

CASE REPORT

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Incarcerated femoral hernia with ovarian contents

Hernia femoral encarcelada con contenido de ovario

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ABSTRACT

Femoral hernias account for less than 10% of inguinal hernias; they occur mainly in adult women and have a higher rate of complications associated with incarceration compared with other abdominal hernias. The most frequent contents inside the hernia sac are intestinal loops, preperitoneal fat and omentum. Other abdominal structures, such as appendix, bladder, Meckel's diverticulum, ectopic testis and stomach are extremely rare. The uterus, ovary, and fallopian tubes are rarely present in an inguinal hernia. Incarcerated femoral hernia with ovary as content is an extremely rare condition in adult females. Most cases occur in girls and are often associated with congenital defects of the genitalia. Preoperative diagnosis to establish the contents of the hernia can be difficult, but conventional ultrasonography can be helpful in identifying the characteristics of the contents. The traditional treatment is open repair. However, laparoscopic surgery can confirm the diagnosis and evaluate the possibility of ischemic changes in the contents of the hernia sac. A case of incarcerated femoral hernia with ovarian content is presented.

Key words: Hernia, femoral, Ovary

RESUMEN

Las hernias femorales representan menos del 10% de las hernias inguinales; aparecen principalmente en mujeres adultas y tienen una mayor tasa de complicaciones asociadas al encarcelamiento comparadas con otras hernias abdominales. El contenido más frecuente en el interior del saco herniario son las asas intestinales, grasa preperitoneal y epiplón. Otras estructuras abdominales, como apéndice, vejiga, divertículo de Meckel, testículos ectópicos y estómago, son extremadamente raros. El útero, el ovario y las trompas de Falopio rara vez están presentes en una hernia inguinal. La hernia femoral encarcelada con ovario como contenido es una condición extremadamente rara en mujeres en la edad adulta. La mayoría de los casos ocurren en niñas y con frecuencia se asocian con defectos congénitos de los genitales. El diagnóstico preoperatorio para establecer el contenido de la hernia puede ser difícil, pero la ecografía convencional puede ser útil para identificar las características del contenido. El tratamiento tradicional es la reparación abierta. Pero, la cirugía laparoscópica permite confirmar el diagnóstico y evaluar la posibilidad de modificaciones isquémicas en el contenido del saco herniario. Se presenta un caso de hernia femoral encarcelada con contenido de ovario.

Palabras clave. Hernia femoral; Ovario.

INTRODUCTION

Hernias represent a common surgical pathology; about 75% of cases occur in the inguinal region. Femoral hernias account for approximately 2% - 8% of all inguinal hernias and occur mainly in adult women⁽¹⁾. Due to the small size of the defect in the femoral ring and the rigid ligamentous structures, incarceration is more common compared to other abdominal hernias⁽²⁾.

The contents within the hernial sac usually consist of bowel loops, preperitoneal fat or omentum. Other anatomical structures, such as the appendix, bladder, Meckel's diverticulum, ectopic testis, stomach and gynecological organs, are extremely unusual⁽²⁾. Incarcerated femoral hernia with the ovary as content is an extremely rare entity. Due to its low frequency, it is essential to know the characteristics and content of the incarcerated femoral hernia, before or even during surgery, in order to choose the most appropriate management⁽³⁾. A case of incarcerated femoral hernia with ovarian content is presented.



CLINICAL CASE

A 39-year-old patient, gestation 3, para 3, came to the emergency room presenting increased volume and pain in left inguinal region, of moderate to severe intensity and 24 hours of evolution, accompanied by vomiting, nausea and anorexia. She reported having suffered of dysmenorrhea for the last 12 months, with normal menstrual cycles. She denied a history of constipation, changes in bowel habits and increased body temperature, as well as any significant personal, surgical or family history.

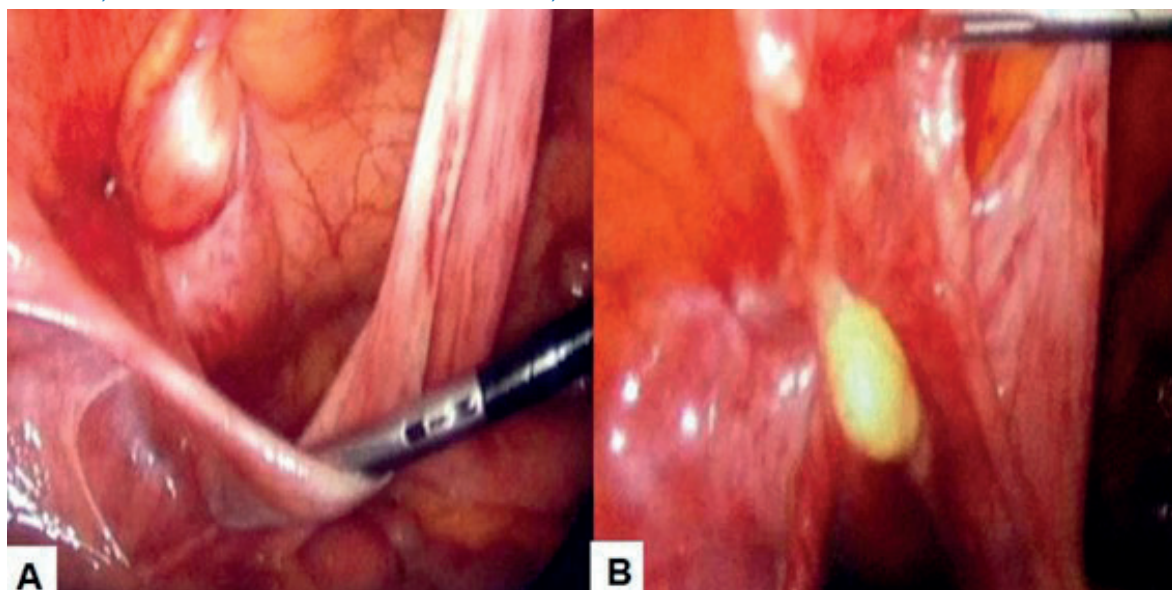
On physical examination, the patient was afebrile, hemodynamically stable, with slight cutaneous-mucosal dehydration. Abdominal examination revealed mild to moderate pain on palpation in the left lower quadrant. There was an increase in volume in the left inguinal region of approximately 5 centimeters in diameter, very painful and sensitive to palpation, non-pulsatile, with a smooth and irreducible surface, apparently located below the inguinal ligament. There were no signs of phlogosis or alterations in the external genitalia. The breasts were normal in appearance. The rest of the physical examination was within normal limits.

The results of hematological and biochemical tests were all normal, without elevation of leucocyte count or C-reactive protein concentrations. Plain abdominal radiography was normal. Abdomino-pelvic ultrasound images showed a

well-defined solid lesion above the left femoral vessels, in apparent continuity with the round ligament into the abdominal cavity. Its vascularization was preserved and it was accompanied by a peristaltic segment, compatible with intestinal loop with edematous wall. Abdomino-pelvic computed tomography defined a solid-cystic structure measuring 4 × 3 centimeters together with another cord-like structure in the left inguinal region. The content was considered to be intestinal loops accompanied by another structure to be defined. The presumptive diagnosis was of an incarcerated left femoral hernia. When attempting manual reduction with analgesia and physical means, the patient had intense pain, so the maneuver was unsuccessful. In view of the above, it was decided to intervene surgically.

During laparoscopy it was found that the femoral hernia contained within the sac a small portion of small bowel next to the left ovary, but not the fallopian tube. Since it was impossible to remove the hernial contents, it was decided to open the superior aspect of the inguinal ligament to move the contents into the pelvic cavity. The ovary was removed with difficulty and, although it was edematous, no signs of ischemic damage were detected (Figure 1). The ovary, fallopian tube and fimbriae showed no anatomical abnormalities. The herniorrhaphy closed the defect and subsequently covered it with monofilament polypropylene prosthetic mesh. This was sutured medial and anterior to Cooper's ligament and the femoral sheath with nonabsorbable suture, and

FIGURE 1. A) INCARCERATED FEMORAL HERNIA WITH LEFT OVARY INSIDE. B) VIABLE LEFT OVARY AFTER REMOVAL OF THE HERNIA SAC.





the inguinal ligament was closed over the mesh. No alterations were found in the exploration of the rest of the pelvic and abdominal cavity.

Postoperative recovery was uneventful and the patient was discharged after 48 hours in good condition. There was no recurrence of symptoms after 18 months of follow-up.

DISCUSSION

The femoral canal is an inverted cone of elliptical shape which measures approximately 2 centimeters in length and extending from annulus to the femoral orifice. It is located medial to the femoral vessel and normally contains lymphatics and lax adipose tissue⁽⁴⁾. The femoral hernia appears below the inguinal ligament, protruding between the lacunar ligament and the femoral vein⁽⁵⁾. Because the femoral ring is anatomically wider in women than in men, femoral hernia is four to five times more common in women, in the age group 40 to 70 years and occurs more frequently on the right side⁽⁵⁻⁷⁾.

Hernias with uterine or adnexal contents are extremely rare in premenopausal women (3% of all cases). Most are found in the pediatric age, generally associated with genital anomalies^(8,9). The anatomical location of the uterus and adnexa makes this type of hernia unusual, especially in adult women⁽³⁾. There are fewer than 15 reports of femoral hernias incarcerated with ovarian and/or uterine content. The ovary as the only element within the hernia sac has been described on two occasions⁽¹⁰⁾. In our case, the presence of the ovary within the femoral hernia was confirmed during surgery, with no evidence of uterine or other adnexal abnormalities.

The primary cause of femoral hernia is an enlarged femoral ring, while the secondary etiology is a prolonged state of elevated intra-abdominal pressure, which leads to excess pressure of the preperitoneal fat on a congenitally enlarged femoral ring, associated with acquired weakness of the abdominal wall in adults^(5,6). Another hypothesis proposes the existence of failures in the fusion of the Müllerian ducts, which causes anatomical anomalies related to the weakness of the utero-ovarian suspensory ligaments^(5,7).

On physical examination, femoral hernias present with inguinal pain and / or non-pulsatile and

irreducible enlargement below the inguinal ligament, below and lateral to the pubis. Due to the type of defect of the femoral ring and its rigid ligamentous structures, incarceration is seen much more frequently with these hernias than with other abdominal hernias. Patients often have a prolonged history of small groin swelling. In some chronic cases, symptomatology may coincide with menstrual cycles. They may also present with unusual symptoms, such as intermittent abdominal pain or symptoms that can mimic ileus or intestinal obstruction⁽²⁾.

Clinical examination remains the gold standard for preoperative diagnosis in incarcerated femoral hernia, but diagnostic accuracy ranges from 25% to 40%⁽¹²⁾. Despite efforts to diagnose preoperatively the contents of the hernia sac, most cases are diagnosed during surgery. Early recognition ensures prompt surgical intervention and prevents injury to organs incarcerated within the hernias. However, preoperative high-frequency transducer ultrasound is close to 100% effective in identifying the contents⁽¹³⁾. In some cases, the morphological characteristics of the ovary can be evaluated by ultrasound and / or demonstrate absence of the ovary ipsilateral to the hernia. In addition, color Doppler ultrasound may show portions with arterial flow compatible with the corpus luteum⁽¹⁴⁾.

Differential diagnoses of this condition include lymphadenitis, lymphangioma, lipoma and other tumors. Difficulties in arriving at a specific diagnosis are related to the infrequency of the pathology, inexperience of the surgeon and inadequate physical examination⁽¹²⁾.

The traditional treatment is open repair. Incarcerated femoral hernia is generally associated with disorders of the vascularization of the organs within the hernial sac, which justifies emergency surgery⁽⁶⁾. Among the three basic surgical approaches (femoral, inguinal and preperitoneal), most surgeons prefer the inguinal approach in the presence of incarceration or strangulation, as it provides excellent exposure of the femoral annulus and facilitates hernia release. In addition, there is opportunity to resect the tissues with vascularization alterations, if necessary⁽²⁾. In this case, the preperitoneal approach was preferred to ensure evaluation and repositioning of affected ovary.



Reduction of the sac contents (uterine adnexa) of the femoral hernia should always be attempted in women of reproductive age and girls without ovarian or tubal abnormalities, as long as there is no life-threatening complication, such as acute salpingitis⁽¹⁵⁾. Laparoscopic surgery makes it possible to confirm the diagnosis and evaluate the possibility of ischemic changes in the contents of the hernia sac. It also is associated with a rapid recovery and better cosmetic results⁽¹⁰⁾.

There are different surgical repair techniques for femoral hernia. The McVay operation, the polypropylene plug mesh technique and the laparoscopic approach are the surgical modalities most commonly used today. Some authors suggest, after releasing without causing damage to the organs within the hernial sac, classical herniorrhaphy with high ligation, while other authors advocate closure with prosthetic material^(1,5). The recurrence rate after femoral hernia repair is 1% to 10%. Technical insufficiency and lack of anatomical knowledge of the femoral hernia ring are the most important elements associated with recurrence⁽⁴⁾.

In conclusion, femoral hernia is common in adult women. They generally lead to incarceration of their contents, usually bowel loops; but also, other pelvic organs can be inside them, such as the ovary. Prompt diagnosis and timely treatment minimize the complications of incarceration. Although it is a very rare entity, this diagnosis should be considered in patients with irreducible volume increase in the inguinal or femoral region, in order to avoid serious complications secondary to necrosis of the contents.

REFERENCIAS BIBLIOGRÁFICAS

1. Taher H, Azzam A, Kamal A, Husseiny R, Farrag M, Nayef A, et al. Hernia uteri inguinale in an 18 months old female infant: A case report. *Int J Surg Case Rep.* 2021;78:1-3. doi: 10.1016/j.ijscr.2020.11.125
2. Marcos-Santos P, Bailon-Cuadrado M, Choolani-Bhojwani E, Pacheco-Sanchez D. Femoral hernia containing the right fallopian tube: chronic pain with menstruation. *Ann R Coll Surg Engl.* 2019;101(7):e157-e159. doi: 10.1308/rcsann.2019.0082
3. Ambedkar V, Singh A, Bain J, Singh LM. A rare case of femoral herniation of female internal genitalia. *J Nat Sci Biol Med.* 2015 Jul-Dec;6(2):454-6. doi: 10.4103/0976-9668.160038
4. Köckerling F, Koch A, Lorenz R. Groin hernias in women - a review of the literature. *Front Surg.* 2019;6:4. doi: 10.3389/fsurg.2019.00004
5. Hachisuka T. Femoral hernia repair. *Surg Clin North Am.* 2003;83(5):1189-205. doi: 10.1016/S0039-6109(03)00120-8
6. van Veenendaal N, Simons M, Hope W, Tumtavitikul S, Bonjer J; HerniaSurge Group. Consensus on international guidelines for management of groin hernias. *Surg Endosc.* 2020;34(6):2359-77. doi: 10.1007/s00464-020-07516-5
7. Clyde DR, de Beaux A, Tulloh B, O'Neill JR. Minimising recurrence after primary femoral hernia repair; is mesh mandatory? *Hernia.* 2020;24(1):137-42. doi: 10.1007/s10029-019-02007-6
8. Pampal A, Atac GK. Torsion of the ovary in an incarcerated inguinal hernia. *Pediatr Emerg Care.* 2013;29(1):74-5. doi: 10.1097/PEC.0b013e31827b54f1
9. Pillay Y. Laparoscopic repair of an incarcerated femoral hernia. *Int J Surg Case Rep.* 2015;17:85-8. doi: 10.1016/j.ijscr.2015.10.031
10. Soeta N, Saito T, Nemoto T, Oshibe I, Gotoh M. Laparoscopic repair of irreducible femoral hernia containing the fallopian tube alone: a case report. *Surg Case Rep.* 2016;2(1):57. doi: 10.1186/s40792-016-0185-y
11. Yang X, Chen Q, Jiang J, Cai X. Irreducible inguinal hernia containing rudimentary uterine horn, ovary, and fallopian tube. *Clin Exp Obstet Gynecol.* 2014;41(5):601-2
12. García-Hernández C, Carvajal-Figueroa L, Archivaldo-García C, Pique-Aragón C, Landa-Juárez S, Izundegui-Ordóñez G. Femoral hernia in children: diagnostic and therapeutic challenge. Case report. *Cir Cir.* 2020;88(Suppl 1):74-8. doi: 10.24875/CIRU.20001580
13. Kumar D, Maheshwari S, Rajesh U, Grewal D, Maria V. Herniation of the uterus, ovaries and fallopian tubes into the canal of Nuck in a 4-month-old child: A rare entity. *SA J Radiol.* 2020;24(1):1935. doi: 10.4102/sajr.v24i1.1935
14. Amini R, Baker N, Woolridge DP, Echeverria AB, Amini A, Adhikari S. Emergency department diagnosis of an ovarian inguinal hernia in an 11-year-old female using point-of-care ultrasound. *World J Emerg Med.* 2018;9(4):291-3. doi: 10.5847/wjem.j.1920-8642.2018.04.010
15. Prodromidou A, Machairas N, Garoufalia Z, Kostakis ID, Kyriakidis AV, Spartalis E, et al. Ovarian inguinal hernia. *Ann R Coll Surg Engl.* 2020;102(2):75-83. doi: 10.1308/rcsann.2019.0137