

GRYNFELTT'S HERNIA: ABOUT A CASE

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ABSTRACT

INTRODUCTION: proposed by Barbette and confirmed in 1731 by DeGarangeot, lumbar hernias are a rare case among diagnoses, corresponding to 1.5-2% of abdominal wall hernias cases. They are defined as an impairment in the transverse fascia or aponeurosis of the transversus abdominis muscle that results in the extrusion of intra- or extra-peritoneal organs through the discontinuity of the posterolateral abdominal wall and is classified as an inferior or superior lumbar hernia.

CASE REPORT: this paper is to report a case of Grynfeltt hernia, showing the importance of ultrasound in diagnosis. Ultrasonography is an important tool to define the local anatomy and contents of the hernia sac.

CONCLUSION: despite their rarity, lumbar hernias should be considered in the differential diagnosis of masses in this region, and ultrasonography is an instrument with high sensitivity and specificity for its diagnosis.

KEYWORDS: HERNIA; ABDOMINAL HERNIA; ULTRASONOGRAPHY

INTRODUCTION

Hernia, a general term derived from the Greek word "hernios" ("budding"), presents itself as a protrusion through an orifice, natural or accidental, of the cavity that contains it, having a tissue or organ as its content¹. Lumbar hernia is characterized as a failure in the transversalis fascia or in the aponeurosis of the transversus abdominis muscle that results in the extrusion of intra or extraperitoneal structures through the discontinuity of the posterolateral abdominal wall². Proposed for the first time in 1672 by Barbette et al. confirmed by DeGarangeot in 1731, after an autopsy, lumbar hernias are a rare case among the diagnoses of abdominal wall hernias, accounting for 1.5 to 2% of reported cases^{2,3}. Although the disease was described in the 18th century, the first anatomical description of the upper lumbar triangle was made in 1866 by Grynfeltt⁴.

The lumbar region is bounded superiorly by the space between the twelfth rib, inferiorly by the iliac crest, medially by the erector spinae muscle, and laterally by the external oblique muscle. Thus, lumbar hernias are anatomically subdivided into upper lumbar hernia (Grynfeltt-Lesshaft triangle) and lower lumbar hernia (Petit triangle). In addition, they have two main types, congenital or acquired, the second being classified according to its etiology in primary or secondary^{1,2}.

Grynfeltt's hernia is a defect in the upper lumbar triangle and has a variable and nonspecific clinical presentation⁴. One in every ten patients with lumbar hernia has acute complications, such as intestinal or urinary obstruction, requiring emergency intervention⁵. Due to low occurrence, this alteration has a low identification rate, even

though it is easy to diagnose, being mistakenly diagnosed as other causes that cause bulging in the lumbar region, for this reason its consequences can be serious, increasing morbidity and mortality rates⁶.

The aim of this article is to present a case of Grynfeltt's hernia and the corresponding ultrasound imaging findings.

CASE REPORT

Female, 63 years old, healthy, presented to the outpatient clinic complaining of bulging in the right lumbar region for more than six months (Figure 1), with no other complaints. No previous surgeries, history of trauma or associated comorbidities. On palpation, the texture is of a soft tissue mass attached to the deep planes.



Figure 1 – Upon inspection, a bulge is observed in the right lumbar region.

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She was referred for ultrasound, which was performed with high-frequency linear equipment and the presence of a hernia neck measuring 1.2 x 0.8 cm was detected in the right lumbar region, lateral to the right quadratus lumborum muscle, and to the erector spinae muscle, immediately caudal to the 12th rib. The content of the hernial sac was pararenal fat. A slight increase in hernial volume can be observed with the Valsalva maneuver. Based on the radiological and clinical findings, a diagnosis of right upper lumbar hernia (Grynfeltt's hernia) was made (figures 2 to 4).



Figure 2: Cross-section of the right upper lumbar triangle showing hernia sac with pararenal fat content.



Figure 3: Dynamic ultrasound image in the sagittal plane of the right upper lumbar triangle region.



Figure 4: Dynamic ultrasound image in the axial plane of the region of the right upper lumbar triangle (note the lower pole of the right kidney and the immediately caudal hernia colon).

DISCUSSION

In 1783, Jean Louis Petit determined the anatomical limits of the inferior lumbar triangle, giving his name to this anatomical structure³. After this feat, it was believed that lumbar hernias originated only in the inferior triangle of Petit, but in 1866, Grynfeltt described the anatomical limits of the superior lumbar triangle. In 1870, the German researcher Lesshaft described the same area as Grynfeltt, which is why this space has its proper name of Grynfeltt-Lesshaft triangle⁷.

The classification of hernias in the lumbar region is made according to anatomy, and can be divided into superior, inferior or diffuse, the latter being of considerable size and not delimited by any anatomical structure similar to the superior or inferior triangle. The superior lumbar triangle, or Grynfeltt-Lesshaft triangle, is an inverted triangle whose anatomical limits are the 12th rib and superiorly the posterior inferior serratus muscle, laterally the posterior border of the internal oblique muscle and medially the anterior border of the erector spinae muscle⁵.

With only 300 cases reported since its discovery in 1731, lumbar hernias are rare entities, predominantly in males between the 6th and 7th decade of life⁷ and represent less than 2% of all hernias of the abdominal wall^{4,9}. Clinically, it may appear as a hemispherical protuberance on the back, induced by the Valsalva maneuver, which reduces in the dorsal position². Most affected patients complain of flank pain, of different intensities, and back discomfort¹. There are no pathognomonic signs or symptoms of Grynfeltt's hernia, and nausea, vomiting and abdominal colic may be present in cases of strangulation with intestinal obstruction³. Intercostal neuralgia, abdominal pain, intestinal obstruction, hydronephrosis and hydroureter are rarely described, and there are asymptomatic cases¹. Occasionally, bowel sounds and the presence of tympanism on percussion are heard when there is colon in the hernial sac⁶.

According to the etiology, they are divided into congenital or acquired. The congenital ones represent about 20%

of the cases⁷. Their main causes are musculoskeletal defects during the embryonic period, where the intermuscular septum becomes occupied by the fascia and aponeurosis of the oblique muscles and the weakening of this region can lead to the appearance of herniations³.

Acquired hernias account for 80% of lumbar hernia cases and are subdivided into two categories: primary, when they occur spontaneously, with the possibility of being precipitated by conditions associated with increased intra-abdominal pressure (pregnancy, ascites, obesity, chronic bronchitis), extreme thinness, posterior abdominal wall weakness caused by aging and muscle atrophy, accounting for 25%; and secondary, after trauma, surgery (aortic, renal or adrenal), abscesses, retroperitoneal hematoma, direct force or penetrating wounds, accounting for 55% of cases^{2,6}. Considering the clinical conditions, history and age, we consider that this case is classified as a primary acquired upper lumbar hernia.

There is a morphometric classification, by Moreno-Egea, which is performed by the surgeon in the transoperative period and helps in choosing the type of hernia repair⁷. One of the parameters is the area of the hernia neck, so it will be of value if the ultrasonographer is able to measure two perpendicular radii of the neck for calculating the ellipse area (area = radius1 x radius2 x π).

The content of the hernial sac is variable, and may be of retroperitoneal origin, kidneys, urinary bladder, ascending or descending colon and extra-peritoneal fat, or intraperitoneal, such as the upper part of the duodenum, jejunum, ileum, omentum, preperitoneal fat, stomach and spleen⁸. It can even be paraperitoneal when the peritoneum slips, adhering to the viscera⁷.

The recognition of this entity is usually difficult and is not always assumed at the beginning of the condition, given the small number of reports². It should always be included in the differential diagnosis of lumbar masses such as fibromas, lipomas, hematomas, retroperitoneal tumors, locoregional abscesses, kidney tumors, rhabdomyomas, sarcomas, and muscle hernias^{3,6,10}.

Although the diagnosis is clinically suspected, imaging tests should always be considered, as in addition to the defect in the posterior abdominal wall, it can reveal the hernia content (viscera or extraperitoneal tissue), contributing to surgical planning^{5,9}.

Ultrasonography, in addition to being free of ionizing radiation, allows obtaining dynamic images both at rest and during the Valsalva maneuver, increasing the sensitivity and specificity of the method⁷. As it is a rare entity, the disease may be underdiagnosed by less experienced sonographers.

CONCLUSION

Although it is a rare entity, the diagnosis of lumbar hernia should be considered in the differential diagnoses of lumbar masses when performing imaging tests. Defining the boundaries of the mass can help the sonographer to identify the hernia cervix.

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