

Garengoet's hernia complicated with inguinal abscess. Review of the literature

Hernia de Garengoet complicada con absceso inguinal, revisión de la literatura

Francisco Xavier Cabrera-Mendoza,* Aurelio Barrera-González,*
Jesús Galindo-Jiménez,* Joel Castillo-Espinoza,† Edgar Cantú-Rodríguez‡

Keywords:

Femoral hernia, acute appendicitis, complication, diagnostic imaging.

Palabras clave:

Hernia femoral, apendicitis aguda, complicación, imagen diagnóstica.

ABSTRACT

The sliding of the cecal appendix through the femoral canal is known as Garengoet's hernia. Its presentation complicated with abscess is extremely rare and a cause of diagnostic confusion. We describe a case presenting with groin abscess resulting from an acute appendiceal picture in a Garengoet's hernia along the diagnostic and therapeutic approach he underwent. The review of isolated cases agrees that appendectomy should be performed, as well as hernioplasty according to the surgeon's expertise and experience.

RESUMEN

Se conoce como hernia de Garengoet al deslizamiento del apéndice cecal a través del canal femoral, su presentación complicada con absceso es en extremo rara y causa de confusión diagnóstica. Se describe un caso que presenta absceso inguinal resultado de un cuadro apendicular agudo en una hernia de Garengoet (y el abordaje diagnóstico y terapéutico que llevó a cabo). La revisión de casos aislados coincide en que se realice apendicectomía, así como hernioplastia de acuerdo con el dominio y experiencia del cirujano.

INTRODUCTION

The sliding of the cecal appendix into an inguinal hernia sac is known as Amyand's hernia, first described by Claudius Amyand, who simultaneously performed the first appendectomy.¹ A Garengoet's hernia, so recognized by the eponymous French surgeon who described an acute appendiceal picture in a femoral hernia in 1731, has been associated with congenital defects and is therefore much more frequent in women. The cecal appendix is a rare finding in femoral hernias and even rarer in the presence of acute appendicitis within the femoral canal, representing about 0.1% of femoral hernia² and 0.13 to 0.8% of all cases of acute appendicitis.³ In the present case, a diagnostic and therapeutic approach to this rare presentation is proposed.

PRESENTATION OF THE CASE

An 84-year-old woman with a history of systemic arterial hypertension and chronic atrial fibrillation controlled with enalapril and verapamil. Within her surgical history, four years prior to the current condition, she underwent emergency surgery for a right direct strangulated inguinal hernia, with intestinal content, approached in the inguinal region, requiring intestinal resection and entero-entero-terminal anastomosis and Shouldice hernioplasty. Her postoperative period was satisfactory, and she was discharged without complications. Her current condition began with a mass in the inguinal region, which was growing slowly, initially presenting with dull mild pain. She did not give it importance. In the following two weeks she noticed an important

* Department of General Surgery.

† Department of Diagnostic and Therapeutic Radiology.

Monterrey Regional Hospital ISSSTE, Mexico.

Received: 08/13/2019
Accepted: 11/20/2019



How to cite: Cabrera-Mendoza FX, Barrera-González A, Galindo-Jiménez J, Castillo-Espinoza J, Cantú-Rodríguez E. Garengoet's hernia complicated with inguinal abscess. Review of the literature. *Cir Gen.* 2020; 42(4): 326-329.

growth in the zone with changes in color, erythema, and intense pain, so she went to another hospital where a strangulated inguinal hernia was suspected again. An ultrasound scan was performed in the inguinal region, which reported an apparent inguinal hernia and abundant gas, which was avascular according to the Doppler function. She was sent to our institution for management. On examination she was agitated, tachycardic (105 beats per minute) and moderately dehydrated. On abdominal examination a rigid, erythematous, and warm mass was found in the right inguinal region, which displaced the previous surgical scar. It was very painful on palpation. She had



Figure 1: A bulging warm tender inguinal mass on arrival at the emergency department.

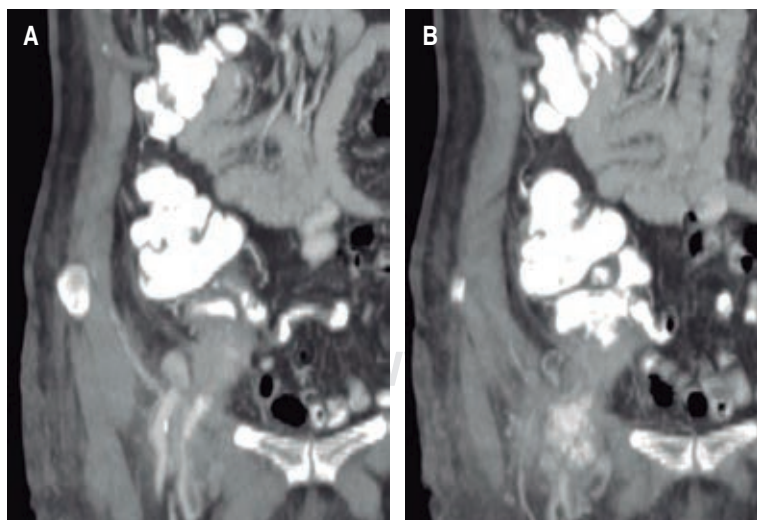


Figure 2: Tomographic images of the cecal appendix through femoral canal (A) and covering with contrast femoral canal and residual collection (B).

leukocytosis of 19,250 cells/ μ l with neutrophilia of 88.90%, increased prothrombin time (PT) and partial thromboplastin time (PTT), and the rest of her lab tests were within normal ranges. A recurrent inguinal hernia with intestinal content was suspected, although the appearance of the mass was reminiscent of an abscess (*Figure 1*). It was decided to take her to the operating room where, under regional anesthesia, an incision was performed through the previous scar. A large abscess approximately of 400 cm³ was found and was completely drained. The previous inguinal plasty was observed intact. No hernial sacs were observed. The origin of the abscess could not be clearly determined. It was decided to use the open wound technique with closure by second intention and keep on monitoring the patient. Cures were performed according to the output and a contrasted abdominal tomography scan was performed a few hours later to determine the probable sites of origin of the abscess. At this moment, a complicated diverticular disease was suspected. The report by the imaging service staff was of an edematous vermiform appendix, which apparently comes out through the femoral duct and a small peri-appendicular collection (*Figure 2*). A new exploratory laparotomy was scheduled where multiple adhesions around the site of the anastomosis performed four years ago were found. These adhesions were released reaching the cecum and vermiform appendix (*Figure 3*). An appendicectomy was performed with management of the Pouchet stump. When the surgical specimen was removed the appendix tip was found completely perforated. The closure of the hernial defect was attained with two simple polypropylene 00 stitches. It was decided not to place a prosthetic mesh due to the high risk of infection. The postoperative period was satisfactory, with a decrease in leukocytosis to 9.43 cells/ μ L and normalization of PT and PTT. The total hospital stay was six days. The inguinal wound granulated by second intention, continuing with cures and weekly supervision until total closure was achieved. The final histopathological was of an acute appendicitis with leukocyte infiltration in greater quantity in its distal half, lymphoid hypertrophy in its proximal half, a perforated tip and negative for malignancy (*Figure 4*).

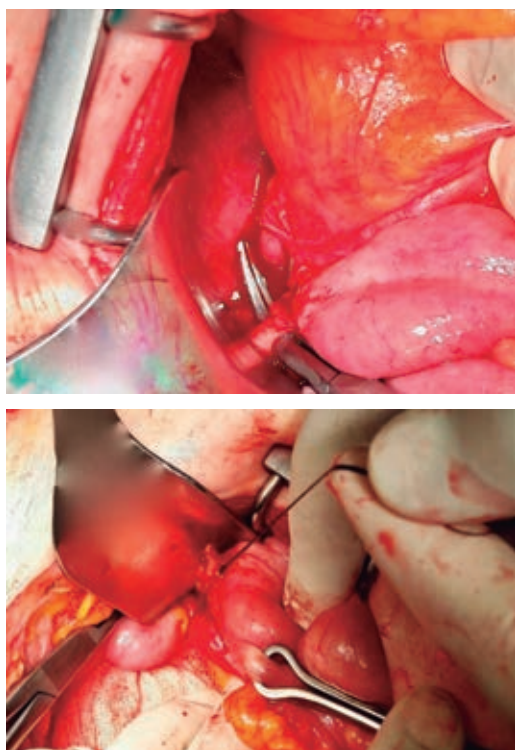


Figure 3: Cecal appendix in the femoral hernia and stump management.

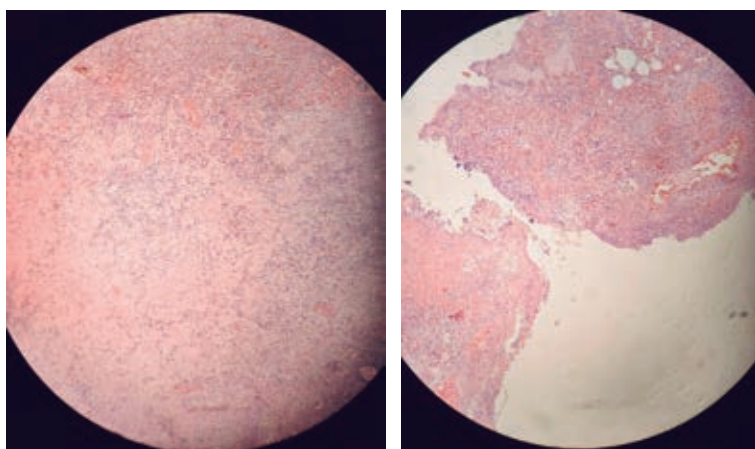


Figure 4: Photomicrographs of the extracted specimen. They show the leukocytic infiltrate in this case of fibrinopurulent appendicitis.

DISCUSSION

There are several theories about the peculiarity of these cases being the most accepted the abnormal attachment of the appendix to the

cecum due to a bad rotation, which causes a pelvic location of the appendix, with a greater risk of entering the femoral canal.³ Acute appendicitis in a femoral hernia may be a consequence of strangulation of the cecal appendix as it passes through the femoral canal, rather than to lymphoid hyperplasia or presence of an appendicolith, which is evidenced in the literature with a predominant presence in adults and rarely in the elderly population.^{4,5} The largest reported series of cases of Garegeot's hernia was seven over 16 years at Whiston Hospital, UK, reported by Sharma H et al. They report four cases without acute appendicitis where hernioplasty with a prosthetic mesh was performed, and three cases in which appendectomy plus hernioplasty without prosthetic material was performed due to the presence of an inflamed cecal appendix intraoperatively. It is worth mentioning that abdominal pain was only present in one case. Just as in this case, one patient presented a two-week evolution with a growing and painful groin mass, with the same erroneous ultrasound report, as well as perforation towards the femoral canal that only generated an abscess of occult origin.⁶ The presence of an abscess or extra-abdominal purulent collection in the inguinal region associated with a Garegeot's hernia has been reported in two more isolated cases in the world literature, suggesting the plugging effect of the appendix on the femoral canal and, additionally, the tightness of the inguinal plasty previously performed in our patient. The preoperative diagnosis is difficult when there are already complications such as an appendiceal perforation, and the possible formation of abscesses and necrotizing fasciitis, both clinical forms of rapid deterioration of patients that force us to act cautiously, with an initial drainage of the abscess and surgical planning through an abdominal contrasted tomography scan as suggested by expert groups in abdominal wall defects⁷ to differentiate the origin of the purulent material, such as diverticular disease⁸ and acute pancreatitis.⁹ Since no hernial defect was found in the previous plasty or femoral region during the first surgical event, it was decided to wait for a tomographic study and solve the primary pathology in a second surgical exploration,

which in this case resulted in the finding of an appendicular perforation through the femoral canal. There is no consensus on the management of Garegeot's hernias; however, in the extensive review of the reports, all agree that appendectomy should be performed, whether incidental or in acute inflammatory conditions, as was in this case, as well as herniorrhaphy of the femoral defect, with the most appropriate technique according to the surgeon's expertise and experience.^{10,11}

CONCLUSION

Inguinal masses with clinical features characteristic of an abscess should raise suspicion of intraabdominal pathology that can lead to rapid clinical deterioration, especially in elderly patients. Imaging studies play an important role in these cases which, in expert hands, can lead to an accurate diagnosis and adequate and directed surgical planning.¹² Its presentation on the right side should raise suspicion of an acute appendicular condition, either in an inguinal hernia (Amyand) or in the femoral region (Garegeot).

REFERENCES

1. Michalinos A, Moris D, Vernadakis S. Amyand's hernia: a review. *Am J Surg.* 2014; 207: 989-995.
2. Hernandez LA, Leon TAM, Murillo ZA. Garegeot's hernia. Case report and review of the literature. *Cir Gen.* 2012; 34: 78-82.
3. Carabaloso GVJ, Cabrera RJ, Alonso DN, Santana González-Chávez A, Orea CI. Garegeot's hernia. A case report. *Rev Med Electron.* 2018; 40: 488-494.
4. Sharma H, Jha PK, Shekhawat NS, Memon B, Memon MA. De Garegeot hernia: an analysis of our experience. *Hernia.* 2007; 11: 235-238.
5. Martínez-Valenzuela N, Alfonso-Alfonso C, Sosa-Martín JG. Garegeot's hernia. *Rev Cub Med Mil.* 2013; 42: 110-115.

6. Armstrong O. Appendix strangulated in a femoral hernia. *Hernia.* 2010; 14: 225-226.
7. Kagan Coskun A, Kilbas Z, Yigit T, Simsek A, Harlak A. De Garegeot's hernia: the importance of early diagnosis and its complications. *Hernia.* 2012; 16: 731-733.
8. Greenberg J, Arnell TD. Diverticular abscess presenting as an incarcerated inguinal hernia. *Am Surg.* 2005; 71: 208-209.
9. Carner S, Tan E, Warren K, Braasch J. Pancreatic abscess. *Am J Surg.* 1973; 129: 426-431.
10. Kalles V, Mekras A, Mekras D, Papapanagiotou I, Al-Harethee W, Sotiropoulos G, et al. De Garegeot's hernia: a comprehensive review. *Hernia.* 2013; 17: 177-182.
11. Nguyen ET, Komenaka IK. Strangulated femoral hernia containing a perforated appendix. *Can J Surg.* 2004; 47: 68-69.
12. Abdulghaffar S, Almulla M, Gupta P, Mohamed BA. CT and ultrasound findings in a case of De Garegeot's hernia. *Radiol Case Rep.* 2019; 14: 704-707.

Ethical considerations and responsibility:

Data privacy. In accordance with the protocols established at the authors' place of work, the authors declare that they have followed the protocols on patient data privacy and preserved their anonymity. The informed consent of the patient referred to in the article is in the possession of the author.

Funding: No financial support was received for this work.

Disclosure: The authors declare that there is no conflict of interest in carrying out this work.

Correspondence:

Francisco Xavier Cabrera-Mendoza

Monterrey Regional Hospital,
Instituto para la Salud y Seguridad Social
de los Trabajadores del Estado (ISSSTE),
Monterrey, Nuevo León.

Adolfo López Mateos Av. 122,
Col. Burócratas Federales, 64380,
Monterrey, Nuevo Leon, Mexico.

E-mail: cabrera_md@icloud.com