varies according to the patient's history, tumor location, intraoperative findings and surgeon preference. [6] However, there is still no consensus on reducing intussusception before resection if there is no ischemic change, or whether to resect the lesion without reduction due to concerns of potential seeding of malignant tumor cells during manipulation. [6] Surgery remains the most reliable intervention in case of consistent and persistent intussusception, as it offers the opportunity to definitively and radically eliminate the cause that caused the intussusception. [8]

Of the 464 patients operated on in the study by Hong et al., 92 had complications. [6] The rate of postoperative complications was 22.1%, with more than half of the complications reported being surgical site infections. Other reported complications were pulmonary atelectasis, pneumonia, pulmonary thromboembolism, deep vein thrombosis, wound dehiscence, gastrointestinal bleeding, acute tubular necrosis, and cardiac arrhythmia. Postoperative mortality is around 5.2% and the recurrence of intussusception in patients with a follow-up of more than one year is 6.5%. [6]

CONCLUSION

Although intussusception is not a routine diagnosis in adults, it is a condition that should be investigated in patients with significant abdominal distention. When characterized in this age group, the investigation of the causes of intussusception is necessary for the cure of the patient.

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REVIEW ARTICLE

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ULTRASOUND FINDINGS IN PATIENTS WITH PANCREATIC TRAUMA AND THEIR CORRELATION WITH COMPUTED TOMOGRAPHY

PRISCILA ABREU MARQUES DE OLIVEIRA, LEONARDO DE SOUZA PIBER

ABSTRACT

INTRODUCTION: Pancreatic trauma is a rare event that is characterized by being difficult to diagnose. This is due to its retroperitoneal and intimate location with several important structures, making its clinical picture extremely nonspecific, being associated with great morbidity and mortality. Considering this, diagnostic imaging aims to try to reduce late damage control and, therefore, improve the outcome of patients. Among the diagnostic methods, ultrasonography and computed tomography stand out.

OBJECTIVE: To study the ultrasound findings in the diagnosis of pancreatic trauma and their correlation with computed tomography.

METHODOLOGY: It is a narrative review with emphasis on the collection of images. The databases were MEDLINE via PubMed, LILACS and Scielo via VHL (Virtual Health Library). The health descriptors (MeSH terms) in English are "pancreatic trauma", "ultrasonography", "ultrasound", "computed tomography", "diagnostic imaging", in the following search strategy: (pancreatic trauma) AND (ultrasonography OR ultrasound OR computed tomography OR diagnostic imaging). Studies (clinical trials, pictorial essays, literature reviews, among others) that had images of diagnostic methods that were in accordance with the research objective and available online in full text, published in the last 20 years, in English, Spanish and Portuguese.

RESULTS AND DISCUSSION: In the diagnosis of pancreatic trauma, it is known that ultrasound, despite being the screening test in trauma patients, has little accuracy in detecting parenchymal injuries, depending on the location of the lesion. In addition, the use of contrast improves the accuracy for detecting parenchymal lesions, allowing the detection of changes in perfusion (anechoic or hypoechoic region), contrast extravasation, edema, irregularities in the pancreatic borders, visualization of peripancreatic fluids. Computed tomography is considered the gold standard for diagnosing pancreatic trauma. Lesions are usually seen as a heterogeneous region accompanied by a region of low attenuation, in addition to an area of hypoperfusion when using intravenous contrast.

CONCLUSION: Ultrasonography is accurate in diagnosing traumatic pancreas lesions; however, with nonspecific or subtle findings, many times. The use of contrast plays a very important role in the initial detection of pancreatic trauma, even in small lesions. Computed tomography stands out in this diagnosis, as it was possible to observe in all the cases presented.

KEYWORDS: PANCREATIC TRAUMA, COMPUTED TOMOGRAPHY, ULTRASOUND, DIAGNOSTIC IMAGING

INTRODUCTION

Trauma is the leading cause of death in people between 1 and 44 years old[1]. Currently, according to data collected by the 10th edition of Advanced Trauma Life Support (ATLS), it is responsible for the death of about 5.8 million individuals per year, of all ages and economic groups in the world, totaling 18% of deaths by diseases in world reference[1].

Major trauma, also known as multiple trauma or polytrauma, is defined as a potentially fatal injury to more than one region of the body[2]. In the United States, around 10% of all deaths from trauma are due to abdominal injuries[3]. In cases of this type, the initial and fundamental objective for a good evolution of the patient is a quick and accurate diagnosis of the respective injuries so that it is possible to manage the polytraumatized patient in an efficient way, avoiding unfavorable clinical evolution [2,4]. Pancreatic injuries account for 2% of all major trauma and 10% of abdominal trauma [5].

The pancreas is a long, "J-shaped" retroperitoneal organ, positioned transversely in the upper abdominal wall, at the level of the 1st and 2nd lumbar vertebrae. It is surrounded by several important structures: it is located posterior to the stomach, on the left from the spleen, to the right of the duodenum and anterior to the great vessels. Anatomically, it is divided into: head (divided into uncinate process and omental tubercle), neck, body and tail[6].

In adults, its retroperitoneal position relatively protects it from most blunt abdominal trauma, the main etiology of traumatic pancreatic injury being penetrating abdominal trauma (mainly from a firearm). In children and young adults, this is reversed, as they have much thinner protection

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by abdominal adipose tissue[7].

Concomitantly, lesions in retroperitoneal structures are usually difficult to diagnose, since physical and laboratory examinations often show unreal and non-specific results, with characteristic clinical manifestations not appearing, in most cases (such as peritonitis), delaying their discovery [1,8]. In addition, its close relationship with different structures increases the chance of simultaneous injuries, making the diagnosis even more complex and significantly increasing morbidity and mortality rates [4,6].

Given the nonspecific clinical picture in the vast majority of these cases, imaging tests play an essential role in the identification of organ injury, including the retroperitoneal ones [8]. The standard screening test for multiple trauma patients is the so-called Ultrasound (US) through the protocol FAST ("Focused Assessment with Sonography for Trauma")[2]. This exam allows a quick general analysis of the abdomen (especially intraperitoneal) detecting free fluid, which is an indirect sign of lesions in visceral structures[2]. Computed tomography is the gold standard imaging test for evaluating the abdominal cavity in general in hemodynamically stable patients, even being able to analyze the retroperitoneum. Pancreatic lesions are suspected when there is free fluid in the anterior region of the pararenal space[4].

OBJECTIVES

To study the ultrasound findings in the diagnosis of pancreatic trauma and their correlation with computed tomography.

METHODOLOGY

It is a narrative review with emphasis on the collection of images. The databases were MEDLINE via PubMed, LILACS and Scielo via VHL (Virtual Health Library). The health descriptors (MeSH terms) in English are "pancreatic trauma", "ultrasonography", "ultrasound", "computed tomography", "diagnostic imaging", in the following search strategy: (pancreatic trauma) AND (ultrasonography OR ultrasound OR computed tomography OR diagnostic imaging). Studies (clinical trials, pictorial essays, literature reviews, among others) that had images of diagnostic methods that were in accordance with the research objective and available online in full text, published in the last 20 years, in English, Spanish and Portuguese.

RESULTS AND DISCUSSION

Next, cases of pancreatic trauma evaluated by ultrasound and computed tomography will be presented, making it possible to relate the findings between the methods. It is not a comparison of accuracy, but a learning opportunity, necessary for good professional practice.

The images below are examinations of a 26-year-old male patient involved in a motorcycle-car collision. In image "a", the conventional ultrasound examination of the epigastric region does not show changes in the pancreatic head and body, shown by the arrows. In the computed tomography image ("b"), there is an area of edema in the pancreatic parenchyma, evidenced by the arrows, indicating a grade II2 pancreatic contusion – figure 1.

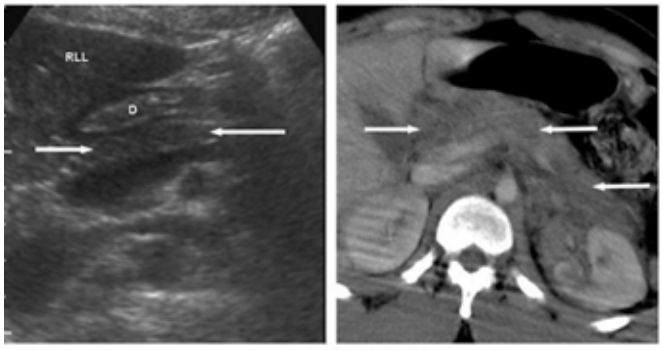

Figure 1 – Pancreatic trauma in adults. Image "a" is from an ultrasound, image "b" is from a computed tomography[2].

The images below are of a 38-year-old man who was involved in a serious traffic accident, being conventional ultrasound in "a", ultrasound with contrast in "b" and tomography with contrast in "c". Conventional ultrasound showed pancreatic edema and heterogeneous texture with ill-defined border and peripancreatic fluid collection, as shown by the arrow. On contrast-enhanced ultrasound, the lesion region appears as an anechoic and hypoechoic perfusion defect with an irregular border in the pancreatic neck, as shown by the arrow. The contrast-enhanced computed tomography image exposes the lesion site as a heterogeneous, low-attenuation region in the pancreatic neck, as shown by arrow[4] – figure 2.

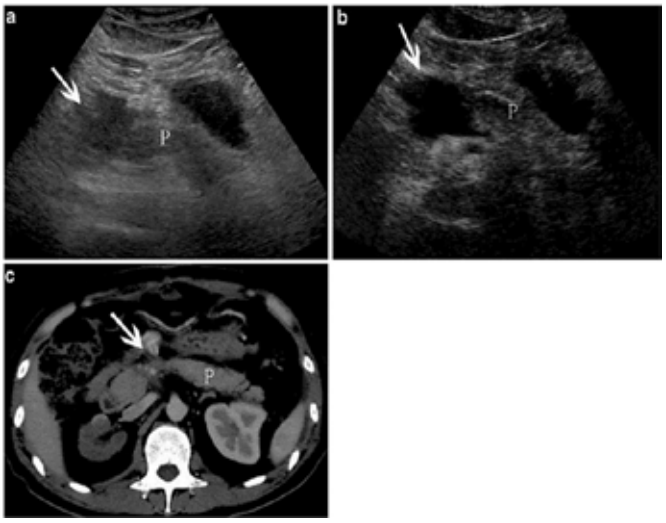

Figure 2 – Pancreatic trauma in adults. Images "a" and "b" are from ultrasound, image "c" is from the computed tomography [4].

A 47-year-old female patient who was involved in a serious crash accident. Figure 3 shows a pancreas without

changes in "a", with a homogeneous texture and without collection of peripancreatic fluid. Image "b", without alterations, shows a homogeneously perfused pancreas and regular borders. In contrast-enhanced computed tomography "c" image, the lesion site is seen as a region of low attenuation in the pancreatic tail, indicated by the arrow [4] – figure 3.

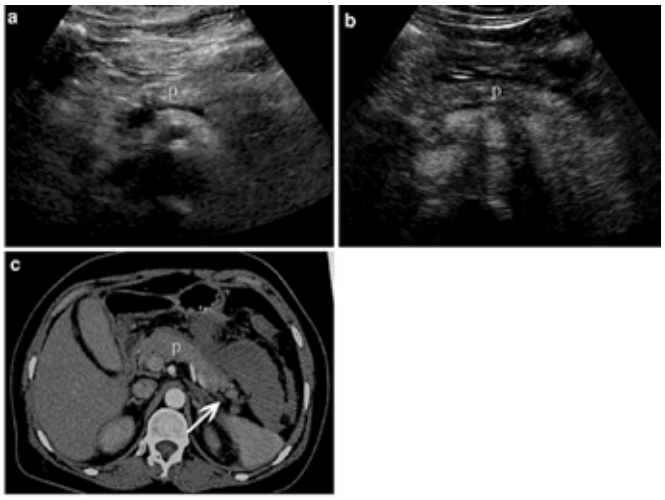

Figure 3 - Conventional ultrasound images ("a'), contrast ultrasound ("b") and contrast computed tomography ("c") [4].

In Figure 4, images of a 35-year-old woman who suffered a car collision, resulting in a fracture in the neck of the pancreas. Contrast-enhanced computed tomography images ("a" and "b") show an extensive liver laceration and a fracture in the neck of the pancreas, shown by the arrowhead in image "b". The conventional ultrasound image ("c") shows fluid separating the pancreatic fragments at the fracture site, evidenced by the arrowhead[9].

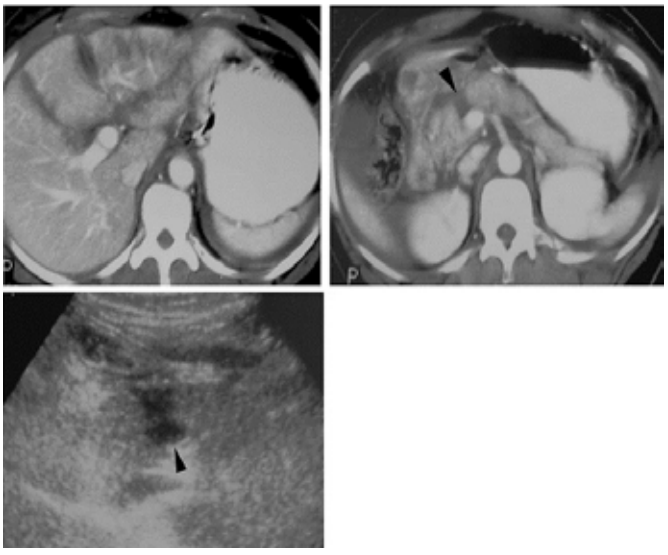

Figure 4 – Pancreatic trauma in adults. Images "a" and "b" are from contrast--enhanced computed tomography. Image "c" is from ultrasound [9].

Figure 5 shows images of a 22-year-old male patient who was involved in a collision accident. In "a", conventional ultrasound examination does not show any changes in the organ. A small area of hypoechoic perfusion with an undefined border in the pancreatic neck is indicated by the arrow in image "b". The body and tail of the pancreas show mild hypoechoic enhancement. In image "c", the contrast-enhanced CT scan shows the patient's lesion as a small region of low attenuation without a clear border, as shown by the arrow.

Conventional ultrasound performed on the 16th day of the accident shows an increase in the lesion of the pancreatic neck, the parenchyma remained thin and a peripancreatic fluid collection appeared (in "d"). The computed tomography image, performed 16 days after the trauma, showed the extension of the lesion in the pancreatic neck, as indicated by the arrow (in "e")[4].

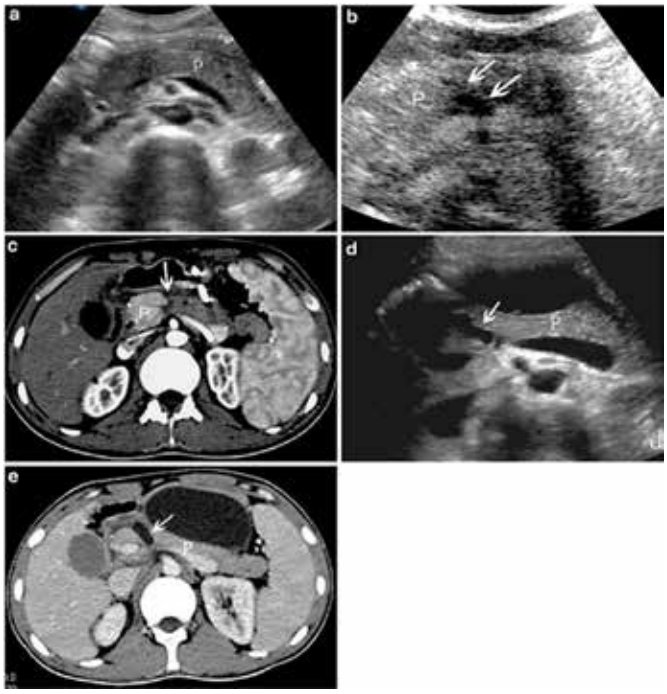

Figure 5 – Pancreatic trauma in adults. Images "a" and "d" are from ultrasound, "b" is from ultrasound with contrast, "c" and "e" are from computed tomography[4].

The images below (figure 6) show in "A" an axial section at the level of the celiac axis with visualization of the pancreas neck and the cranial portion of the tail and body, without visible changes. Image "B" is an ultrasound 6 hours after the trauma, with a small hypoechoic area detected on the ventral surface of the pancreatic neck. Image "C", shows 24 hours after the trauma, which evidenciates a hypoechoic area with a low-level, linear, low-density fracture in the region of the pancreatic neck in an oblique direction that approaches the splenic vessels. In image "D", a region of peripancreatic edema is detected, evidenced by the arrow. Computed tomography ("D" and "E"), performed after the third ultrasound, confirm the traumatic pancreatic transection (a clear low-density area at the level of the pancreatic neck) and the small liver lesion (arrow)[10].

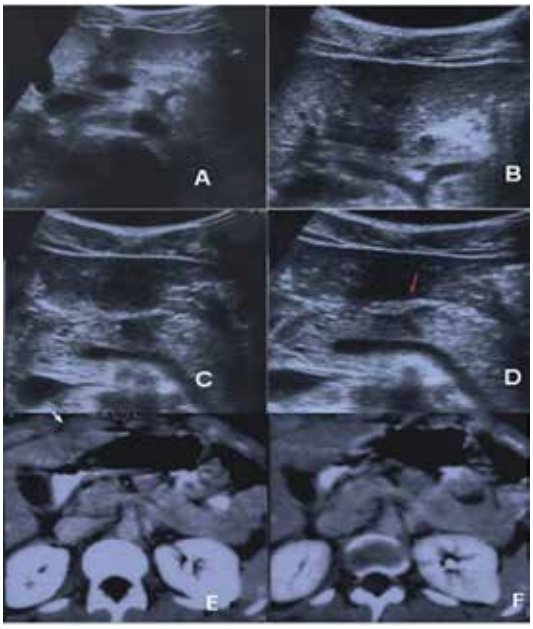

Figure 6 – Pancreatic trauma. Images "A", "B", "C", "D" are from ultrasound and "E" and "F" are from computed tomography with contrast[10].

Figure 7 shows images of a 51-year-old male patient who suffered a serious traffic accident. Conventional transverse ultrasound shows pancreatic edema and a heterogeneous texture with unclear edges (image "a"). Image "b" shows a contrast ultrasound, which presents the lesion site as a hypoechoic and anechoic area, indicating areas with hypoperfusion, in addition to showing an irregularity at the edge of the pancreatic body (indicated by the short arrows). Long arrows show edema of the pancreatic body. Image "c" shows contrast-enhanced computed tomography that reveals the lesion site as a heterogeneous, low-attenuation region in the pancreatic body (indicated by arrows)[4].

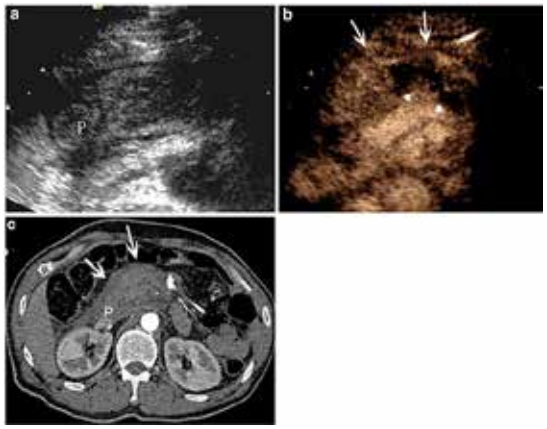

Figure 7 – Pancreatic trauma in adults. Images "a" and "b" are from ultrasound, image "c" is from computed tomography[4].

Figure 8 shows images of a child who suffered pancreatic injury. Image "a" shows a non-contrast ultrasound and "b" is a color Doppler ultrasound, both showing no changes. Then, image "c" is presented, an ultrasound with contrast. In it, edema in the pancreatic body, subtle lesions in the body and tail (shown by white arrows), associated with the existence of a peripancreatic fluid collection (indicated at the arrowhead) are noted. Images "d" and "e" are computed tomography images in the axial section. They confirm the lesion of the pancreatic tail, with the presence of fluid around the organ[11].

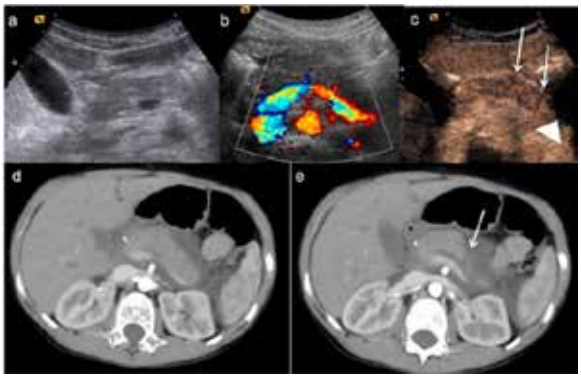

Figure 8 – Pancreatic trauma in a child. Images "a", "b" and "c" are from ultrasound, images "d" and "e" are from computed tomography[11].

CONCLUSION

Ultrasonography is accurate in diagnosing traumatic pancreas lesions, though frequently with nonspecific or subtle findings. The use of contrast plays a very important role in the initial detection of pancreatic trauma, even in small lesions. Computed tomography also stands out in this diagnosis, as it was possible to observe in all the cases presented.

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REVIEW ARTICLE

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FOCUSED ASSESSMENT WITH SONOGRAPHY FOR TRAUMA (FAST) IN CHILDREN: NARRATIVE REVIEW

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ABSTRACT

INTRODUCTION: Focused Assessment with Sonography in Trauma (FAST) is a protocol used for rapid assessment and triage of trauma patients, with objective to evaluate the pericardium in search of hemopericardium and tamponade, in addition to the presence of free peritoneal fluid (LLP). To carry out the protocol, four windows must be analyzed: pericardial, hepatorenal, splenorenal, and suprapubic. In the pediatric context, FAST is a tool that allows to extend the physical examination findings in the pediatric emergency, evidence also points out that the method is capable of identifying even small amounts of blood in the abdominal cavity of children who have suffered trauma, allowing a better understanding of the severity of the lesion in these patients.

OBJECTIVE: To review, identify and describe ultrasound findings in pediatric patients during the FAST protocol.

MATERIAL AND METHODS: This is a narrative review with an emphasis on the collection of images in articles published in the last 10 years. The databases were MEDLINE via PubMed, LILACS via BIREME, Scielo and Google Scholar.

RESULTS AND DISCUSSION: Once the correct execution and consideration of age-related anatomical characteristics are considered, the FAST Protocol presents itself as a beneficial diagnostic method in the pediatric setting. The diagnosis of free fluid is identified by the perception of an anechoic image in the peritoneal and pericardial cavity on examination.

CONCLUSION: FAST is a valuable screening tool in the context of trauma, allowing the rapid identification of findings such as hemopericardium, tamponade and free peritoneal fluid arising from a wide range of mechanisms involved in trauma.

KEYWORDS: FAST, PEDIATRIC TRAUMA, ULTRASOUND, DIAGNOSIS BY IMAGE

INTRODUCTION

FAST (Focused Assessment with Sonography in Trauma) is a protocol used for rapid assessment and triage of trauma patients. The use of bedside ultrasound was approved and included in the initial assessment of trauma patients through the Advanced Trauma Life Support (ATLS) program.[1]

The FAST protocol is an ultrasound examination, performed in sequence, whose objective is to evaluate the pericardium in search of hemopericardium and tamponade, in addition to the presence of peritoneal free fluid (PFF) in trauma patients.[1,2] Also, blunt and penetrating chest trauma, blunt abdominal with undefined cause hypotension, penetrating abdominal and in pregnant women; are some of its main indications in emergency practice.[3,4]

In the pediatric context, FAST is a tool that allows to extend the physical examination findings in the pediatric emergency, in addition to presenting the absence of the use of ionizing radiation as one of its advantages. Evidence also indicates that the method is capable of identifying even small amounts of blood in the abdominal cavity of children who have suffered trauma, allowing a better understanding of the severity of the injury in these patients. With some limitations, the FAST protocol is one of the main diagnostic methods used in the care of multiple trauma patients.

As disadvantages, there is the fact that the protocol is operator dependent. Furthermore, it is not very sensitive in the diagnosis of hollow visceral lesions and has limitations for imaging when there is air in the small and large intestines and in the subcutaneous tissue, superimposed on the area of clinical interest. Thus, not infrequently, it may not allow the identification of intestinal, pancreatic, diaphragmatic and retroperitoneal structures lesions.

The equipment needed to perform the procedure is a water-based gel and an ultrasound device, the main transducer of choice being the low-frequency convex or, alternatively, a low-frequency sectoral transducer, also useful in viewing the upper quadrant windows (hepatorenal and splenorenal) through the intercostal spaces.[5] However, there is the possibility of performing the exam with a low- and high-frequency linear transducer, depending on the patient's age range and the depth of potential ultrasound findings (figure 1).

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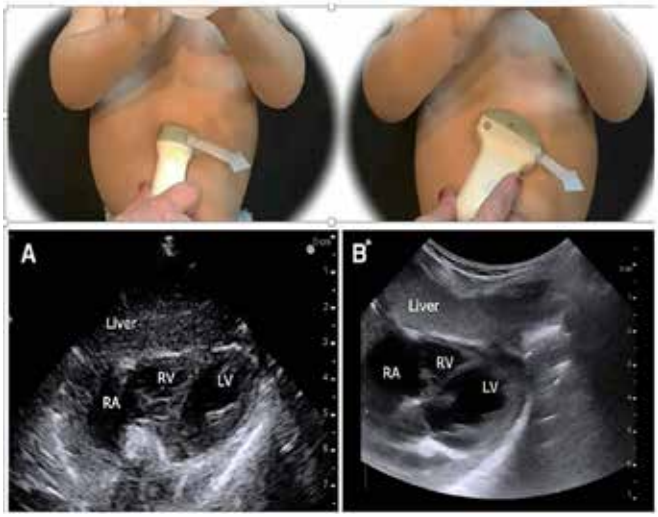

Figure 1 – Pericardial window. Comparison of sectoral (image A) and convex (image B) transducers in a 6kg child. The arrow indicates the direction of the transducer index. RA = right atrium; RV = right ventricle; S4CH = subcostal view of the 4 heart chambers.[8]

To perform the protocol, four windows must be analyzed, namely: the pericardial window, the right upper quadrant window (hepatorrenal), the left upper quadrant window (splenorenal), and the suprapubic window (figure 2). It is important to note that there is no specific order for viewing each window, which is defined by the operator at the time of the examination.[4,5]

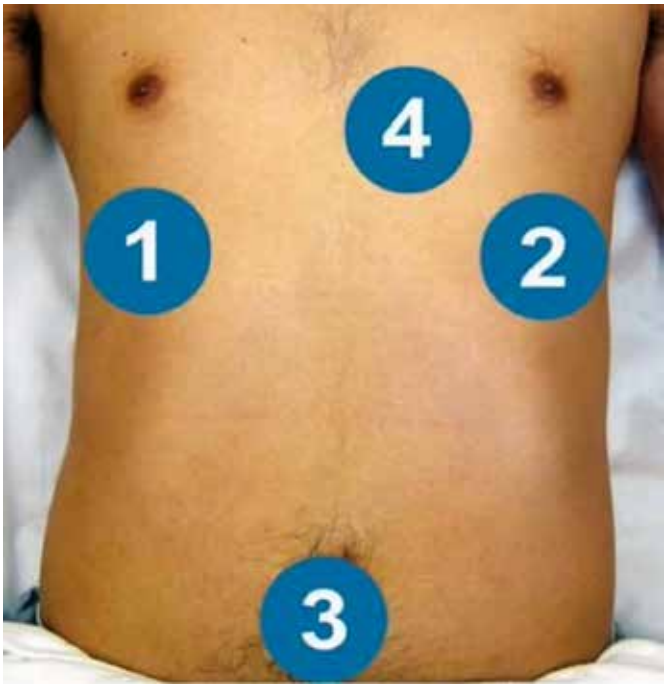

Figure 2 – Image representing the four FAST windows. 1: hepatorenal; 2: splenorenal; 3: suprapubic; 4: pericardial.[7]

Considering the importance of imaging studies in the consolidation of the method and also the need for professional training for the use of FAST in pediatric patients, this article aims to study the particularities and expected findings in the FAST protocol found in these patients, guiding more accurate diagnoses.

OBJECTIVE

Review, identify, and describe sonographic findings in pediatric patients during the FAST protocol.

MATERIAL AND METHODS

It is a narrative review with emphasis on the collection of images. The databases were MEDLINE via PubMed, LILACS via BIREME, Scielo and Google Scholar. The health descriptors (MeSH terms) in English used were "focused assessment with sonography for trauma" and "child", in the following search strategy (focused assessment with sonography for trauma) AND (child).

Foram incluídos estudos (ensaios clínicos, ensaios pictóricos, revisões de literatura, relatos de casos, entre outros), que abordem o tema, que tivessem imagens ecográficas e presença de achado confirmado o teste positivo, que estavam de acordo com o objetivo da pesquisa, publicados nos últimos 10 anos e disponíveis online em texto completo, nos idiomas inglês, espanhol e português.

RESULTS AND DISCUSSION

The FAST protocol presents itself as a beneficial diagnostic method in the pediatric setting, despite having particularities of execution and diagnosis in these patients. In children, FAST is able to identify even smaller amounts of free fluid in the cavity, even though, in this age group, the method has lower sensitivity rates when compared to use in adult patients, since approximately 30% of lesions intra-abdominal lesions observed on computed tomography did not have associated free fluid. The sensitivity of the FAST protocol in pediatric patients varies between 30-90%.[6]

The diagnosis of free fluid in the peritoneal cavity is identified as an anechoic image on ultrasound, and can also be seen as an isolated and non-pathological finding, and therefore, the responsible professional must analyze the image obtained and correlate it with other clinical findings of the patient.

Figures 3 to 16 represent images obtained through the FAST Protocol in children, evidencing the particularities of the exam and the findings found.

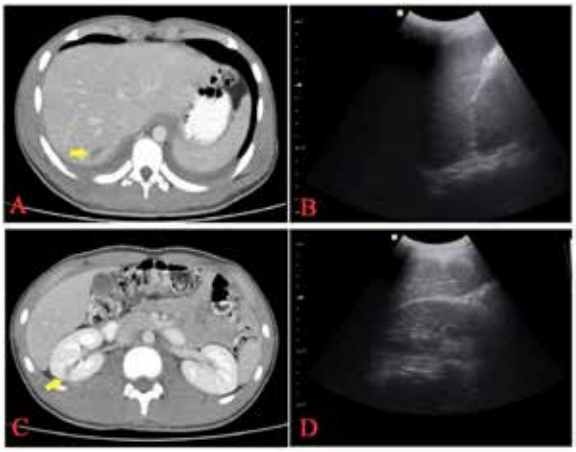

Figure 3 - Ultrasound and tomography images of two patients with intra--abdominal lesions not detected by the FAST exam. A and B show images of a patient with liver damage. There is a small tear in segment VII of the liver (arrow). C and D depict another patient with a grade 2 renal laceration in the middle pole of the right kidney (arrow). [9]

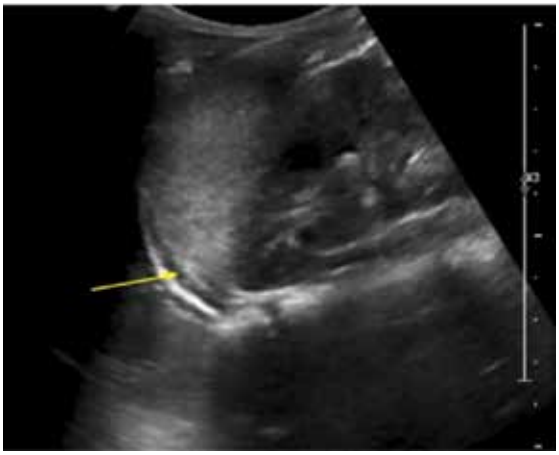

Figure 4 - Subphrenic fluid in the upper left quadrant. The image was obtained while the patient was in the supine position with a convex transducer. [10]

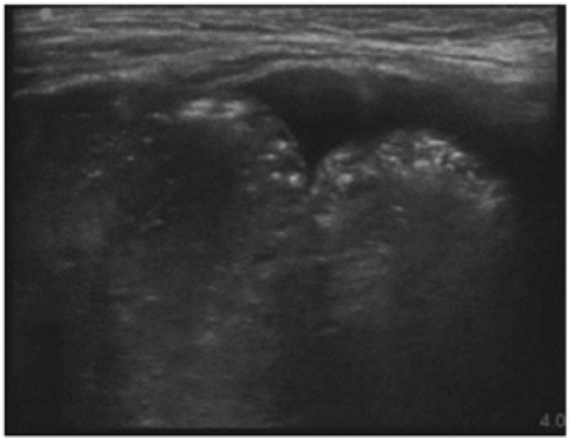

Figure 5 - Geometric collection of free abdominal fluid greater than 2 cm between the intestinal loops of an 11-year-old boy injured by a grenade explosion in a conflict zone in northern Iraq. [11]

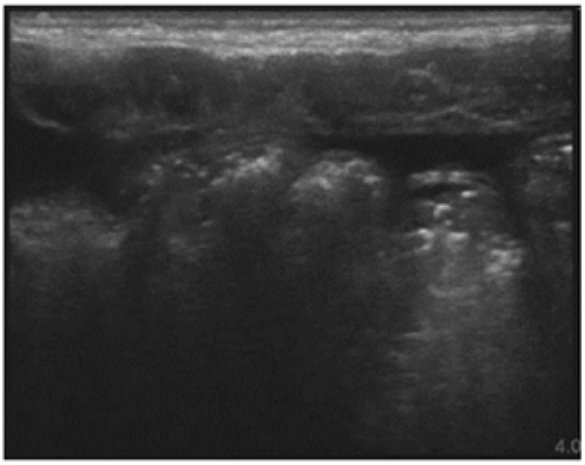

Figure 6 - Two small collections of free fluid in geometric shapes also found after positive FAST, in a systematic ultrasound analysis in search of occult lesions in a 7-year-old boy with lesions similar to the previous one, caused by shrapnel from the explosion of a grenade. [11]

Figure 7 - Liver injury evidenced with a high-frequency linear transducer, associated with perihepatic free fluid.[11]

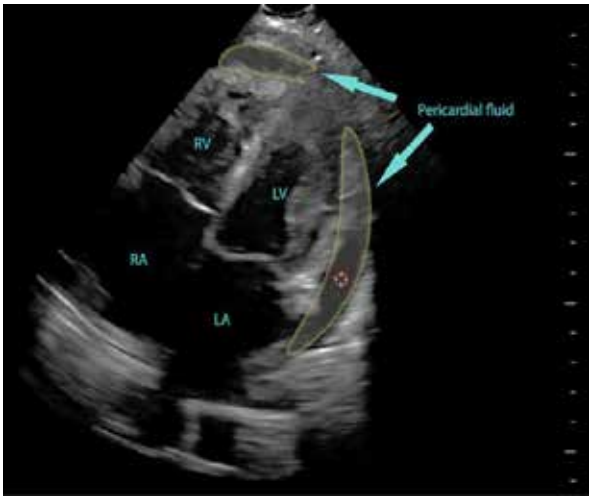

Figure 8 – Evidence of the use of artificial intelligence in a platform created for the training of pediatric surgeons in bedside ultrasound, using the FAST protocol, among other methods. On imaging, pericardial fluid evidenced in a 10-year-old boy complaining of dyspnea. [12]

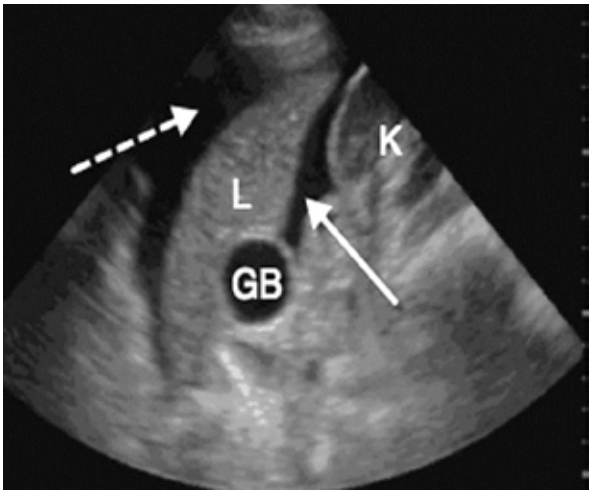

Figure 9- Upper right quadrant ultrasound image. Free fluid (arrows) is present in the hepatorenal recess (solid white arrow) between the liver (L) and the right kidney (K), as well as in the subphrenic space (dashed arrow) above the liver.1[3]

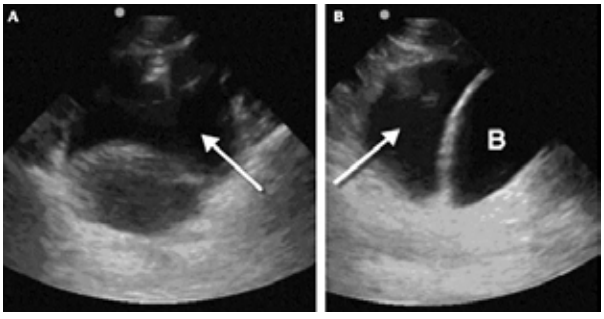

Figure 10 - Ultrasound image in the suprapubic region. A: Transverse acquisition showing free fluid (arrow) filling the pelvis. B: Sagittal acquisition showing free fluid (arrow) superior to the bladder (B).[13]

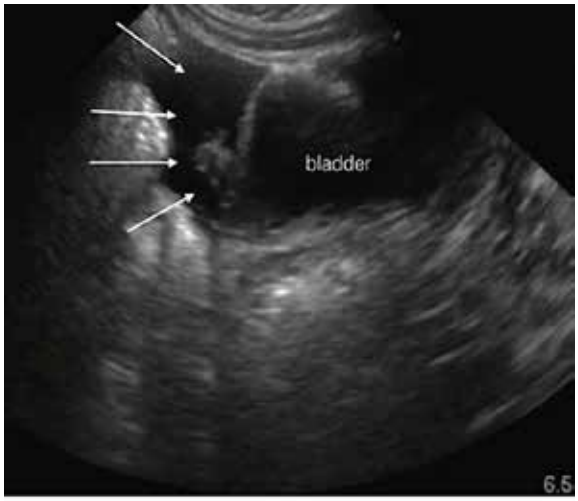

Figure 11 - White arrows indicate free pelvic fluid in sagittal acquisition at the level of the bladder in a 5-year-old child after being hit by a car.[6]

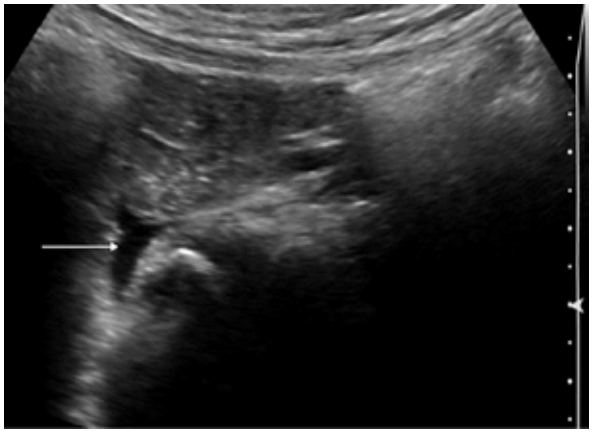

Figure 12- Ultrasound reveals free pelvic fluid in a 5-year-old child after being hit by a car (white arrows).[6]

Figure 13 - Transverse ultrasound reveals free pelvic fluid in a 4-year--old child after being hit by a car (white arrows).[6]

CONCLUSION

FAST is a screening tool of great value in the context of trauma, allowing the rapid identification of findings such as free peritoneal fluid, hemopericardium with or without cardiac tamponade, arising from a wide range of mechanisms involved in trauma. Given its widely validated use in adults and the fact that, in children, it is capable of detecting even smaller amounts of free peritoneal fluid, the importance of expanding imaging studies and future projects to train professionals in the use of FAST within the pediatric context must be highlighted.

Taking into account the operator-dependent nature of the protocol and the lower sensitivity to findings when compared to the adult population, the person responsible for carrying it out must be able to identify trauma-related changes despite the anatomical peculiarities of the pediatric age group, as well as as its correct differentiation from non-pathological findings, aiming at the best possible management of the child victim of multiple trauma.

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REVIEW ARTICLE

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HYSTEROSALPINGOGRAPHY IN INFERTILITY: A USEFUL OR OBSOLETE DIAGNOSTIC TOOL?

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ABSTRACT

INTRODUCTION: In the evaluation of infertile women, one of the first steps is the evaluation of tubal patency.
OBJECTIVES: to assess whether hysterosalpingography remains a useful diagnostic tool in the evaluation of tubal obstruction.
METHODS: literature review at PUBMED, in addition to the articles retrieved through a search in databases, textbooks and reference articles of the reviewed articles.
RESULTS: The performance of hysterosalpingography is affected by factors such as the underlying pathology and the training and experience of the practitioner performing and interpreting the images. Hysterosalpingography is most useful for predicting tubal occlusion.
CONCLUSION: despite the imminence of other methods for the evaluation of tubal patency in infertile patients, hysterosalpingography remains a useful diagnostic tool with excellent accuracy for the diagnosis of tubal obstruction.

KEYWORDS: HYSTEROSALPINGOGRAPHY, INFERTILITY, TUBAL OBSTRUCTION, ULTRASONOGRAPHY, MAGNETIC RESONANCE IMAGING, HYSTEROSALPINGOGRAPHY

INTRODUCTION

It is estimated that between 40 and 80 million couples suffer from infertility in the world, and the prevalence may vary depending on the definition used and the location evaluated, ranging from 0.6 to 32.6% of the population[1,2], as shown in figure 1.

The World Health Organization (WHO) estimates that 10 to 15% of the population is diagnosed with infertility.

Figure 1. Prevalence of primary infertility in 2010 among women aged 20 to 44 years[2].

With the insertion of women in the labor market and the search of couples for financial stability, it is known that the beginning of the constitution of offspring is postponed. Thus, with the advancement of technology in assisted reproduction, the demand for specialized services and treatments increases.

Women's fertility declines gradually with age, but significantly after age 37. Given declining fertility and increased risk of pregnancy loss, women over age 35 should receive an evaluation after six months of unsuccessful attempts to conceive or sooner if clinically indicated.[3]

The causes of infertility can be divided into three groups: female anatomical factors, female hormonal factors and male factors (figure 2)[4].

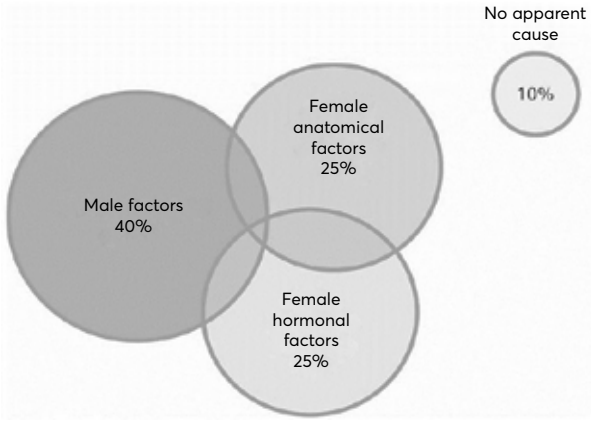

Figura 2: causas de infertilidade e sua distribuição

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In the investigation of the infertile couple after a complete clinical history, ruling out male factors and anovulatory factors, one of the next steps is the assessment of tubal patency.

Tubal alterations can be identified in 20 to 36% of women investigated for infertility, which has implications for clinical management and, therefore, the evaluation of the fallopian tubes is indispensable.[3]

The gold standard for this evaluation remains laparoscopy with chromotubation and direct visualization. However, it requires general anesthesia, is a more invasive procedure and has a greater potential for complications.

Hysterosalpingography (HSG) is widely used in the study of human infertility, where it represents 85% of its indications. It is also indicated in the diagnosis and treatment control of many other gynecological conditions, such as: fibroids, with HSG performance before and after myomectomies; intrauterine synechiae, to control results; reparative surgeries on the tubes, among others. However, it is a painful procedure, exposes the patient to ionizing radiation and has the potential to cause allergic reactions.

With the advent of other post-ultrasonography (US) diagnostic methods, three-dimensional US, computed tomography, and also magnetic resonance imaging, it has become extremely important to critically analyze the role of HSG today, confronting it and situating it in relation to the above methods.

Can HSG, therefore, still be considered the best method for visualizing and evaluating the fallopian tubes?

METHODS

A literature review was carried out at PUBMED, in addition to the articles retrieved through a search in databases, textbooks and reference articles of the reviewed articles shown in table 1.

Year	Author	Study	Patients	Results	Conclusions
2021	Mattos LA[5]	meta-analysis of seven articles and report of 10 cases comparing HSG MRI with HSG	247 patients + 10 patients	73 to 100% similarity between studies	HSG MRI seems promising, with results similar to HSG (73 to 100% similarity between studies), and the possibility of analyzing pelvic anatomy
2021	Melcer Y [6]	Systematic review and meta-analysis evaluating the accuracy of HyCoSy comparing four studies with HSG and two studies with chromotubation.	622 fallopian tubes	Sensitivity 99% and specificity 91% (95%CI)	HyCoSy high accuracy rate similar to standard tests
2021	Li YZ [7]	Meta-analysis of the evaluation of the diagnostic performance of HSG MRI compared with HSG for evaluation of tubal occlusion	101 patients 198 fallopian tubes	91% sensitivity (95% CI), 100% specificity (95% CI)	HSG MRI for serving to assess tubal occlusion
2022	Alcazar JL[4]	Meta-analysis diagnostic accuracy 2D and 3D HyCoSy US with laparoscopy with chromotubation infertility tubal evaluation	2081 women 4031 fallopian tubes	2D HyCoSy S 86% and E 94% 3D HyCoSy S 95% and E 89%	non-significant difference concludes 2D has similar diagnostic performance to 3D
2017	Armstrong SC[8]	Review to seek basis for diagnosis and prognosis in investigation for infertility.			TVUS should be offered to all women with symptoms / Hysteroscopy should be suggested when intrauterine pathology is suspected.
2016	Wang Y [9]	Systematic review and 3D or 4D HyCoSy meta-analysis	1153 women 2259 fallopian tubes	92% sensitivity 91% specificity	3D/4D HyCoSy is an accurate test to diagnose tubal patency in infertile women
2016	Alcazar JL [4]	meta-analysis to assess diagnostic accuracy of 3dHyCoSy when compared with laparoscopy and HSG	489 women 970 fallopian tubes	98% sensitivity 90% specificity	3D HyCoSy is an accurate test to diagnose tubal patency in infertile women
2015	Yu J [10]	meta-analysis to assess 3D HyCoSy diagnostic efficacy	1037 fallopian tubes	92% sensitivity 95% specificity	3-D HyCoSy had good diagnostic performance in detecting tubal occlusion.

2015	Briceag I [11]	literature review 67 articles on the management of tubal infertility. four using medical history data, 21 HSG diagnosis, 14 different US articles, eight exploratory laparoscopies and 20 different treatment modalities articles.			Implementing tubal surgery prior to any IVF cycle will reduce the costs associated with achieving a viable pregnancy in cases of tubal factor sterility by up to 30%
2012	Broeze KA[12]	meta-analysis to compare tubal patency assessment methods: anti-chlamydia antibodies, HSG and laparoscopy.	4883 women	area under the ROC curve 0.63 for CAT with addition of HSG 0.74	Combining patient characteristics with CAT and HSG results provides the best diagnostic performance for bilateral tubal pathology.
2011	Broeze KA [13]	meta-analysis to assess the impact of individual characteristics of the infertile patient on the diagnostic	seven studies with 4521 women	In women without risk factors, S38% compared with S61% in women with risk factors (P = 0.005). For	sensitivity was lower in patients without risk factors / sensitivity of HSG decreases with age
		performance of HSG. Using laparoscopy as a reference.		bilateral tubal pathology, these rates were 13% versus 47% (P = 0.01). For bilateral tubal pathology, HSG sensitivity decreased with age [factor 0.93 per year (P = 0.05)].	
1997	Mol BW [1]	meta-analysis evaluating the diagnostic ability of CAT to predict tubal pathology	2729 patients	area below the CAT ROC (elisa or immunofluorescence) similar to HSG	diagnostic efficacy of HSG-like CAT
1997	Maas JW [14]	meta-analysis probability of pregnancy after normal versus abnormal HSG findings	3277 patients	15% of women with abnormal HSG and 32% of women with normal HSG became pregnant	HSG has a low prognostic value, the outcome of HSG does little to predict the occurrence of pregnancy. However, when HSG shows bilateral obstruction, the chance of becoming pregnant is minimal.
1995	Swart. P [15]	meta-analysis of HSG in the diagnosis of tubal patency and peritubal adhesions using laparoscopy with chromotubation as the gold standard	20 studies with 4179 patients	Sensitivity 65% Specificity 83% (with great heterogeneity between studies) for tubal obstruction	useful for tubal obstruction / unreliable for peritubal adhesions
2014	Maheux-Lacroix [16]	systematic review and meta-analysis	1551 women 2740 fallopian tubes	sono-HSG with doppler S95% Sensitivity 93% HSG S94% Specificity 92% Doppler use increases S and E. They found no benefit of contrast medium over saline with respect to the diagnostic accuracy of sono-HSG.	sono-HSG should replace HSG in the initial evaluation of subfertile couples.

HSG MRI – magnetic resonance hysterosalpingography, HSG- hysterosalpingography, Sono-HSG- HyCoSy – Hysterosonosalpingography with contrast, CAT – anti-chlamydia antibody, S- sensitivity, E - specificity

There is a great heterogeneity of studies and samples of meta-analyses.

DISCUSSION

HYSTEROSALPINGOGRAPHY

The HSG is a diagnostic radiographic tool used to assess the endocervical canal, the endometrial cavity, luminal involvement, and the patency of the fallopian tubes by injecting radiopaque contrast through the cervical canal. HSG is mainly used in the evaluation of female infertility[17].

HSG can diagnose, with some accuracy, proximal or distal obstruction, salpingitis isthmica nodosa; and may suggest the presence of fimbrial phimosis or peritubal adhesions. Findings that suggest proximal obstruction deserve a second evaluation to rule out the possibility of artifacts resulting from myometrial/tubal contraction or catheter malposition.

However, this method has some disadvantages, such as radiation exposure, use of iodinated contrast, low contrast resolution and limited evaluation of other pelvic structures, in addition to localized changes beyond the tubal and uterine lumen that may be associated with infertility.

The first description of HSG was started by Rubin in 1919,

with intracervical oxygen insufflation and x-ray to evaluate the presence of pneumoperitoneum [4]. In patients with patent fallopian tubes, the gas would establish a pneumoperitoneum identical to that produced when injected by puncture. direct abdominal. In patients with tubal obstruction it was not possible to obtain such a result.

With the advent of iodinated contrasts the technique was improved.

Hysterosalpingography technique

The HSG consists of the injection of an opaque contrast to the X-rays, through a special cannula placed in the uterine cervix. The injection will outline the cervical-body cavities, the tubal cavities until the diffusion of contrast in the pelvic cavity, when the tubes are permeable [17] (figure 3). The progression of the contrast must be monitored by the fluoroscope and the images are gradually selected on the serigraph.

A hysterosalpingogram is said to be normal when the cervico-body cavities regularly fill with contrast, exhibiting normal anatomical patterns, followed by filling of the fallopian tubes and diffusion of the contrast into the peritoneal cavity.

Figure 3: HSG with normal uterine morphology.

To perform it, you need: a good X-ray machine with a serigraph, cervical cannulas and contrast. HSG requires the presence of a radiologist familiar with this type of exam or a specialized technician duly trained for it, while the manipulation of instruments, such as placement of the cannula and progressive injection of contrast, should preferably be performed by a gynecologist who would order the exact moment of capturing the images.

Currently, water-soluble contrast agents are used, which are reabsorbed and eliminated by the kidneys in a short time.

It takes an average of 10 minutes, involves approximately 90 seconds of fluoroscopic time and has an average radiation exposure to the ovaries of 1-2rads.

It is performed between day 5 and 10 of the menstrual cycle, after menstrual flow has ceased to reduce infection and the risk of removing an egg from the fallopian tubes. The iodinated contrast medium is instilled through a catheter (figure 4-7) placed in the uterus, 10 to 30 ml is the usual dose.

figure 4-7: Different types of cannulas used to perform HSG

Pain represents the most frequent complaint of patients. Usually, anti-inflammatory medication is administered one hour before the procedure, with good tolerability.

Contraindications for performing the procedure include suspected pregnancy, presence of active pelvic inflammatory disease and history of allergy to iodinated contrast.[17]

HSG has been referred to by some gynecologists as a therapeutic process, since there are cases of pregnancies that follow this examination[11]. HSG in infertile women does not improve clinical pregnancy rates when compared to expectant management in heterosexual couples and should not be offered as a therapeutic procedure [4].

Oil-soluble contrast media have a therapeutic effect compared to water-soluble media and this effect is greater for patients who have been diagnosed with unexplained infertility. New techniques for assessing tubal permeability support the hypothesis that tubal "plugs" may be involved in proximal tubal blockage.[18] However, fat-soluble contrasts have been largely replaced by water-soluble ones, as they cause less pain and less possibility of allergic reactions.

HSG and Laparoscopy

Direct visualization by laparoscopy, with a chromotubation test, remains the gold standard in the diagnosis of tubal factor infertility[2]. It requires general anesthesia for its performance and, as it is an invasive test, it has the potential for complications. It allows confirmation of tube patency, visualization and diagnosis of tubal abnormalities [16] (figure 8). This exam allows, during the same surgical time, the correction of some abnormalities, release of adhesions, correction of fimbrial phimosis and the treatment of foci of endometriosis.

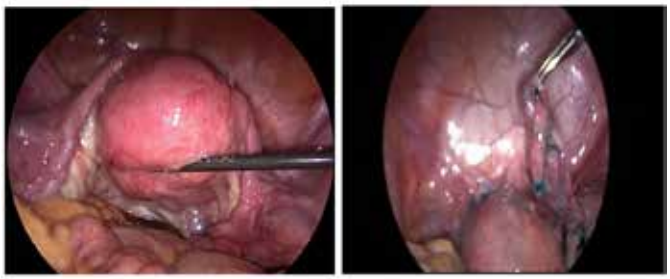

Figure 8: Tubes of usual appearance visualized by laparoscopy with chromotubation.

Data suggest that active implementation of tubal surgery prior to any IVF cycle will reduce the costs associated with achieving a viable pregnancy in cases of tubal factor sterility by up to 30% [11].

HSG and Anti-Chlamydia antibodies

The detection of anti-chlamydia antibodies (CAT) is associated with the presence of tubal pathology. Moore et al19 in 1982 compared HSG, ACC and laparoscopy findings of 182 patients, showing that the presence of CAT correctly classified 72% of infertile patients, HSG 76% and a combination of both 85%. No patient with normal tubes was positive for chlamydia antibodies. The use of anti-chlamydia antibodies is as accurate as HSG for predicting tubal pathology.

Another meta-analysis showed that the addition of CAT to HSG increases the predictive performance of 74% for any tubal pathology and 76% for unilateral pathology. The combination of individual patient factors, with the use of CAT and HSG results in a better diagnostic performance[12].

HSG and MRI

MRI allows excellent characterization of a wide variety of pelvic diseases, including those related to infertility, such as Mullerian anomalies, adenomyosis, leiomyomas, pelvic inflammatory disease, and endometriosis. However, MRI is not able to assess whether the fallopian tubes are obstructed or not, nor to detail their appearance. It can only determine if there is tubal dilatation.

HSG by MRI was suggested for visualization of the fallopian tubes, with the advantage of visualizing the pelvic anatomy and not using ionizing radiation (figure 9).

HSG by MRI seems to be promising, with similar results to HSG (73 to 100% similarity between studies) in a meta-analysis with 257 patients, with a similar test time and good tolerability.[5]

Another meta-analysis showed a sensitivity of 91% (95% CI) and specificity of 100% (95% CI), when evaluating 198 uterine tubes, also proving to be a useful test for evaluating tubal obstruction.

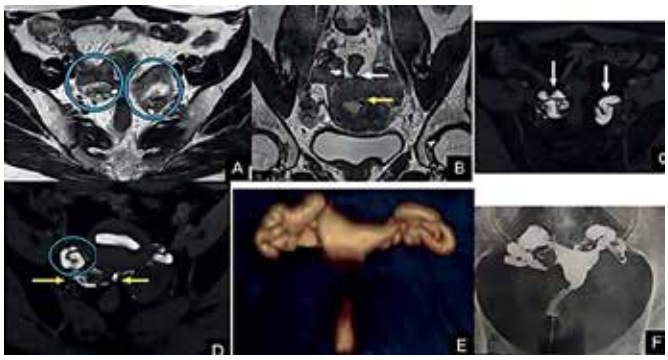

Figure 9: MRI reconstruction of HSG (1) and HSG (2) showing bilateral hydrosalpinx [5]

Ultrasound

Transvaginal US should be the initial investigation for uterine abnormalities. In addition to easy access, it can identify fibroids, suggest malformations, ovarian and endometrial pathologies.

Transvaginal US should be offered to all infertile women with symptoms or signs of anatomic pelvic pathology. It should not be routinely suggested for patients without symptoms of pelvic pathology.[4]

Hysterosonosalpingography

Hysterosonosalpingography (Sono-HSG) and more recently Sono-HSG with contrast (HyCoSy) in terms of accuracy and effectiveness have had promising results (figure 10). By not using iodinated contrast, it has the benefit of not being exposed to radiation and less chance of allergic reaction.

Melcer et al [6] in a 2021 meta-analysis involving 622 fallopian tubes, estimated a sensitivity of 99% and specificity of 91%, with an extremely low negative predictive value (0.6%), demonstrating a high accuracy of the method, similar to the methods (HSG and laparoscopy with chromotubation). Sonohysterography contrast media are not yet widely available and used.

Figure 10: representation of contrast injection in Sono-HSG

Alcázar [4] compared Sono-HSG with contrast (HyCoSy) 2D or with 3D/4D and, despite the heterogeneity of studies and samples, demonstrated that both have similar diagnostic performance. Figure 11 represents a 3D Sono-HSG using contrast. No benefit of saline contrast medium in relation to the diagnostic accuracy of Sono-HSG has yet been found.

Among the benefits of Sono-HSG, the fact that it is not exposed to radiation, anesthesia, does not involve the use of iodinated contrast media, in addition to the possibility of evaluating the pelvic anatomy (ovaries and uterus), Sono-HSG has been suggested as a test. fundamental to female infertility.[4]

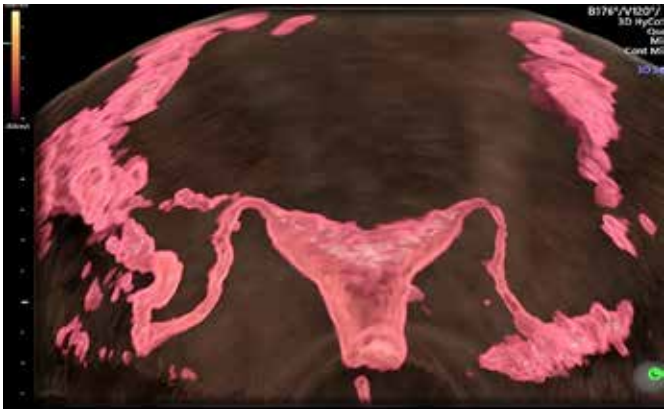

Figure 11: HyCoSy 3D using contrast (Courtesy of Dr Felipe Bassols)

Hysteroscopy

HSG is still a useful screening test for evaluating the uterine cavity. If an HSG demonstrates intrauterine abnormalities, hysteroscopy should be considered to establish a definitive diagnosis and treatment. Both procedures must be complementary to each other. Hysteroscopy is the gold standard for intrauterine pathology [4].

In a prospective study of 336 women undergoing HSG and diagnostic hysteroscopy, the ability of HSG to detect intrauterine pathology reports a low specificity (35%) despite good sensitivity (98%). [4]

Common misdiagnoses of HSG were identifying cervical stenosis as severe intrauterine adhesions, endometrial polyps as submucosal fibroids, and submucosal fibroids as endometrial polyps.

Because it has a negative predictive value of 92%, HSG is a useful screening test for evaluating the uterine cavity. If an HSG demonstrates intrauterine abnormalities, hysteroscopy should be considered to establish a definitive diagnosis and treatment. Both procedures must be complementary to each other.

CONCLUSION

The performance of the HSG is affected by factors such as the underlying pathology, the training and experience of the professional performing and interpreting the images. HSG is most useful for predicting tubal occlusion.

In a meta-analysis with 4179 infertile patients when compared to laparoscopy, HSG has a sensitivity of 65% and specificity of 83% for the identification of tubal factor, with values that vary widely according to authors [4]. HSG appears to be of little use for identifying peritubal adhesions.

In another meta-analysis with 1551 patients and 2740 fallopian tubes comparing HSG or sono-HSG with laparoscopy as a standard, the sensitivity and specificity estimates for HSG in identifying tubal occlusion were 0.94 (95% CI 0.47-0, 99) and 0.92 (95% CI 0.87-0.95), respectively.[19]

However, the authors themselves suggest variable methodological quality between studies, in addition to not distinguishing between proximal and distal obstruction [20].

Individual patient characteristics interfere with the diagnostic capacity of HSG. In women with no risk factors for tubal pathology (no history of PID, endometriosis, etc.) sensitivity was lower, possibly due to false-positive results at laparoscopy.[21] HSG is a useful screening test for tubal patency for all infertile couples.

When assessing the prognostic value of hysterosalpingography (HSG) and the likelihood of pregnancy after normal versus abnormal HSG findings, among women with abnormal HSG 15% and 32% of women with normal HSG became pregnant. The OR was 3 (95% CI: 2.3-3.4). Sensitivity of 63% and a specificity of 62%. OR were 2 (95% CI: 1.5-2.6) for unilateral obstruction and 19 (95% CI: 7.5-46.5) for bilateral. Thus, in general, HSG has a low prognostic value, the outcome of HSG does little to predict the occurrence of pregnancy [22-24]. However, when HSG shows bilateral obstruction, the chance of becoming pregnant is minimal.

FINAL CONSIDERATIONS

It is estimated that 10 to 15% of women suffer from infertility and undergo various imaging methods during the diagnostic investigation. Despite technological development with improvement of diagnostic techniques, HSG remains an integral part of gynecological investigation and its value has not been underestimated, especially for the assessment of tubal permeability20. In the vast majority of studies analyzed, it is considered a standard exam due to its high diagnostic accuracy, which is already well established, defining diagnoses and leading to the institution of a well-defined therapy.

It should still be part of the gynecologist's arsenal, together with transvaginal US, as a screening test to investigate female anatomical factor infertility. HSG remains a useful diagnostic tool for the practitioner who will initiate the investigation of infertility when considering the possibility of tubal factor in a patient.

If tubal infertility is suspected, in women with no known comorbidities, HSG should be offered as an initial screening test, which may be replaced by sono-HSG with contrast or MRI-HSG, if available.

In infertile patients with a history of PID, history of ectopic pregnancy, presence of CAT, laparoscopy with chromotubation may be suggested initially for diagnostic and therapeutic management.

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REVIEW ARTICLE

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PELVIC NEUROSONOGRAPHY: A NEW TOOL IN THE DIAGNOSIS AND CONTROL OF ENDOMETRIOSIS OF THE LUMBOSACRAL PLEXUS AND SCIATIC NERVE, A CURRENT VIEW

JOSÉ AS DE ARRUDA CAMARA, ADILSON C FERREIRA, LARA OLIVEIRA DUTRA

ABSTRACT

INTRODUCTION: Chronic pelvic pain has among several causes endometriosis and among the types, deep infiltrative pain is the one that is most related to severe and disabling symptoms, sometimes taking years to be diagnosed, which has become a serious health problem throughout the world, among the various types, neural involvement is the one that is least diagnosed by ultrasound.

OBJECTIVE: To review, identify, compare the ultrasound findings between a patient with neural endometriosis and a healthy patient, as well as describe, what we believe to be, the first ultrasound technique for this evaluation.

MATERIAL AND METHODS: This is a literature review and comparative evaluation between a patient with neurotrophic endometriosis and a patient without endometriosis, with a description of an ultrasound technique for this purpose, our research is due to the feasibility of the ultrasound diagnosis of neurotropic endometriosis, that is, the one that causes injury to pelvic nerves such as sacral nerve branches, lumbosacral trunk and sciatic nerve.

RESULTS AND DISCUSSION: In this evaluation, we examined two patients, one of whom had a diagnosis of neurotropic endometriosis in the lumbosacral trunk and sciatic nerve and the other without clinical symptoms to compare the ultrasound findings; In the affected patient, our evaluation technique was performed and it was possible to diagnose the nerve alteration, which had also been confirmed by magnetic resonance imaging, and it was also possible to visualize the nerve roots of the patient without endometriosis.

CONCLUSION: In view of our still incipient examination technique, which requires further studies to establish itself as a reproducible technique, it was possible to visualize the neural alteration of the affected patient and compare it with the unaffected patient. To our surprise little literature on the subject was found.

KEYWORDS: ENDOMETRIOSIS, NEURO ENDOMETRIOSIS, PELVIC NERVES, SCIATIC NERVE, SACRAL PLEXUS, LUMBOSACRAL PLEXUS, CATAMENIAL PAIN, CYCLIC PAIN, CHRONIC PELVIC PAIN AND ULTRASOUND

INTRODUCTION

Endometriosis is a condition defined by the presence of endometrial tissue outside the uterus (gland and stroma) [1]. It affects women of reproductive age around 2-10%, and in women where pelvic pain is present or infertility the incidence can be between 35-50% [2-3]. Chronic pelvic pain in women is defined as persistent and non-cyclical pain perceived in structures related to the pelvis and lasting more than six months and affects one in six adult women [4], it is one of the most common clinical manifestations of endometriosis, where 71 to 87% of women who manifest it have laparoscopic evidence of endometriosis lesions [5]. Neural involvement is rare and its prevalence is limited to case reports [6]. Despite its rarity, it has significant clinical relevance due to the potential of sensory and motor symptoms to cause impairment in quality of life and treatment difficulties, neural endometriosis can be diagnosed based on imaging findings, but it can often be overlooked or underdiagnosed [7]. Peripheral neuropathies continue to be one of the most common reasons for the general population to seek neurological care [8] .

After a search in the most recent literature, the last seven years, we will try to show where the evaluation of the sacral plexus and sciatic nerves affected by endometriosis is now, by ultrasound and what we are performing in our service.

MATERIALS AND METHODS

We searched the literature using Pubmed and Google Scholar for the following keywords: endometriosis, neuro en-

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dometriosis, pelvic nerves, sciatic nerve, sacral plexus, lumbosacral plexus, catamenial pain, cyclic pain, chronic pelvic pain and ultrasound.

RESULTS

Using the technique of abdominal ultrasound approach with a low frequency convex probe in two different equipment WS80 elite Samsung and Voluson E10 BT 18 GE, adjusted for the study of the pelvis, we examined two patients, one of whom was known to be affected by endometriosis of the lumbosacral trunk. and sciatic nerve and another without clinical complaints. Below we demonstrate the technique used to evaluate the lumbar roots and lumbosacral trunk (figures 1-7).

Figure 1 – Sagittal section in the infra-umbilical region to demonstrate the L3, L4 and L5 vertebrae and sacrum (S1) and their respective intervertebral spaces (arrows).

Figure 2 – Para-sagittal section of the lumbar spine to identify the transverse apophysis of the vertebrae and their relationship with the psoas muscle

Figure 3 – Para-sagittal section with medial inclination between 15 and 30º to visualize the emergence of the lumbar roots of L4 and L5 and their union in the formation of the lumbosacral trunk.

Using these cuts, we were able to demonstrate both the nerve roots and their respective union in the formation of the lumbosacral trunk, but when we identified the vertebrae and their respective spaces in a sagittal section in the infra-umbilical region, we rotated the transducer 90º for direct visualization of the vertebrae nerve fibers within the medullary canal in order to characterize them in order to show their echographic characteristics[10] in the extra medullary canal topography, as seen below.

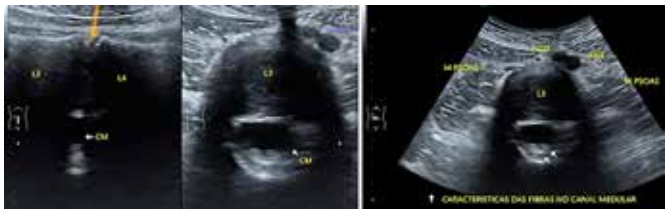

Figure 4 – Echographic characteristics of the nerve fibers within the spinal canal (white arrows) and the intervertebral space (yellow arrow) in sagittal and axial sections at the level of the bifurcation of the aorta into the iliac arteries.

Below we use the color Doppler technique to identify the great vessels of the pelvis (arteries and veins) and their correlations with the lumbosacral trunk posterior to the psoas muscle.

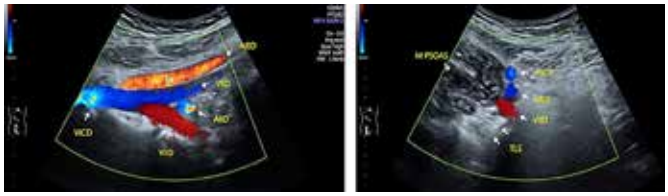

Figure 5 – Identification in para-sagittal external oblique section in the pelvis at the level of the bifurcation of the great vessels, demonstrating right external iliac artery (AIED) (red color), right external iliac vein (VIED) (blue color), right internal iliac artery (AIID) (blue color), right internal iliac vein (VIID) (red color) and right common iliac vein (VICD) (blue color), and in the axial section we demonstrate the lumbosacral trunk (TLS) just below the confluence of the internal and external iliac veins and posteromedial to the psoas muscle.

In a para-sagittal oblique axial section, we demonstrate the relationship between the nerve root, transverse process of L5 and psoas muscle.

Figure 6 – Demonstration of the lumbosacral trunk in the cross section above the transverse process and posteromedial to the psoas muscle (white arrow).

Finally, the demonstration of two different cases where the first image represents a union of the root of L4 and L5 in the formation of a lumbosacral trunk of normal aspect, hyperechogenic with a maintained fibrillar pattern and without thickening and in the second image the visualization of a heterogeneous thickened lumbosacral trunk, with loss of the fibrillar pattern, demonstrating a clear involvement of an infiltrative pattern in it and, just below, the confirmation of the involvement of the endometriotic lesion by magnetic resonance.

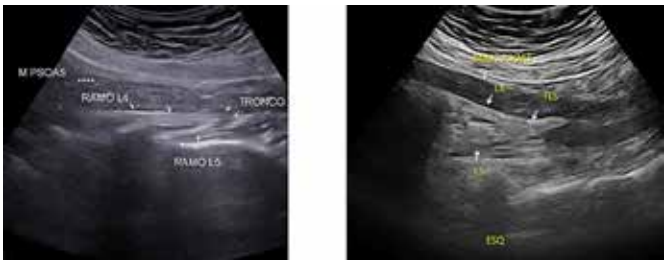

Figure 6 – First image of the union of the L4 and L5 roots in the formation of a normal lumbosacral trunk in a para-sagittal view with medial inclination in the pelvis; and second image the formation of a lumbosacral trunk affected by infiltration by endometriosis.

Figure 7 – Confirmation of the involvement of the sciatic nerve formation region on magnetic resonance imaging (yellow arrows).

Our study was performed with the patient in bowel preparation after using the following day: 2.5mg two (02) gelatinous pearls of Sodium picosulfate orally; high absorption diet and intake of at least two liters of water and fleet enema one hour before the exam. The evaluation was only carried out by the abdominal route with a convex probe.

In the line of ultrasound evaluation of nerves, we are advancing in the face of new technologies where even "share wave" elastography is being used for neural evaluation and mapping [11-12].

DISCUSSION

In our research, we first tried to show the anatomical identification of the pelvic nerves and their relationship with bone, muscular and vascular structures. Possover in 2004 identified the pelvic nerves with electrical stimulation in order to reduce the iatrogenesis of the bladder and rectum after pelvic surgery [9], the American Society of Neuroimaging in 2015 shows that the nerve can be effectively evaluated in its cross section in certain places of interest clinical condition, its variability along its path, echogenicity, vascularization and mobility[10]. Using the five parameters in 2016, ultrasonography was described in the diagnosis of extrapelvic sciatic nerve endometriosis by the Hungarian group with confirmation of the lesion by magnetic resonance and it was possible to demonstrate the clinical improvement by ultrasound after treatment [11]. Therefore, we know that it is possible to identify the anatomical nerves and their visualization through ultrasound, with these data our study is based on the identification of the lumbosacral trunk (union of the L4 and L5 nerve roots) and the characterization of the normal ultrasound structure as well as the visualization also the extrapelvic sciatic nerve as well as the work of the Hungarian group [11].

CONCLUSION

As seen in Figures 1-6, we demonstrate that it has become possible to visualize the lumbar nerve roots and the formation of the lumbosacral trunk following anatomical references with rules and ultrasound techniques already well established both in B-mode and in Doppler.

Previous knowledge of the echotexture and ultrasound characteristics of nerve fibers and adjacent structures, such as blood vessels and their correlations, has allowed us to visualize them; as neural endometriosis is still a rare object of study and summarized in a few case reports.

We believe that due to its clinical and social importance, it is still a very new and emerging area, requiring more studies and publications, which will help us to have better results in the diagnosis and control of the pathology in the future.

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REVIEW ARTICLE

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JUDICIALIZATION OF MEDICINE IN THE SCOPE OF ULTRASONOGRAPHY

IGOR MOREIRA NUNES

ABSTRACT

INTRODUCTION: In the last 10 years there has been a considerable increase in the number of lawsuits for damages, some jurists use the term "damage industry" to characterize this situation. Unfortunately, this paradigm shift in the Judiciary is also present in the doctor-patient relationship. The number of claims for damages is skyrocketing against doctors. For this reason, we sought through this work to carry out a discussion about the Judicialization of medicine in the scope of ultrasonography.

OBJECTIVE: to analyze the current situation of increasing lawsuits, involving physicians, especially in the ultrasound specialty.

METHODS: Bibliographic review.

RESULTS: Bringing the discussion of judicialization into the scope of ultrasound, the professional who performs the exam is subject to making an error, either by the use of very old equipment or by the rush to perform the exam, or even for not having scientific knowledge to perform the exam. . This method of examination has led many doctors to lawsuits due to some erroneous results, which end up causing medical errors. Most of the time, this occurs because the device is not in good conditions of use, or even because of the incompetence of those who use it. Discussion of communication between doctor and patient is very important. With regard to the ultrasound examination, the physician has the obligation to perform the imaging examination properly and must be trained to perform the examination, in addition, the professional must issue the examination with his diagnostic impression. Knowing the various causes of medical judicialization, maximum care must be taken so that errors do not occur, not only because of legal proceedings, but mainly to avoid causing harm to the patient.

CONCLUSION: After reviewing the judicialization of medicine within the scope of ultrasound, considering the studies carried out by several authors on the subject. It is considered that in order to have a reduction in lawsuits marked by the relationship between doctor and patient, it is necessary to invest more in communication and the health professional must keep in mind the responsibility that the doctor has towards human life that goes beyond the medical diagnosis.

KEYWORDS: JUDICIALIZATION IN MEDICINE, PROTOCOLS IN ULTRASONOGRAPHY, MEDICAL LAW, BIOETHICS

INTRODUCTION

In the last 10 years there has been a considerable increase in the number of lawsuits for damages. Some jurists use the term "damage industry" to characterize this situation.

Unfortunately, this paradigm shift in the Judiciary is also present in the doctor-patient relationship. The number of claims for damages is skyrocketing against doctors. For this reason, we sought through this work to carry out a discussion about the Judicialization of medicine in the scope of ultrasonography. The research was based on the following problem: What is the reason for the growth of lawsuits for damages against doctors in Brazil?

The theme of this work is of great importance, because through studies we will analyze which are the most common issues that lead the patient to seek justice to resolve issues in the field of medicine.

It was noted that imaging tests such as ultrasound that serve to complement the diagnosis of patients have been one of the reasons for lawsuits due to erroneous results, often causing medical error.

The relevance of this work is due to the social contribution that information on the judicialization of medicine in the scope of ultrasound brings to both the population and the medical teams.

It is known the importance of early diagnosis for the treatment of any disease, and ultrasound has been one of the most used methods due to its accuracy, but errors can occur in its results, whether due to the device used, negligence, recklessness or even malpractice. who handles it, bringing negative consequences for both patients and doctors.

METHODOLOGY

The qualitative theoretical approach consists of a scientific study method that values the subjective aspect, being possible to evaluate the position of some scholars, giving an opinion on the impressions of each one.

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In the field of Medical Law, in which the main theme is inserted, there are several scholars with vast theoretical knowledge on the subject addressed.

The bibliographic research will be deepened with the research of several scientific articles related to the legal issue. For example, the burden of proof in the characterization of medical errors will be analyzed in Brazilian legislation.

MEDICAL LAW AND BIOETHICS: CONCEPTS / CONTEXTUALIZATION

The term medical law can be understood as being a recent branch of legal science, a set of norms that regulate the relationships between doctors and patients, comprising not only the direct relationship between both parties, but also the relationship with institutions (for example, hospitals) and management companies (for example, health plans). Some scholars also use the term biolaw to define this branch of law.

Clinical bioethics, considered as the branch of bioethics that deals with the relationship between patient and health professional, has shown great development, speaking and proposing guidelines for ethical dilemmas, which are increasingly frequent today. The use of the doctor-patient relationship for therapeutic purposes has existed since the beginning of the history of medicine. The comprehensive use of this relationship requires certain knowledge and skills from the physician. It is worth mentioning that knowledge of behavioral sciences, especially with regard to the practice of medicine, is very relevant [1].

Bioethics can also be defined as the study of human relationships, mainly involving ethical and moral aspects. With the development of biotechnologies, ethical limits must be respected, always seeking to preserve human life and dignity.

Medical responsibility is an important issue to be analyzed in the field of bioethics, in the doctor-patient relationship, the absence or stain of the trust that is inherent to it. Likewise, it is a topic in bioethics surrounded by the legal field, as it touches the material and procedural legislation of countries when questions or lawsuits arise in them. This reflection is increasingly present in everyday life in the medical field, allowing its framing in the field of everyday bioethics or, as bioethics of persistent situations.[2]

The main similarity between the terms is the approach to the right to life. While bioethics uses ethics itself so that biomedicine and biotechnology are correctly applied in people's lives, biolaw will regulate whether this application is coherent and acceptable by the legal system.

According to the constitutionalist Barroso, the phenomenon of judicialization has several causes. One of the important reflections on bioethics and law is the redemocratization of the country, which contributed to the enhancement of the feeling of citizenship. Providing a greater level of information and awareness of rights to broad segments of the population, who began to seek the protection of their interests before judges and courts. This situation is similar to the process of questioning science, he had experience during the struggle for human rights. [2]

Biolaw does not allow biomedicine or biotechnology to be used in uncontrolled or undisciplined ways, as the right to life, in addition to being an inviolable asset, is still protected by Brazilian law. From this perspective, the medical professional must work respecting the Code of Medical Ethics, which was established by resolution number 1931 of the Federal Council of Medicine.

There are many authors who have addressed the issue of the judicialization of medicine, whether due to medical error or even the lack of dialogue between doctor and patient. The medical professional activity is characterized by having, in the provision of service, a succession of care and not care as a consequence of the provision of service. In the practice of medicine, the established contract is not characterized as "give me a service: take care of me!", but rather "you took care of me, then you provided me with a service". [3]

In this way, entering the practical field of Medical Law, medical liability can be defined as the civil, criminal or administrative obligation to which doctors are subject, in their professional practice, when a harmful result occurs to the patient, due to imprudence, malpractice or negligence.

The question to be asked is when and under what circumstances will the normative device for reversing the burden of proof be used to ascertain the desired balance between the parties involved in the litigation and under what circumstances this same device, within the limits intended by the Justice, will bring greater collective harm than individual gain.[3] According to the author, it is necessary to verify to what extent the litigation is contributing to resolve the issues between doctor and patient in order to turn harmonious this relationship that is so important in solving the patient's problem. In this way, given the complexity in this relationship, normative application is only possible after a conflict situation has arisen.

According to França [4], "At the present time, there is no other profession that is more targeted than Medicine, being one of the most difficult to exercise from a legal point of view." Undoubtedly, the number of lawsuits involving doctors is growing incoherently. The reversal of the burden of proof is a legal institute that contributes to this excessive increase in lawsuits, given that it transfers to the doctor the obligation to prove the absence of guilt in their conduct.

According to Murr[3],

Given the complexity of the doctor-patient relationship, it is only possible to dictate the rules for the application of the normative device for reversing the burden of proof after the relationship and the conflict has been established. Under this approach, it is strange to establish medical civil liability as being of an objective nature, as a general rule, for some specific cases [...]. It sticks to the traditional understanding that the judge will strive to discern exceptions and identify gross errors. Objectivity is not a sufficient condition for the truth, even though it is essential to law in fulfilling its function in contemporary democratic societies with complex organization: balancing conflicting interests.

It is interesting to point out that the main difference be-

tween the two types of liability is the need to prove fault so that the person causing the damage has a duty to indemnify. If it requires guilt it is subjective, otherwise it is objective. By law, the rule is the application of subjective liability, that is, the need to prove guilt. However, the law provides for some exceptions, such as the Consumer Protection Code, regarding the strict liability of the supplier of services or products, when characterized as a consumer relationship.

Medical liability can be defined as the civil, criminal or administrative obligation to which physicians are subject, in their professional practice, when a harmful result occurs to the patient, due to imprudence, malpractice or negligence. This responsibility is based on the principle of fault, in which the agent causes damage, without the due care that he is normally obliged to take, whoever acts without the necessary precaution is culpably guilty.

If the obligation is not fulfilled, legal liability arises. Thus, the legally responsible doctor is the one who made a mistake; who, more precisely, acted with guilt, whether characterized by malpractice, recklessness or negligence, and who has a duty to answer for such behavior. In this work, the expression medical responsibility will be restricted to legal semantics, so that the doctor whose duty to indemnify has been proven will be responsible.[2]

In this way, when the doctor's obligation is not fulfilled and causes harm to the patient, it is necessary to verify if there was negligence or even malpractice during the care or treatment. The legal device has been widely used to resolve these issues between doctor and patient. It is important to emphasize the positive gains of this practice, since the State, through legislation, guarantees some rights to the individual. An injury to a legal asset constitutes a crime.

However, it is necessary to analyze that the excess of medical judicialization brings harm to society. The investigation regarding the medical procedure is extremely important to know whether or not there was a non-compliance with the responsible medical activity. In this way, legally, it is possible to investigate the situation in a different way, which arises from the failure to comply with a previous obligation - to do or not to do. In the specific case of the doctor, it refers to the circumstance of necessary finding of guilt that will generate, therefore, the duty of reparation.[2]

When the error is found, the proper repair will be made to the doctor. The patient will be entitled to only one allegation, without the need for immediate proof regarding an alleged medical error. Currently, the patient is seen by most judges as hyposufficient in the doctor-patient relationship.

In Brazil, there has been a substantial increase in cases in which the responsibility of physicians is discussed regarding the duty to indemnify or not, that is, in which the occurrence or non-occurrence of a medical error to be repaired is debated. It is important to point out that there is due repair, it is necessary to verify the medical responsibility that gives rise to the repair, for this it is important to have three constitutive assumptions: the conduct, which is observed in action or omission; the causal link, which is configured in the connection between the conduct and the possible loss; and the damage, which must necessarily be effected.[2]

Considering that the doctor-patient relationship is of great importance for the resolution of ethical dilemmas that have become a constant nowadays, the discussions around this topic are based on the opinion of different authors about the responsibility of the medical professional in the face of different situations. However, for the damage to be configured, the effective loss must exist. In this way, civil liability is associated with the existence of culpable behavior. If the professional commits a medical error for not having certain technical knowledge that is sufficient in a given procedure, he will commit malpractice. However, if the medical error was due to lack of attention to procedures that required caution, he would have been negligent.

Vasconcelos [2] adds the following to this discussion:

One of the great stimuli for the production of public policies in favor of the debate in the field of bioethics also for health issues was the edition, in 2005, of the Universal Declaration on Bioethics and Human Rights, approved in a session of the General Conference of Unesco - which brought about fifteen guiding principles consensually constructed and discussed by several countries, mostly focused on ethical issues involving medicine.

It is important that ethical issues are discussed in all social spheres. In Medicine, the need to discuss ethical and bioethical issues is fundamental, since the direct work with human life requires expressive care.

The search for an understanding of the contexts in bioethical analysis based on its principles legitimately and internationally reached, and the appreciation of the roles of the patient and the physician as active subjects in the attempt to reach consensus, have contributed to the reduction of the filing of avoidable lawsuits. The issue under discussion is the valorization of these people, analyzing them as possessing the right to decide based on the freedom that is proper to knowledge, potential conductors of knowledge and, together with it, of power, both by the effective reflection in the social environment on the subject and in the substantial increase in the bioethical discussion in the course of medical education.[2]

Knowing that the detention of knowledge brings with it a certain power in the face of knowledge, with regard to this study the issue involves medical law and bioethics, it is important to point out that the conflicts arising from this relationship have brought judicial consequences for the professional of health. In this way, communication is essential so that there are no doubts about the diagnosis and even the treatment, since there are issues that do not demand litigation.

MEDICAL RESPONSIBILITY IN THE DOCTOR-PATIENT RELATIONSHIP

This responsibility is based on the principle of fault, in which the agent causes damage, without the due care that he is normally obliged to take, whoever acts without the necessary precaution is culpably guilty.

In this sense, Galvão[5] states that:

Negligence is characterized by the omission or non-adoption of recommended technical standards for each case. Recklessness occurs through intrusion, that is, performing procedures that the professional is not prepared for or does not know how to execute. Malpractice is characterized by the inability of the professional to perform a task that, by training, he would have the obligation to know how to perform.

The claim, arising from the imbalance in the professional relationship, will characterize accountability. In fact, liability for damage or injury could arise from any social relationship, however, this study is restricted to the relational reality between doctor and patient. In the legal context, responsibility implies the duty to indemnify the damage, as a way of restoring the lost balance in the social or professional relationship. The concept of responsibility is, therefore, a watershed between the layman's notion of what he says is a medical error and what is justified under that name.[3]

The characterization of guilt or willful misconduct requires that there is damage and a cause and effect relationship between the professional's action and the damage claimed. José de Aguiar Dias[3], exemplifies the requirements for the characterization of guilt or willful misconduct applicable to the professional doctor-patient relationship, which imply the responsibility of the professional: [1]) it is necessary to prove the occurrence of damage or loss, regardless of its nature: material, moral or other. [2]) there must be a causal link between the action performed by the doctor and the damage attributed; [3]) force majeure or the exclusive fault of the victim nullifies the claim to hold the doctor civilly responsible, as it suppresses the causal link; [4]) judicial and administrative authorizations do not relieve the doctor of responsibility.

The development of science and the accretion of knowledge in the course of medical evolution are identified as positive in proportion as they bring benefits to the maintenance of life and the restoration of health. However, it is valid to point out that not having exactly a negative restraint does not matter the inexistence of an indirect impossibility of the will of others by the acceptance of truths caused by the ignorance of the other. [2]

It is known that medicine as a science has evolved a lot in recent times. Along with this evolution, methods and mechanisms, which contributed to the improvement in the diagnosis of many diseases, emerged.

Specifically in this work, a research and discussion was carried out about the judicialization of medicine in the scope of ultrasonography. Ultrasonography is a method widely used today to diagnose diseases, due to its diagnostic accuracy, the ease of performing the exam as well as the low cost. However, there have been many lawsuits due to medical errors, errors that often start in the diagnosis. Evolving technologically and scientifically as happens with medicine is, as a rule, positive; negative would be the occurrence of this evolution in disrespect for the ethics necessary for human relationships, for the valorization of subjects, regardless of their circumstance in this relationship or condition of detention of knowledge. The need to find a balance in relationships goes back to the idea that the practice of science and ethics can and should walk together. [2]

Therefore, the relationship between doctor and patient needs to have an ethical basis to avoid gaps and conflicts in relationships. This relationship has already been part of the therapy of many patients.

However, Brazil in recent years has had many lawsuits due to medical errors. The reversal of the burden of proof has been much debated, since the changes that existed in the legislation from the 1988 Constitution, presenting gains in the political, legal and social spheres. With regard to the ethical-professional point of view, this normative device has directly interfered in the social sphere which should be preserved, that is, in the relationship between doctor and patient. The doctor is not only considered a service provider, legally and technically qualified, but he has a social role that goes beyond the practice of medicine. [3]

Therefore, thinking about the doctor-patient relationship addressed issues of valuing roles that involve trying to reach consensus in an attempt to reduce the social demands arising from this relationship. For this reason, ethics has been so debated when it comes to issues of medicine and the treatment of the human person.

JUDICIALIZATION IN THE RELATIONSHIP BETWEEN DOCTOR AND PATIENT

Medical liability has been a much discussed topic in Brazil today. This is due to the growth of lawsuits by patients against doctors. In this sense, Vasconcelos [2] says the following:

Medical liability has been a much discussed topic in Brazil for some years, especially after the increase in the number of lawsuits involving doctors in ordinary courts. There has also been an increase in the number of cases in the ethical-disciplinary administrative scope before the regional councils of medicine.

An extremely important aspect is communication with the patient to avoid doubts and possible divergences in the doctor-patient relationship. When this dialogue does not occur, these differences can turn into legal proceedings. This is what has happened in Brazil, a considerable increase in patients seeking justice due to issues of miscommunication and even medical error.

Foucault [6] also adds that,

The power relationship is articulated to discourse, configuring an underlying dimension of communication between people. It is a relationship between power and knowledge inherent to the discourse itself, in which the fact that someone carries the knowledge raises him to the condition of power in a given environment that thus recognizes it.

Although it cannot be said that medicine maintains a repressive power, it must be admitted that the relationship between doctors and patients undergoes an increasing evolution in search of the emancipation of subjects in hegemonic social environments, such as that established in communication. with the doctor, who seeks to promote the good for

the patient through the use of his knowledge.[2]

According to the author and the studies carried out, it was noted that the evolution of the subject as an active being in society also brought changes in the relationship between doctor and patient. Many times this relationship has resolved issues in a harmonious way, but the number of lawsuits due to conflicts and even medical errors has also increased, which often causes harm to patients who end up seeking judicial support.

Some legal institutes such as the reversal of the burden of proof (transfers to the doctor the obligation to prove the absence of guilt in their conduct) end up leaving the doctor more vulnerable. If the subject addressed is the reversal of the burden of proof in the specific case of its application to the context of medical malpractice in Brazilian legislation, the first thing to be discussed will be the one without which medical malpractice would not be mentioned: the presumption that someone has suffered damage arising from the action or failure to act on the part of a medical professional. So that the damage regardless of its moral or material nature generates an imbalance [3]. In Brazil, there has been a considerable growth in cases in which the responsibility of physicians is debated regarding whether or not to indemnify the patient, verifying whether or not there was a medical error to be repaired.

Vasconcelos [2] adds the following information:

While morally the diligent doctor can be classified as responsible, legally, the negligent doctor can also be classified as responsible for negligence. This antagonistic polysemy stems from the substantial semantic differentiation that common sense and the legal field give to the term: as the socially established vocabulary is used, the morally put meaning is used to conceptualize a responsible individual as one who acts with zeal, wisdom, moderation, expertise.

It is also worth mentioning the theory of the loss of a chance, characterized by the fact that due to an illegal conduct (action or omission), the possibility of the occurrence of an event that would bring a future benefit to the victim or avoid the risk of injury disappears. a certain loss. Thus, the theory of the loss of a chance is based on the idea of probability that, if a certain event had occurred or had been avoided, there would have been an improvement situation for the victim or at least a greater loss would have been avoided.[7]

Given this reality, greater care is needed when performing, for example, an ultrasound study. A wrong test result can cause damage / medical error (a wrong diagnosis of gallstones can lead to unnecessary surgery, for example), causing greater harm to the patient and becoming a lawsuit.

When there is evidence of harm to a patient in the professional relationship, legal, administrative and even disciplinary sanctions can be triggered. However, in order for a medical professional to be held responsible for medical error, that is, to have the obligation to indemnify the patient, certain criteria are necessary for him to be charged with guilt or intent[3].

So, for it to be considered guilt or intent, there must be damage, as well as a cause and effect relationship between the action of the health professional and the damage of the defendant.

The practice of medicine has undergone major changes in recent years. Technological advances in the area of diagnoses, the arrival of IT and the intermediation of medical work are some of the factors that had a strong impact, with profound changes in the doctor-patient relationship, modifying it and often bringing difficulties to both sides of this relationship[1].

All this advance in medicine does not diminish the importance of the relationship between doctor and patient, since it is this contact that makes the individual feel confident in the diagnosis of the health professional. When there is any doubt in this relationship, the first attempt to solve the problem is dialogue.

In this way, Vasconcelos[2] brings the following position:

It is possible to reflect on the attempt to overcome asymmetry in the relationship between doctors and patients, based on the enhancement of patient autonomy, especially through information and clarification free of coercion. In this regard, it is necessary to remember that in the context of the increase in avoidable litigation in the relationship between doctors and patients, the difficulty in reaching consensus, or the previous difficulty in dialogue, may result, precisely, from the asymmetry in power, from the passivity imposed on the social patient. and historically.

However, when the patient's autonomy is compromised, understanding becomes difficult in the face of issues that can be reached through communication. The search for conflict resolution between doctors and patients has been very common within the Judiciary. According to the constitutionalist Barroso, the phenomenon of judicialization has several causes. One of them is the redemocratization of the country, which has increased the feeling of citizenship. Bringing important information and making the population aware of the right to seek protection of their rights in the courts[2].

In this context, in which positive aspects can possibly be found, to medicine that represents the increase of citizenship in the search for access to Justice, there may also be negative aspects when the number of issues that could be resolved through dialogue are indicated to the courts causing an excess in the judicialization of medicine.

The interest of the medical act in the form of law is part of the understanding not only of professional competences, but also with regard to the rule of law to protect valuable legal assets to society: life and health. However, this understanding of medicine and the medical professional, in its meaning and institutional role, does not seem to be very solid not only by society but also by health professionals in general[3].

It is noted that both Vasconcelos and Murr bring an approach to the judicialization of medicine in a peculiar way to current events. Due to the lack of dialogue and understanding between doctor and patient on some issues, the search for courts has become increasingly common. The positive side is that people have assumed their citizenship and sought to protect their rights, but the excess of medical processes has undermined this much-needed relationship between

doctor and patient.

In this way, we sought through this work to bring discussions about the phenomenon of judicialization of the relationship between doctor and patient that has grown excessively in Brazil. It was noted during the research that many cases that are transformed into processes could be resolved more harmoniously through dialogue.

Vasconcelos[2] brings the following statement in relation to the judicial litigation:

A legal dispute presupposes the occurrence of effective damage, recoverable through a process that is justified in terms of the classifications already identified. However, it can also presuppose a conflict that occurred due to a previous failure in communication between the litigants, which is an avoidable legal demand, since the act in question could have been preceded by a satisfactory dialogue to understand the facts or, even, by consensus between the parties as to the situation and its possible consequences.

According to Vasconcelos, the failure in communication between doctor and patient has generated conflicts that could be resolved without a lawsuit. But this would require a consensus between the parties. Marques Filho addressed the issue of difficulty in this relationship due to changes in medicine.

MEDICAL JUDICIALIZATION IN THE FIELD OF ULTRASOUND

Ultrasonography has played an increasingly important role in clinical diagnosis. Overall, clinicians have demonstrated skill in obtaining images that allow them to answer simple questions. The integration of these images into the clinical history and physical examination results has improved the management of patients by their clinicians.

Ultrasonography is part of the medical specialty field of radiology. This specialty has historically developed in a way that has increasingly alienated the radiologist from the patient. Ultrasonography has been incorporated into the evaluation of patients in different areas, in traumatology, nephrology, to check for renal pathologies. This assessment instrument determined a change in the diagnostic management of polytraumatized patients, for example[8].

In the field of ultrasound (USG), the physician has the obligation to perform the exam properly and must be able to perform it, concluding the aforementioned exam with his diagnostic impression.

It is important to highlight that the ultrasound examination has presented numerous advantages for the diagnosis of several diseases, this is because it is an available and relatively low cost method; in addition, it does not emit ionizing radiation, and can be used repeatedly and in pregnant women and children; it also allows the examination in real time, allowing a better interaction with the patient, showing the point of greatest painful sensitivity in the part of the body; has greater mobility, providing the patient with greater mobility in the operating room, in the emergency sector, and even in intensive care.

In most cases the diagnosis will be correct, but in others there may be diagnostic doubt. The USG exam is "operator-dependent", that is, the subjective aspect prevails a lot. The ultrasound examination method has limitations. It is interesting to include in the report, in these cases, some recommendation for a complementary exam, for example, computed tomography (CT) or magnetic resonance imaging (MRI) that can prove the diagnostic impression raised in the ultrasound.

In case of doubts regarding the diagnosis, such as the use of the USG exam, the best way is to complement the investigation with other physical exams or even the anamnesis. Because a medical error can have several consequences for both the doctor and the patient, and can even judicialize this relationship that is so important.

Judicializing the dilemmas of the relationship between doctors and patients is a negative measure, but an emergency measure, when necessary. This is an important discussion and emergency measures are agreed in exceptional incidents. As the question of doubt in relation to a diagnosis or even a medical error was mentioned. However, in the face of excessive judicialization as a forcible and mistaken attempt to establish symmetry, while society accepts the overvaluation of the insertion of the Judiciary in the relationship, this emergency measure will become common practice, being distorted in the transformation of the exception into the rule[2].

However, the lack of preparation of the radiologist or other professional responsible for informing the diagnosis, especially when it is not favorable, as is often the case in an oncology hospital, constitutes a major problem for this specialist. In this way, it is essential to analyze not only the diagnosis made through ultrasound, but also physical and laboratory exams when necessary, talking to the patient about the symptoms, among other measures.

It is important to note that when the medical obligation is breached, legal liability arises. Thus, the legally responsible doctor is the one who made a mistake; who more precisely acted with guilt, whether characterized by malpractice, recklessness or negligence, and who has a duty to answer for such behavior[2].

It is known that in Brazil, medical responsibility has been a subject much discussed in recent times, and that there is a very large growth of lawsuits involving doctors in justice. Many of these lawsuits could be avoided.

The patient will only be responsible for the allegation, without the need to prove a hypothetical error to initiate a legal process. In this scenario, it is necessary to raise awareness on the part of physicians so that they adopt preventive measures, avoiding any disagreements with patients.

Avoiding excessive judicialization means privileging reflection prior to legal action, not choosing the judicial process as a guide to social uncertainties or a determinant of collective ethical course. Given the certainty that the facts precede the norms, it is not possible to admit that the norms precede the facts, or at least the reflection on the facts. This is true of the market society, which transforms medical care into consumption and induces consumption in health [2].

In view of this, bringing to the discussion the judicial-

ization in the scope of ultrasound when performing an ultrasound examination, the professional will be subject to committing a medical error, performing an examination in a negligent way (for example, using old equipment, without the proper technical conditions) or acting recklessly (carrying out an examination in a hurry to finish the procedure, without following a protocol) or acting with malpractice (performing a specialized ultrasound, such as in Doppler mode, without proper scientific knowledge).

Regarding the methods used Murr[3] says the following:

The private acts of the method used are not restricted to technical competence in a given procedure - which is well exemplified in the fact that even a medical student attending the last year of college is prohibited from acting without legal support from a qualified doctor, it is not enough for him to prove who, after years of internship, considers himself capable of carrying out a given procedure in question.

It is important to highlight in this matter that technical competence is not the only thing to be considered, whether in the case of a student or even a trained professional. Acting without legal support from a qualified doctor violates the law, so the issue of malpractice was mentioned in the use of the device for the ultrasound examination, either by the radiologist or even by the doctor. This also contributes to the growth of lawsuits.

Vasconcelos [2] highlights the following about science:

The power of science was related to medicine as it participated in the context of technological evolution and came to be seen as something more than a simple executor of discoveries or an implementer of the evolution of scientific practice. In this way, it is observed that, in addition to the power of specific knowledge about the objects of their professional competence, the broader power of scientific truth began to appear in medical practice, encompassing the other areas of biological sciences.

Studies carried out in other countries have shown a variety of opinions from requesting physicians and patients regarding physician-patient communication in radiology, which can be explained by cultural differences. While there is no rule of thumb about the best way to carry out this communication, there are certainly bad ways.

Vasconcelos [2] also adds that:

These new practices, supported by the new power that science conferred on medical discourse, had direct repercussions on communication with the patient. The medical discourse is the prerogative of saying portrayed by Foucault, which, when functioning as truth before society, imposes itself in the communication of the relationship maintained with the patient. Thus, there would be an overlap of the physician's performance in the relationship, with the patient in an inferior condition before his power of relationship and speech.

Currently, the communication of the radiological diagnosis is carried out predominantly by written reports. Written communication, however, cannot be considered sufficient, and verbal communication is essential for the good performance of the modern radiologist.

Ultrasonography is an imaging method that has been widely used in patients with suspected appendicitis and other diseases, and has had satisfactory results. As ultrasound is easily available, simple and quick to perform, in addition to not emitting radiation or other side effects, it has been widely used recently. However, it is necessary to consider that this method of examination has led many doctors to lawsuits, either because of the wrong test results causing medical errors, which may be due to the misuse of the imaging device, or even the device being very old or due to the incompetence of the person handling it.

Ethical consideration regarding openly rethinking medical practice, in addition to ethical accountability for acts aimed at medical care, represents respect for equality, dignity of the human person and the exercise of their freedom [2].

DISCUSSION

Ultrasonography is one of the diagnostic imaging methods that has a very significant accuracy in identifying diseases. This is because technology has advanced every day in the improvement of high resolution exams. The integration of images together with the clinical history and the results of physical examinations has improved the management of patients by their clinicians. However, the method has limitations, if there are doubts in the diagnosis, a complementary examination must be requested, as a medical error can have consequences for both the patient and the doctor, which can turn this relationship into a lawsuit.

Judicializing the issues arising from the doctor-patient relationship is negative, however, when necessary, its emergence is fundamental. Because it is an important issue, Vasconcelos[2] says that the excess of judicialization, in the case of a society that overvalues the insertion of the Judiciary in the relationship, may transform an exception into a rule with regard to emergency measures.

To avoid the excess of lawsuits arising from medical error due to the divergence in ultrasound exam results, the best way is to use a complementary exam, as it is worth noting that when the medical obligation is breached, legal liability appears. According to Vasconcelos[2], the legally responsible physician is the one who made an error, and this error can be characterized by malpractice, recklessness or negligence.

Bringing the discussion of judicialization into the scope of ultrasound, the professional who performs the exam is subject to make a mistake, either by the use of very old equipment or by the rush to perform the exam, or even for not having scientific knowledge to perform the exam. It is important to point out that medical competence is not the only thing to be highlighted, care and attention are needed in what you are doing as well as using devices in good condition. Medical judicialization has been a subject much discussed in Brazil, for this reason communication between doctor and patient is essential to avoid doubts and possible divergences in this relationship, since the growth of medical judicialization is great in the country.

In order for there to be due repair when there is a med-

ical error, it is necessary to prove the error. In this case, both the action or omission is observed, the causal link, which configures the connection between the conduct and the possible damage; and the damage that must be done[2].

In view of the discussions by different authors, it was noted the importance of the doctor-patient relationship to resolve ethical dilemmas that have been configured in legal proceedings. Ethics is necessary in human relationships, as well as the appreciation of the subject. In this way, it is necessary to find the point of balance in relationships, since practice and science must walk together.

It is also important to highlight the evolution of the individual as an active being in society and the awareness of his duties and rights as a citizen. This evolution also brought changes in the relationship between doctor and patient, as many conflicts have been resolved nowadays through the judicial process. Some cases need this support, others could be resolved in a less conflicting way to avoid judicial excess with issues that could be resolved through dialogue.

According to Marques[1], technological advances in the area of diagnoses have intermediated medical work, but have also brought major changes in the doctor-patient relationship, bringing difficulties in the relationship on both sides. The search to resolve conflicts between doctors and patients has been common in the judicial power. The phenomenon of judicialization has increased the feeling of citizenship, as the population is becoming aware of the right to seek protection of their rights in the courts.

Murr[3], still makes an approach regarding the interest of the medical act in the form of law, which is part not only of professional competences, but also of the rule of law to protect a legal asset that is valuable to society. It is known that this judicialization often occurs due to the lack of dialogue and understanding between doctor and patient. In this way, there must be a measure so that simpler cases do not become a judicial process.

Vasconcelos[2] attributes that the new practices supported by the new power that science conferred on medical discourse had direct repercussions on the communication between doctor and patient. As is known, there is no technique or rule for how to communicate with the patient, but certainly the right way is one that takes into account ethics and patient care. In medicine there is a need to discuss ethical and bioethical issues since it is a job that deals directly with human life and requires expressive care. The investigation regarding the medical procedure is very important, because only then is it possible to verify whether or not there was a non-compliance with the responsible medical activity. It is known that a medical error can have consequences that compensation is not able to repair and the judiciary system has been widely used to resolve these issues.

For this reason, Murr[3] argues that it is only possible to dictate the rules for the application of the normative device of inversion of the burden of proof after the establishment of the relationship of installation of the conflict. Therefore, medical liability can also be determined as a civil, criminal or administrative obligation to which doctors are subject, such liability is based on the principle of guilt where the agent causes the damage, without the due care he must have.

Medical law is configured as a set of norms that govern the relationships between doctors and patients, comprising both direct and institutional relationships. For this reason, ethical and moral aspects must be present in these relationships, since ethical limits must be respected for the preservation of human dignity. França[4] says that at the present time, medicine is being highly targeted, being one of the most difficult professions to exercise from a legal point of view. This is because the growth in the number of lawsuits involving a doctor has grown a lot in Brazil.

In this work, a research was carried out on the judicialization of medicine in the scope of ultrasonography, which is a method of imaging examination widely used today. This is due to the ease of the method, in addition to having no radiation and other side effects, it is a low-cost method. However, this method of examination has led many doctors to lawsuits due to some erroneous results, which end up causing medical errors. Most of the time, this occurs because the device is not in good conditions of use, or even because of the incompetence of those who use it.

Vasconcelos[2] raises the issue of ethical consideration regarding the reflection on the practice of medicine, in addition to ethical accountability for medical care. It is noted that the excess of judicialization in the scope of ultrasound needs to be reduced. What is currently noticed is a problem in the communication between the health professional and the patient regarding the radiological diagnosis, since the communication is done through written reports, but this communication is not enough, it is also necessary the verbal communication for a good performance of the modern radiologist.

Discussion of communication between doctor and patient is very important. With regard to the ultrasound examination, the physician has the obligation to perform the imaging examination properly and must be trained to perform the examination. In addition, the professional must issue the examination with his diagnostic impression. Knowing the various causes of medical judicialization, maximum care must be taken so that errors do not occur, not only because of legal proceedings, but mainly to avoid causing harm to the patient.

Vasconcelos[2] also adds that avoiding excessive judicialization means privileging reflection prior to legal action, not choosing the judicial process as a guide to social uncertainties or a determinant of collective ethical course. The patient in this case is only responsible for the allegation, without the need to prove a hypothetical error to initiate a judicial process. It is important to include in the report some recommendation for a complementary exam, as the integration of imaging exams with the clinical history and the results of the physical exam has improved the management of patients by their clinicians.

The doctor is not only a technically and legally qualified service provider, he also has a social role in the practice of medicine. For this reason ethics has been so much debated

in the field of medical work. According to Oliveira et al [8], ultrasonography, which is part of the medical specialty field of radiology, has distanced the radiologist from the patient as this specialty developed.

This method of examination has been widely used in different areas of medicine, for this reason the professional must be trained to do so and, in addition, must have a good relationship with the patient. For this reason, clinical bioethics, which is considered the branch of bioethics that deals with the relationships between patient and health professional, has great development nowadays.

CONCLUSION / FINAL CONSIDERATIONS

This work made an approach about the judicialization of medicine in the scope of ultrasound. The research was bibliographical, the discussion was based on medical law and bioethics: concepts/contextualization; medical responsibility in the doctor-patient relationship; judicialization in the relationship between doctor and patient and medical judicialization in the field of ultrasound. The authors mentioned in this research had studies carried out on the subject. The relevance of this work is due to the social contribution that research on the subject brings both to society and to the medical team, since the number of lawsuits has increased considerably in Brazil, especially with regard to the diagnosis of diseases.

It is known that there are medical errors that bring harm to patients, for this reason it is necessary to check the diagnosis thoroughly and if there is any doubt, it is necessary to request a complementary exam to ensure a correct diagnosis. Among the problems that are brought to justice, are the ultrasound exam, which despite being reliable due to its accuracy, can cause problems for being an old device, lack of attention of the sonographer and even inadequate management which may bring divergent results.

In this way, it is noted that many of the errors that occur could be avoided by reducing lawsuits regarding the relationship between doctor and patient. As already mentioned, ethics is an essential element in any type of professional relationship, so if the professional notices that the diagnosis through imaging, which was the main point of this work, leaves room for doubt, the correct thing is to ask for a complementary exam to ensure proper treatment of the patient.

After the discussion about the judicialization of medicine in the scope of ultrasound, considering the studies carried out by several authors on the subject, it is considered that in order to have a reduction in lawsuits marked by the relationship between doctor and patient, it is necessary to invest more in communication and the health professional must keep in mind the responsibility that the doctor has towards human life that goes beyond the medical diagnosis.

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CASE SERIES

DIAGNOSIS OF PROSTATE ADENOCARCINOMA THROUGH ULTRASOUND-GUIDED TRANSRECTAL BIOPSY IN PATIENTS WITH PSA LEVELS BELOW 4.0NG/ML - ICONOGRAPHIC ESSAY - CASE SERIES

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ABSTRACT

INTRODUCTION: Currently, the diagnosis of prostate cancer is based on digital rectal examination, prostate-specific antigen (PSA) blood levels, and transrectal ultrasound (TRUS); however, none of them is sensitive and specific enough to be used alone in defining the conduct to be taken in relation to the patient. PSA is a simple diagnostic tool used in prostate cancer screening and TRUS is a method that can detect tumors at earlier stages. Technical advances with the introduction of color Doppler, an important adjuvant factor in the search for prostate cancer, better evaluating nodules and/or suspicious areas, have increased the positive predictive value of this test. The present iconographic essay aimed to illustrate a series of cases diagnosed with prostate adenocarcinoma in patients with PSA levels lower than or equal to 4.0 ng/ml and with abnormal digital rectal examination.

CASE SERIES: Patients undergoing randomized sextant biopsy with conventional technique for diagnostic elucidation. The findings of hypoechoic nodule type in the peripheral zone, diffuse hypoechogenicity, loss of differentiation between the peripheral zone and the internal gland, focal bulges or asymmetry of the peripheral zone, irregularities and interruption of the prostatic capsule were considered as suspicious alterations of cancer on ultrasound.

DISCUSSION: The cases presented confirm the importance of clinical examination through digital touch. All cases presented suspicious focal and/or diffuse B-mode changes associated or not with suspicious changes on Doppler analysis. Ultrasonography is useful, as it allows performing, in addition to random biopsies, biopsies aimed at echographic alterations, which have a greater positive predictive value for carcinoma. Prostatic carcinoma needs tools that are precise enough to promote its early detection, thus allowing adequate treatment, improved survival and lower morbidity.

CONCLUSION: The illustration of cases is a constant need in the training, continuing education and daily practice of urologists and sonographers.

KEYWORDS: ULTRASONOGRAPHY, PROSTATE NODULE, PROSTATE, PROSTATE BIOPSY, PROSTATE SPECIFIC ANTIGEN

INTRODUCTION

Prostate cancer is the most common malignancy in humans, with the exception of basal cell and squamous cell carcinomas of the skin [1]. The world estimate points out prostate cancer as the second most common type of cancer in men. [2]

According to the José Alencar Gomes da Silva National Cancer Institute (INCA), in Brazil, an estimated 65,840 new cases of prostate cancer are estimated for each year of the 2020-2022 triennium. This value corresponds to an estimated risk of 62.95 new cases per 100,000 men. [2]

Without considering non-melanoma skin tumors, prostate cancer ranks first in the country in all Brazilian regions, with an estimated risk of 72.35/100 thousand in the Northeast region; 65.29/100 thousand in the Midwest Region; 63.94/100 thousand in the Southeast Region; 62.00/100 thousand in the South Region and 29.39/100 thousand in the North Region.[2]

The diagnosis is made through the histopathological study of the tissue obtained from the prostate biopsy, and should be indicated when there is a prostate nodule detected on digital rectal examination and/or high PSA levels (generally above 4.0ng/mL). Recently, it is also indicated in younger patients (aged below 55 years) and who have a PSA above 2.5ng/ml, and in those in which the PSA density is greater than 0.15 and the annual growth velocity of PSA greater than 0.75ng/ml. [3]

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Lifestyle factors, including excess body weight, are strongly associated with the risk of developing multiple chronic pathologies (hypertension, diabetes, coronary artery disease, etc.), as well as being related to several types of cancer, among them, prostate cancer.[4]

From the performance of the transrectal ultrasound with histopathology, the findings of the prostatic nodules are obtained. Findings can be benign or malignant. The normal appearance of the prostate gland on ultrasound in the peripheral zone is more homogeneous and echogenic than in the central region. [5]

There is also the possibility of performing color Doppler imaging, which is important for delimiting the vascularization of the gland. However, the finding of hypervascularization on Doppler is not specific to prostate cancer, which can be explained by the increase in the number of vessels due to the histology of the region.[5]

Malignant nodules are usually found in the peripheral zone with hypoechoic areas and hypervascularization within them. In directed biopsy of the nodules, when faced with a prostate cancer, it is possible to perform the classification of the Gleason scale, which allows the understanding of the patient's prognosis. However, benign nodules can also be hypoechoic, as in focal hyperplasia, infarctions, and acute or chronic prostatitis. [5]

PSA sensitivity and specificity vary according to the cutoff point. If we use the 2.5ng/dl cutoff, there is an increase in sensitivity, but with a loss of specificity. (S=91.3% E=14.37% RV+= 1.06 with 95% CI 0.96-1.17). This PSA value increases diagnostic certainty in black men from 9.6% (pre-test prevalence) to only 11%27. When using the 4.0 cutoff, there is a loss of sensitivity and an improvement in specificity, despite maintaining a low likelihood ratio (S=71.73% E=46.25% RV+=1.31 with 95% CI 1.06- 1.64), increasing diagnostic certainty in black men from 9.6% (pre-test prevalence) to 13%.[6]

The association of altered digital rectal exam (DRE) with PSA ≥2.5ng/dl increases diagnostic certainty in black men from 9.6% to 38%; and in white men from 5.6% to 26%. The altered DRE with PSA ≥4.0 increases the diagnostic certainty of adenocarcinoma in black men to 44% and in white men to 31%.[6]

OBJECTIVE

The present iconographic essay aimed to illustrate cases from the authors' own image file, of diagnosis of prostate adenocarcinoma in patients with PSA levels lower than or equal to 4.0ng/ml and with abnormal digital rectal examination; submitted to randomized sextant biopsy with conventional technique, for diagnostic elucidation.

CASUISTRY AND METHODS

Ten patients who underwent randomized sextant biopsy with the conventional technique were evaluated for diagnostic elucidation. Such examinations were performed with a 4-10 MHz intracavitary transducer, by an ultrasonographer with more than five years of experience.

The findings of hypoechoic nodule type in the peripheral zone, diffuse hypoechogenicity, loss of differentiation between the peripheral zone and the internal gland, focal bulges or asymmetry of the peripheral zone, irregularities and interruption of the prostatic capsule were considered as suspicious alterations of cancer on ultrasound.

After the grayscale scan, the study with Amplitude Doppler and Color Doppler followed. Six random fragments were removed from each side of the peripheral zone, in addition to directed biopsies (two fragments) in case of focal alterations detected in the gray scale and/or in the Doppler analysis.

CASES AND DISCUSSION

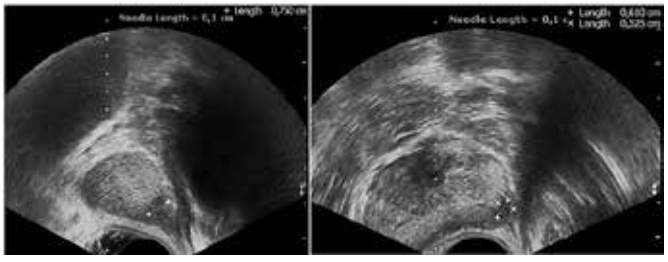
Currently, the diagnosis of prostate cancer is based on digital rectal examination, prostate-specific antigen (PSA) blood levels, and transrectal ultrasound (TRUS); however, none of them is sensitive and specific enough to be used alone in defining the conduct to be taken in relation to the patient.

PSA is a simple diagnostic tool used in prostate cancer screening and TRUS is a method that detects a greater number of tumors at earlier stages.

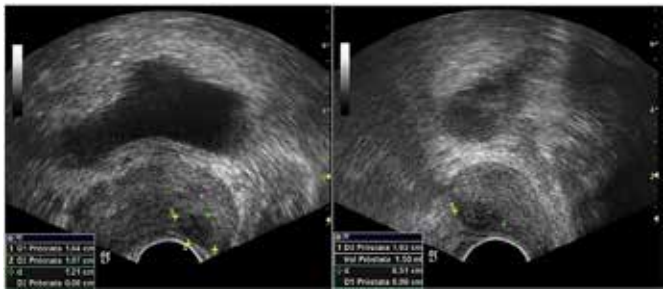
Technical advances with the introduction of color Doppler, an important adjuvant factor in the search for prostate cancer, have increased the positive predictive value and sensitivity of this test.

All cases presented suspicious focal and/or diffuse B-mode changes associated or not with suspicious Doppler changes (cases 1-10).

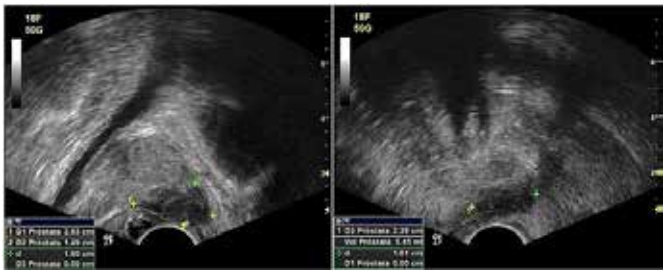
Case 01
Age: 67 years; PSA: 2.1 ng/ml; Prostatic volume: 28 g;
Ultrasonographic finding: Peripheral zone showing diffuse hypoechogenicity, with a solid hypoechogenic, irregular, imprecise nodule in the right middle third and slight hyperflow on Doppler.
Pathological anatomy (PA): Usual acinar adenocarcinoma of the prostate Gleason 6 (3+3)



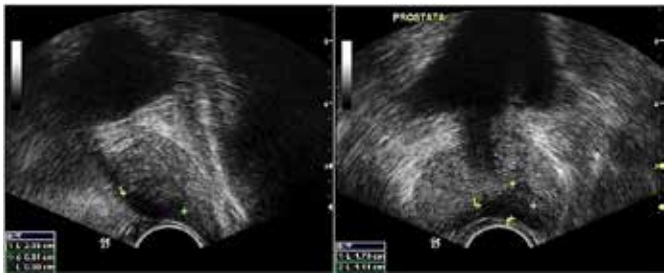
Case 02
Age: 58 years; PSA: 2.6 ng/ml; prostate vol.: 44 g;
Ultrasonographic Finding: Peripheral zone with diffuse hypoechogenicity, with a regular, hypoechogenic solid nodule in the left lateral apex
PA: Usual acinar adenocarcinoma of the prostate Gleason 6 (3+3)



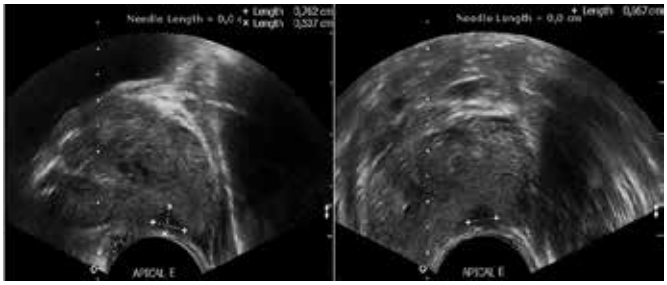
Case 03
Age: 65 years; PSA: 3.0 ng/ml; prostate vol.: 54 g;
Ultrasonographic Finding: Peripheral zone with a regular, hypoechoic solid nodule at the left medial base
PA: Usual acinar adenocarcinoma of the prostate Gleason 6 (3+3)



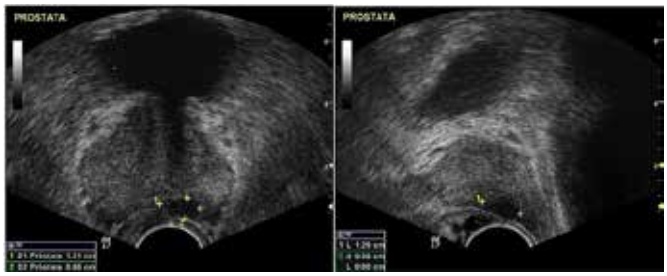
Case 04
Age: 67 years; PSA: 3.0 ng/ml; prostate vol.: 46 g;
Ultrasonographic Finding: Peripheral zone with diffuse hypoechogenicity, with irregular, hypoechogenic solid nodule in the left apex and middle third
PA: Usual acinar adenocarcinoma of the prostate Gleason 8 (4+4)



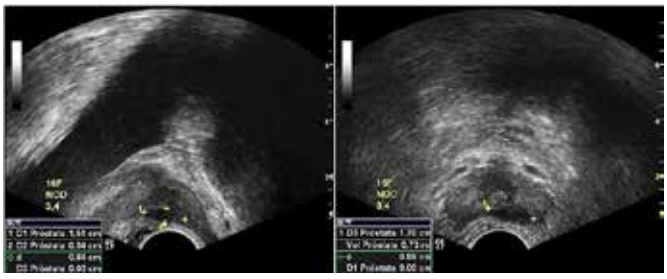
Case 05
Age: 67 years; PSA: 3.0 ng/ml; prostate vol.: 34 g;
Ultrasonographic Finding: Peripheral zone presenting diffuse hypoechogenicity, with a solid hypoechogenic, irregular nodule in the left medial third and base
PA: Usual acinar adenocarcinoma of the prostate Gleason 6 (3+3)



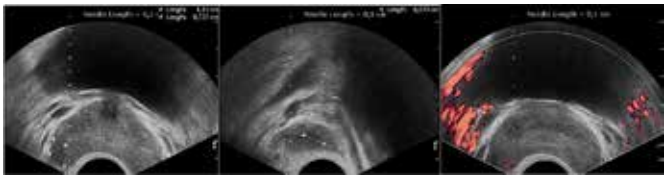
Case 06
Age: 56 years; PSA: 3.1 ng/ml; vol. prostate: 40 g;
Ultrasonographic Finding: Peripheral zone with a regular, hypoechoic solid nodule at the left medial apex
PA: Usual acinar adenocarcinoma of the prostate Gleason 6 (3+3



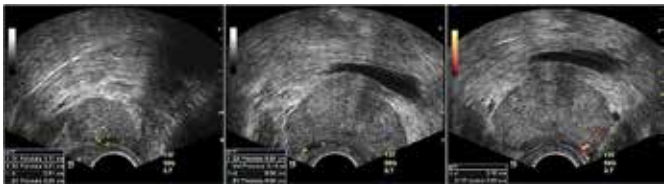
Case 07
Age: 73 years; PSA: 3.4 ng/ml; prostate vol.: 48 g;
Ultrasonographic Finding: Peripheral zone with a regular, hypoechoic solid nodule between the middle third and left medial apex
PA: Usual acinar adenocarcinoma of the prostate Gleason 8 (4+4)



Case 08
Age: 77 years; PSA: 3.4 ng/ml; prostate vol.: 17 g;
Ultrasound Finding: Peripheral zone with regular, imprecise, hypoechoic solid nodule in the left middle third
PA: Usual acinar adenocarcinoma of the prostate Gleason 7 (4+3)



Case 09
Age: 61 years; PSA: 3.7 ng/ml; prostate vol.: 64 g;
Ultrasonographic Finding: Peripheral zone with diffuse hypoechogenicity, with a regular, hypoechogenic solid nodule in the right medial third and slight flow on Doppler
AP: Usual acinar adenocarcinoma of the prostate Gleason 7 (3+4)



Case 10
Age: 74 years; PSA: 4.0 ng/ml; prostate vol.: 29 g;
Ultrasonographic Finding: Peripheral zone with diffuse hypoechogenicity, with a solid hypoechogenic, irregular nodule in the left lateral apex and hyperflow on Doppler
PA: Usual acinar adenocarcinoma of the prostate Gleason 6 (3+3)

CONCLUSION

Ultrasonography is useful, as it allows performing, in addition to random biopsies, biopsies aimed at echographic alterations, which have a greater positive predictive value for carcinoma. Prostatic carcinoma needs tools that are accurate enough to promote its early detection, thus allowing adequate treatment, improved survival and lower morbidity. The illustration of cases is a constant need in the training, continuing education and daily practice of urologists and sonographers.

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