

## Case Report

# Rare Hernia: Two cases of Amyand's hernia and one case of De Garengeot's Hernia. Several surgical treatments

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## Abstract

**Background:** The presence of appendix in the sac in inguinal hernia is described as Amyand's hernia. More rare is the case where the appendix is located in femoral hernia is therefore defined as De Garengeot's hernia.

### Case Presentation

1. A 49 year old patient arrives in the ER complaining of fever and pain in the right inguinal region. diagnosis was of obstructed inguinal hernia so has been submitted to emergency surgery. It has been highlighted an appendix with appendicitis in the bag and pus, so it has been performed an intervention by laparotomy, drainage and appendectomy with a reconstruction of the inguinal canal without implants.
2. A 59-year-old patient arrives in the ER complaining of pain in the right inguinal region. Diagnosis was of obstructed femoral hernia, so the patient has been submitted to emergency surgery. It has been highlighted an appendix with appendicitis, so it has been performed an intervention by laparoscopy and appendectomy subsequently affixing polypropylene plug.
3. A 76 year old patient arrives in the ER complaining of pain in the right inguinal region with nausea and vomiting. Diagnosis was of obstructed inguinal hernia, so the patient has been submitted to emergency surgery. It has been highlighted caecum and appendix so the groin access has been extended and proceed to appendectomy. Reconstruction with polypropylene prosthesis.

**Conclusion:** It has always been carried appendectomy and placed prosthetic material in cases where there was no pus. Laparotomy or laparoscopy access has been useful but not always necessary.

**Keywords:** Amyand's hernia, De Garengeot's hernia, Appendicitis, Incarcerated hernia

## Introduction

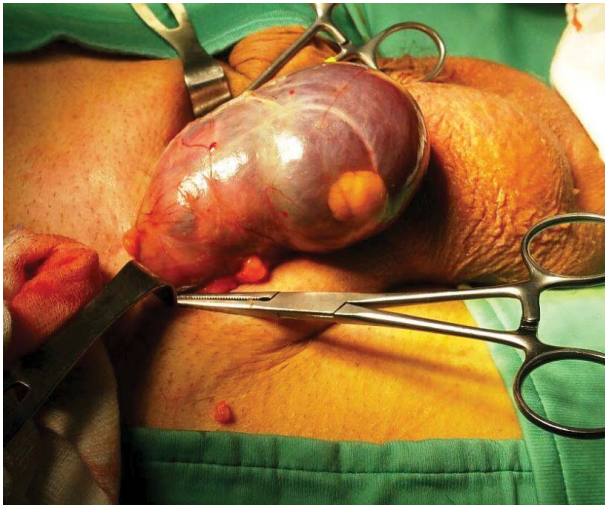
The presence of the vermiform appendix in lots of inguinal hernia has been described for the first time by Claudius Amyand in 1736. It has an incidence of 1% of cases of inguinal hernia and is complicated by acute appendicitis in the 0,08 – 0,13% of cases [1]. The pathophysiological mechanism underlying the onset of

appendicitis may be due to internal inguinal ring throttling that implies reduction of bloodstream towards vermiform appendix, present in the sac, and the onset of the inflammatory process at a later time [2]. Amyand's Hernia is three times more common in children than adults and is due to the patency of the peritoneum-vaginal duct (Figure 1) [3].

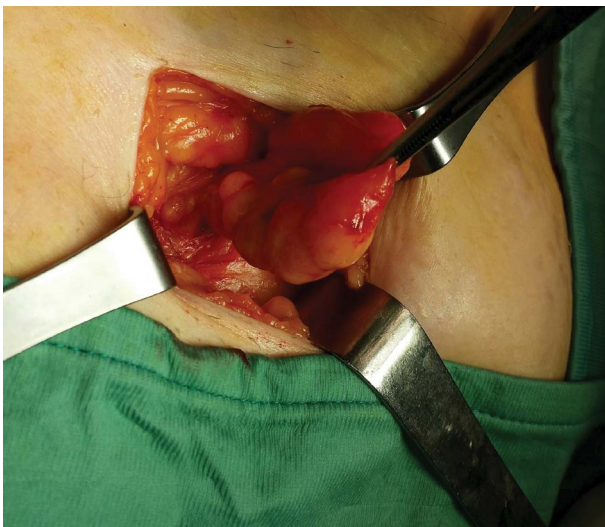
The presence of the vermiform appendix in lots of femoral hernia is called De Garengeot's, french surgeon who described for the first time in literature in 1731. It has an incidence of 0.3 - 3.3% of all femoral hernias [4].

The rarity of this type of hernia and lack of typical symptoms

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**Figure 1:** Amyand's Hernia (caecus and vermiform appendix herniated in the inguinal canal).



**Figure 2:** De Garengueot's Hernia.

of acute appendicitis, make it extremely difficult preoperative diagnosis [5]. The surgeon then places the diagnosis of Amyand's hernia or De Garengueot's hernia at surgery room and the choice of surgical technique depends on his own experience (Figure 2).

## Case Presentation

### Case 1

A 49 year old male patient comes to the emergency department complaining of fever, nausea and pain in the right inguinal region occurred in less than 24 hours. Bowel not open for more than 12 hours. To this symptoms it was associated a swelling of tense-elastic consistency in the groin area can not be reduced to the taxis manoeuvre and hyperaemia of the skin. Blood tests showed remarkable neutrophilic leukocytosis. No radiological exams

occurred as the clinical diagnosis was clogged inguinal hernia. While at emergency surgery under spinal anaesthesia, it is pointed appendix with appendicitis in the bag and abundant presence of pus. It was therefore decided to make general anaesthesia and para-rectal laparotomy. It has been carried out the drainage of purulent material and, after a good washing of the cable, operated an appendectomy. Closing of the laparotomy wound and reconstruction of the inguinal canal with Shouldice technique.

The patient was discharged on the third day in good clinical condition.

### Case 2

A 59 year old male patient came to the emergency department complaining of pain in the right inguinal region occurred in the last 48 hours. He denies hyperpyrexia and does not report nausea and vomiting. Bowel not open for 24 hours (Failure channelisation of feces and gas for more than 24 hours in a patient with De Garengueot hernia we believe could be an indicator of irritation of the peritoneum (the hernia sac) due to appendicitis. The peritoneal irritation causes a paralytic ileus). The visit highlights swelling of tense-elastic consistency in the right femoral region is not imputable to the manoeuvre of the taxis. Blood tests showed neutrophilic leukocytosis. No radiology occurred as clinical diagnosis of clogged femoral hernia, therefore he underwent emergency surgery with spinal anesthesia. At the hernial bag opening an appendix with appendicitis has been highlighted. It has been practised general anaesthesia and also decided to make laparoscopic access. The abdominal cavity has been inspected realising did not have any purulent collections, excluding the presence of Meckel's diverticulum and therefore carried out an appendectomy. Resolution of the pneumoperitoneum and closure of laparoscopic access. In femoral region it has been affixed polypropylene plug -in at the femoral ring.

The patient was discharged on the third day in good clinical condition.

### Case 3

A 76 year old male patient comes to the emergency department complaining of pain in the right groin associated with nausea and vomiting. He reported hyperpyrexia and bowel not open for more than 12 hours. At the inguinal region: a massive tense-elastic swelling not imputable to taxis manoeuvre. Blood tests were normal. Clinical diagnosis of clogged inguinal hernia: it is emergency surgery under spinal anaesthesia. Opening the sac it has been highlighted the caecum and the vermiform appendix without appendicitis. Therefore it has been extended the groin access and carried out an appendectomy. Reconstruction of the inguinal canal with affixing prosthesis in polypropylene.

The patient was discharged on the third day in good clinical condition.

## Discussion

The pre-operative diagnosis of Amyand's or De Garengueot's

Classification	Description	Surgical Management
Type 1	Normal appendix within an inguinal hernia	Hernia reduction, mesh repair, appendectomy in young patients
Type 2	Acute appendicitis within an inguinal hernia, no abdominal sepsis	Appendectomy through hernia, primary endogenous repair of hernia, no mesh
Type 3	Acute appendicitis within an inguinal hernia, abdominal wall, or peritoneal sepsis	Laparotomy, appendectomy, primary repair of hernia, no mesh
Type 4	Acute appendicitis within an inguinal hernia, related or unrelated abdominal pathology	Manage as types 1 to 3 hernia, investigate or treat second pathology as appropriate

**Table 1:** Classification of Amyand's hernia according Losanoff and Basson.

hernia is extremely difficult for the non-specificity of the symptoms. The majority of patients arrives in the operating room with an inguinal hernia diagnosis and / or obstructed crural.

Surgical treatment of these hernias raises three fundamental questions whether:

Always performing appendectomy?

Use of prosthetic material?

Always practice laparotomy / laparoscopy?

Losanoff and Basson [6] have proposed an Amyand's hernia classification and have recommended a different surgical strategy based on intra-operative findings (Table 1).

Our surgical conduct has instead always provided an appendectomy. Even in the absence of appendicitis we felt it appropriate to carry out an appendectomy because the presence of appendix in the sac, in contact with the throttling track, could have resulted in an alteration of the vasculature that could manifest as appendicitis after some time.

We instead had a different attitude, depending on the presence of purulent material, as regards the affixing of prosthetic material. We used polypropylene material (such as net in case 3 and plug in case 2) only when the groin and abdominal surgical field did not appear infected.

Laparotomy or laparoscopy is useful but hasn't been always necessary. Useful when you need to perform an appendectomy in security, by checking the conditions of the caecum walls, drainage

of any purulent collections or search for the Meckel's diverticulum. When appendectomy may instead be carried out through the groin and non highlights pus, the laparotomy or laparoscopic approach is not recommended.

### Disclosure/Conflict Of Interests

All authors have no conflicts of interest or financial ties to disclose.

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