ORIGINAL ARTICLE

BRAZILIAN JOURNAL OF ULTRASONOGRAPHY 2022; 32: 37-39 - **DOI** - 10.29327/261922-7

MAIN ULTRASONOGRAPHIC FINDINGS OF THE UPPER ABDOMEN

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ABSTRACT

Introduction: Ultrasonography of the upper abdomen is widely used in the investigation of abdominal symptoms, it is applied to identify alterations including the liver, bile ducts, gallbladder, pancreas and spleen. Ultrasonography is understood as a safe method and is characterized by being low cost and accessible to all audiences, with high sensitivity for the detection and diagnosis of anatomical diseases and alterations, as it is an imaging test that enables early signs and changes to help in the identification, diagnosis and immediate start of treatment, contributing to the confrontation of the disease in a timely manner for resolution, being important for the detection of injuries or alterations in our organs.

Objectives: To discover the main signs of ultrasonography of the upper abdomen.

Methods: Cross-sectional, observational study carried out at the Fertile Clinic between January 2021 and January 2022.

Results: Of the 415 reports analyzed, the mean age was 39.43 years, age ranging from 14 to 77 years of both sexes. The frequency of altered findings was 16%. Of the suspected diagnostic hypotheses, 1.58% were 98.42% benign diagnoses. The main diagnostic hypothesis found was steatosis with 46.03%, the liver being the most affected organ with 69%.

Conclusion: The main diagnostic hypothesis found was steatosis with 46.03%, the liver being the most affected organ with 69%. The frequency of altered findings was 16%.

KEYWORDS: ULTRASONOGRAPHY, UPPER ABDOMEN, ALTERATIONS

INTRODUCTION

Ultrasonography of the upper abdomen is widely used in the investigation of abdominal symptoms, it is applied in order to identify changes comprising the liver, bile ducts, gallbladder, pancreas and spleen[1].

Conducting a brief analysis of the historical aspects related to the advent of ultrasonography, the literature shows that this exam started to be used in the evaluation of Spiegel's hernia from the pioneering studies of Leif Spangen in 1976[2].

Regarding ultrasound, it is worth noting that it is a fast, non-invasive method that provides good quality images and adequately highlights the structures, even in obese patients, and can be easily performed in emergency situations. This test has also been widely used in the study of hernias and for the differentiation of palpable masses, when there is doubt in the clinical examination [3].

Over the years, the quality of the images has improved, with the use of high-frequency transducers, the possibility of dynamic evaluation and the detailed study of muscle planes, allowing this exam to be increasingly indicated [4].

Ultrasonography is a technique that does not emit radiation, unlike most exams that perform diagnostic imaging. In addition, it is a low cost safe method with high sensitivity that does not use ionizing radiation [5].

Ultrasonography is understood as a safe method and is characterized by being low cost and accessible to everyone, it has high sensitivity for the detection and diagnosis of diseases and anatomical alterations, as it is an imaging test that enables early signs and changes to help in the identification, diagnosis and immediate start of treatment, contributing to the fight against the disease in a timely manner to resolve it, being important for the detection of diseases or even changes in the organs, justifying the importance of this subject for the accomplishment of this work [6].

In the present study, the objective is to report the main findings of upper abdominal ultrasound.

MATERIALS AND METHODS

Cross-sectional, observational study in which the researcher does not interact with the sample population directly, but through analysis and evaluation achieved through observation. It is also descriptive, analytical and quantitative.

The sample population is patients from clinics who underwent imaging exams defined by ultrasound of the upper abdomen aged between 14 and 77 years of both genders, between the months of January 2021 and January 2022.

The period of data collection and analysis took place between November 2021 and January 2022. The data collection instrument was the Clínica Fértile database, specifically in the files and records for ultrasound results for the upper abdomen performed

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at the clinic in the established period in the study sample.

The sample consisted of 415 exams, which were analyzed and selected in a table in order to demonstrate the quantity for each finding.

Regarding ethical aspects, the research project that precedes this article was submitted to the Ethics Committee through the Brazil platform, respecting the ethical principles that regulate research on human beings (Resolution 466/12).

RESULTS

A total of 415 reports of ultrasounds of the upper abdomen performed at Clínica Fértile between January 2021 and January 2022 were analyzed. The mean age of the studied group was 39.43 years, age ranging from 14 to 77 years of both sexes.

The findings are presented in figure 1 and tables 1 and 2.

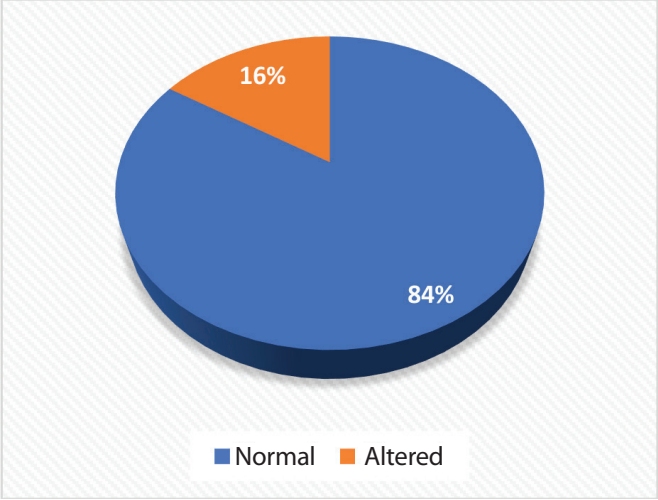

Figure 1 – Distribution of upper abdominal ultrasound findings performed at Clínica Fértile between January 2021 and January 2022, Goiânia, Goiás

The main diagnostic hypothesis found was steatosis with 46.03%, the liver being the most affected organ with 69%.

Diagnostic hypothesis	N	%
Grade I steatosis	29	46,03%
Grade II steatosis	13	20,63%
Hepatic hemangioma	11	17,46%
Cholecystolithiasis	5	7,94%
Grade III steatosis	3	4,76%
Amorphous area of the hepatic hilum of 5.4 cm	1	1,59%
TOTAL	63	100%

Table 1 – Distribution of diagnostic hypotheses of upper abdomen ultrasound findings performed at Clínica Fértile between January 2021 and January 2022, Goiânia, Goiás

Location	n	%	Changes	N	%
Liver	57	69%	Steatosis	45	78,9%
Gallbladder	5	6%	Cholecystolithiasis	5	100%
Pancreas	1	1%	Solid nodule	1	100%

Table 2 – Distribution of location and main diagnostic hypotheses of upper abdomen ultrasound findings performed at Clínica Fértile between January 2021 and January 2022, Goiânia, Goiás

DISCUSSION

Non-traumatic abdominal pathology is one of the most common reasons for consultation in emergency services. Abdominal pain is the presenting symptom of many diseases, which often require urgent care. Clinical history and physical examination are rarely sufficient to establish a definitive diagnosis, and imaging tests are usually necessary[7].

Some authors claim that the location of pain is a useful starting point and will guide an assessment. However, some causes are more frequent in the pediatric population or are strictly related to sex. It is also important to consider special populations, such as the elderly or cancer patients, who may have atypical symptoms of a disease. These considerations also reflect a different diagnostic approach. However, for the evaluation of the acute abdomen, ultrasound (US) remains the main imaging technique in most cases, especially in young and female patients, when limiting radiation exposure should be mandatory[8].

Of the 415 reports analyzed, the mean age was 39.43 years, age ranging from 14 to 77 years of both sexes. The frequency of altered findings was 16%, which differs from a study with 138 patients in which the diagnosis was altered in a small proportion 7.8%[1].

Of the suspected diagnostic hypotheses, 1.58% were 98.42% benign diagnoses. The main diagnostic hypothesis found was steatosis with 46.03%, the liver being the most affected organ with 69%.

Fatty liver disease (hepatic steatosis) has an overall prevalence of 25.24%, with 40.76% progression to fibrosis. Fatty liver, or hepatic steatosis, refers to the abnormal accumulation of triglycerides within the hepatocytes, which may have mainly a metabolic (MAFLD) and/or alcoholic cause. The more intense the fat deposition, the more hyperechoic the liver parenchyma, the more accentuated the hepatorenal contrast and discrete irregularities can be observed on the organ surface and edges, which become progressively more blunt. Steatosis can be graded by US as: - Mild: there is a slight and diffuse increase in hepatic echogenicity, and it is possible to normally visualize the diaphragm and the borders of the portal vein and intrahepatic vessels; - Moderate: moderate and diffuse increase in hepatic echogenicity, making it possible to visualize the diaphragm and the borders of the portal vein and intrahepatic vessels with little difficulty; - Marked: marked increase in hepatic echogenicity, making it very difficult or practically impossible to visualize the hepatic vessels, the portal vein wall, diaphragm and posterior

part of the right hepatic lobe [9,10].

In a study to investigate the accuracy of ultrasound in the assessment of hepatic steatosis compared to magnetic resonance imaging (MRI) a total of 2783 volunteers (1442 females, 1341 males; mean age, 52.3 ± 13.8 years) underwent liver MRI; MRI revealed hepatic steatosis in 40% of participants (n=1,112), which was mild in 68.9% (n=766), moderate in 26.7% (n=297), and severe in 4.4% (n=49) of patients. Ultrasonography detected hepatic steatosis in 37.8% (n=1,052), corresponding to 74.5% sensitivity and 86.6% specificity. The ultrasound sensitivity increased with the amount of liver fat present and was 65.1%, 95% and 96% for low, moderate and high fat; while specificity was consistently high at 86.6%. The diagnostic accuracy of ultrasound for detecting hepatic steatosis did not vary significantly with the amount of hepatic iron present. Ultrasonography is an excellent tool to assess hepatic steatosis in the clinical setting with some limitations in patients with low liver fat[11].

CONCLUSION

The main diagnostic hypothesis found was steatosis with 46.03%, the liver being the most affected organ with 69%. The frequency of altered findings was 16%.

Ultrasonography is widely used for the screening of abdominal changes and allows an effective, complete, cheap and safe evaluation of all organs.

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