



## Incarcerated Amyand's hernia

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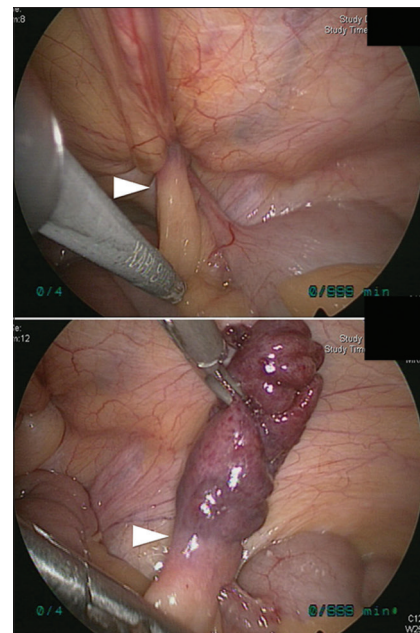
A 53-year-old female with a history of cholecystectomy presented with right lower quadrant abdominal pain for 2 days. She was afebrile with no loss of appetite or other gastrointestinal symptoms. Physical examination showed right lower quadrant abdominal tenderness with rebounding pain and hypoactive bowel sounds. Laboratory results showed no abnormalities and a normal white blood cell count (6250/ $\mu$ L) without a left shift (segmented neutrophils: 54.9%; band neutrophils: 0%). Abdominal computed tomography revealed a swollen appendix which herniated from the right side of Hesselbach's triangle into the anterior abdominal wall [Figure 1]. An emergency laparoscopy showed an inflamed, unruptured appendix which incarcerated into the hernia sac [Figure 2]. A direct type inguinal hernia with incarcerated appendicitis was diagnosed. After the laparoscopic appendectomy and closing the peritoneum and fascia of the periumbilical incision site, the surgeon

created another tunnel to the preperitoneal space from the same periumbilical site and performed total extraperitoneal laparoscopic hernia repair with mesh placement. This patient was discharged after 3 days of hospitalization. There was no recurrence of the hernia after 6 months of follow-up.

Amyand's hernia, which is defined as the presence of an appendix within either an indirect (more common) or direct inguinal hernia, is named after Claudius Amyand [1]. The origin of the defect in a direct inguinal hernia is anteromedial



**Figure 1:** Enhanced abdominal computed tomography shows a right direct inguinal hernia with a swollen appendix (arrows) and fluid accumulation



**Figure 2:** An inflamed appendix (arrowheads) incarcerated into the hernia sac is revealed during laparoscopy

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**Table 1: Losanoff and Basson classification of Amyand hernia**

Type of hernia	Description	Surgical management
Type 1	Normal appendix in an inguinal hernia	Reduction or appendectomy (depending on age), mesh hernioplasty
Type 2	Acute appendicitis in an inguinal hernia with no abdominal sepsis	Appendectomy, primary no prosthetics hernia repair
Type 3	Acute appendicitis in an inguinal hernia with abdominal and abdominal wall sepsis	Laparotomy, appendectomy, and primary no prosthetic hernia repair
Type 4	Acute appendicitis in an inguinal hernia with abdominal concomitant pathology	Laparotomy, appendectomy, primary no prosthetic hernia repair, and management of concomitant disease

and inferior to the inferior epigastric vessels, whereas indirect hernias protrude posterolateral and superior to the vessels [2]. It is a rare condition with an incidence of around 1% of reported inguinal hernia cases. It is 3 times more common in children because of the patency of the processus vaginalis in the pediatric population [1,3,4]. The incidence of appendicitis within an inguinal hernia is even rarer, with an estimated rate of 0.1%. It occurs mostly in males or postmenopausal women [4,5]. Because of the particular location of the appendix, the clinical manifestations vary from those in common appendicitis. Abdominal examination, physical signs, and laboratory results are not always helpful in the differential diagnosis. Hence, preoperative diagnosis is a challenge [4,6]. Computed tomography with reconstructive images may provide accurate anatomical information for the diagnosis and guide the choice of surgical procedure [1,4]. In 2007, Losanoff and Basson proposed a classification system for staging and management of Amyand's hernia [Table 1] [7]. They did not

recommend mesh in hernia repair in cases of appendicitis or perforated appendix, because it increases the chance of wound infection and fistula formation. However, some authors have reported that with a careful approach by an experienced surgeon, mesh can be placed in perforated or inflamed appendices without any complications, such as in our patient [1,8].

#### Declaration of patient consent

The authors certify that the patient have obtained appropriate patient consent form. In the form the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initial will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

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#### Conflicts of interest

There are no conflicts of interest.

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