



Laparoscopic management of de garengot hernia: A viable approach to a rare entity

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Case presentation

An 88-year-old female patient presented to the emergency department with a 12-hour history of mildly painful right inguinal bulge. She admitted to intermittent nausea but denied vomiting or fever. Physical examination revealed slightly distended abdomen with normal bowel sounds, and a non-reducible right groin bulge measuring 5x5 cm associated with skin erythema.

Laboratory test findings indicated leukocytosis (11,350/mm³). Abdominal ultrasonography showed a complicated right inguinal hernia with a 46x30 mm sac. Within the sac, a non-peristaltic tubular structure measuring 9.1 mm in diameter was observed, suggestive of the appendix. Adjacent peri-appendiceal fat stranding and the presence of free fluid were noted (Figure 1). Based on the clinical findings and diagnostic imaging, the patient was admitted for a laparoscopic exploration that revealed an incarcerated right femoral hernia (Figure 2A). The first step was to reduce the hernia content through blunt maneuvers and gentle traction, and a phlegmonous appendix with no signs of perforation was observed. Subsequently, a laparoscopic appendectomy was performed (Figure 2B), and the abdominal cavity

and the hernia sac were thoroughly irrigated with saline solution. Finally, a transabdominal preperitoneal (TAPP) hernia repair with a polypropylene mesh was done (Figure 3A-B). The patient had an uneventful recovery and was discharged on the second postoperative day with oral antibiotic treatment for 7 days. No complications were recorded at 30-day follow-up and histopathologic results revealed acute appendicitis.

Discussion

The eponymous De Garengot hernia, characterized by the presence of the appendix within a femoral hernia, was first described by the French surgeon René-Jacques Croissant De Garengot in 1731. It's a rare presentation, with an estimated incidence ranging from 0.15% to 5%. These are predominantly encountered in elderly, multiparous individuals, with approximately 40% of the cases presenting as obstructions or strangulations scenarios [1]. Groin bulge or groin pain are the most common presenting symptoms. Skin erythema is reported in 33.3% of cases [2]. An overall lack of abdominal symptoms, especially in cases where the appendix was perforated, can likely

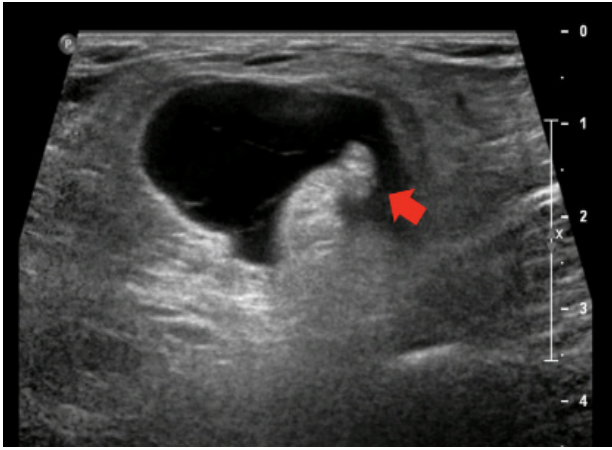


Figure 1: Ultrasonography findings of the inguinal mass. Femoral hernia.

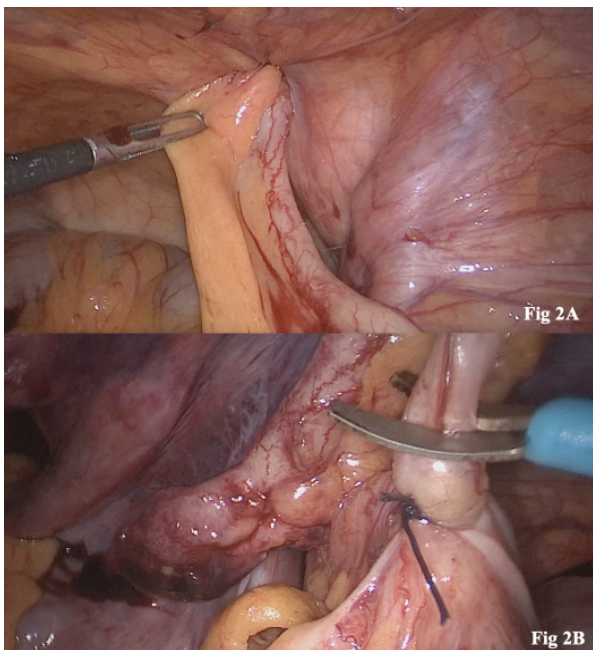


Figure 2: Intraoperative image showing; (A) Intraoperative finding of appendix within femoral hernia; (B) Laparoscopic appendectomy.

be explained by the constrictive and narrow diameter of the femoral canal, which may prevent the spread of inflammation into the abdominal cavity [2].

Diagnosis is frequently established during surgery (89.5% of cases); however, when diagnosed preoperatively, the majority are identified through CT scans with a sensitivity of 61%. The small percentage of preoperative images may be due to the acute clinical presentation of suspected inguinal hernia incarceration, which often makes radiological investigations unnecessary.

The initial management involves resuscitation and subsequent surgical exploration. Surgical objectives include reducing the hernia sac, performing the appendectomy, and repair the femoral defect. There is no consensus regarding the optimal surgical approach or the use of synthetic mesh for the hernia repair [2]. There is considerable variation in the choice of surgical techniques for complicated hernias. The most common approach has traditionally been open surgery with an isolated groin incision. In some cases, this may be accompanied by a lap-

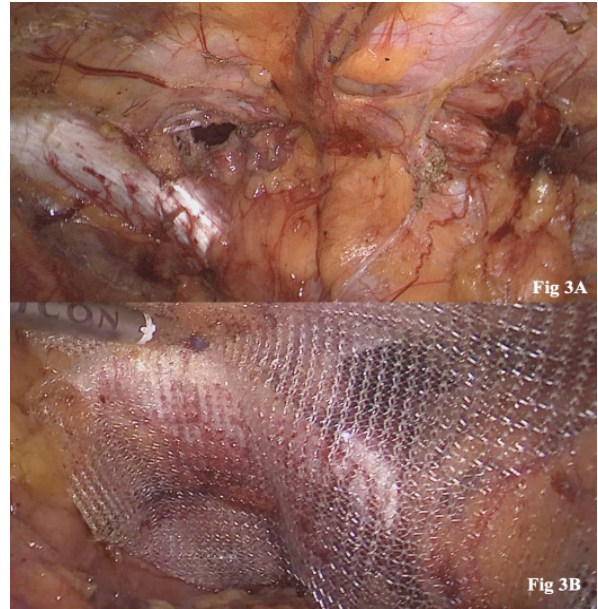


Figure 3: Intraoperative image showing; (A) Femoral hernia post-appendix reduction and peritoneal flap dissection; (B) Placement of synthetic mesh.

arotomy when encountering difficulties in accessing the base of the appendix or assessing the cecum. On the other hand, laparoscopic surgery is increasingly becoming a viable option for general surgeons in abdominal wall surgery. The advantage of this approach lies in its capacity to assess the intraperitoneal cavity, thereby aiding in bowel evaluation, allowing the ability to perform the hernia reduction procedure under direct vision and, allowing for the preferred laparoscopic hernia repair, as well as potential bowel resection if required. When there is a low clinical suspicion of a contaminated field, a femoral hernia repair with the use of a synthetic mesh should be the preferred option since it has been associated with a reduced hernia recurrence rate. In the presence of a perforation or gross contamination, a suture repair is commonly chosen to reduce the risk of a mesh-bound infection, although, new investigations suggest the feasibility of mesh repair in contaminated fields [3]. Individual surgeons probably benefit from applying their standard techniques rather than choosing a specific method.

In conclusion, De Garengot hernias present a unique diagnostic challenge. They are more common in elderly women and had higher risk of obstruction and strangulation. Laparoscopic approach is a suitable alternative for the management of this rare entity since it allows to assess the intraperitoneal cavity and to perform an appendectomy and mesh repair if it was decided, maintaining the benefits of the minimal invasive surgery.

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Ethical approval: The Institutional Review Board (IRB) approved this work.

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