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An Emergency Presentation of Losanoff and Basson Type 3 Amyand's Hernia

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1. Abstract

Claudius Amyand, in 1735, first described the rare form of hernia in which the appendix is trapped in the sac of an inguinal hernia, now known as Amyand's hernia. This phenomenon occurs in approximately 0.1% of all inguinal hernias and poses a diagnostic and management challenge. The positioning of the appendix within the hernial sac most often cannot be definitively determined preoperatively, and as such the diagnosis is usually made intraoperatively.This case report reflects on the clinical course of a woman in her 90s who underwent an open Amyand's hernia repair, complicated by perforation of the appendix. The patient self-presented to the emergency department from a high-level care nursing home, reporting a two-week history of worsening lower abdominal pain, worst in the 48 hours prior to admission. She had multiple co-morbidities, including heart failure, atrial fibrillation, asthma, hypertension and stage 4 chronic kidney disease.Pre-operative CT showed a perforated caecum within the right inguinal sac with evidence of localised peritonism. Given her advanced age and pre-existing co-morbidities, a laparoscopic approach would have more intraoperative risks as compared to laparotomy. Therefore, the decision was made to proceed with an open approach.Intraoperatively, the appendix was found to be inflamed and perforated within the sac of the hernia. There was no evidence of caecal perforation. An appendicectomy was performed with primary suture hernia repair. Negative pressure dressing was applied given the risk of infection and wound dehiscence.Amyand's hernia is a rare type of hernia, which is difficult to diagnose preoperatively and requires a tailored surgical approach with careful consideration of the patients' demographics and pre-existing medical issues.

2. Background

Amyand's hernia, first described in 1735 by the French surgeon Claudius Amyand, consists of the appendix within the hernial sac. This condition is known to occur in 0.1% of all hernias of the inguinal region, occurring more commonly in males as compared to females [5]. Symptoms include abdominal pain, palpable mass over inguinal sites, and signs of intestinal obstruction. The diagnosis, however, is hard to identify preoperatively, and imaging is often not confirmatory. It most often requires an intra-operative diagnosis, with subsequent management tailored accordingly.According to Losanoff and Basson's system, we classify Amyand's hernia into four types depending on the presence of appendicitis and, if so, whether this is with or without complication. Amyand's hernia with localised peritonitis is classified as type 3 Amyand's hernia. In such cases, there is a higher risk of complications, including generalised peritonitis and sepsis, and subsequently, urgent surgical intervention is required[2]. In all cases of Amyand's hernia, there is the possibility that it can lead to a risk of complicated appendicitis, such as perforation of the appendix, which further complicates diagnosis and management [5]. Since preoperative imaging is unreliable in the diagnosis of Amyand's hernia, most cases are found incidentally during surgery [6].

3. Case Presentation

A woman in her 90s from a high-level care nursing home presented to the emergency department with two weeks of progressively **increasing** right lower abdominal pain, particularly worsening over the last 48 hours prior to presentation, without any obstructive symptoms. She had a previous history of heart failure, atrial fibrillation, asthma, hypertension and stage 4 chronic kidney disease. On examination, she was tender over the right lower abdomen and suspected of having an irreducible right inguinal hernia, in keeping with the provisional diagnosis of an incarcerated right-sided indirect hernia. Laboratory tests illustrated a high white blood cell count (WCC) of 17 and C-reactive protein (CRP) of more than 300, reflecting the presence of an ongoing inflammatory process.

An abdomen and pelvis CT showed a perforated caecum within the right inguinal sac. The patient underwent an emergency exploration within four hours from initial presentation to the Emergency departmentFigure 1.1-1.2. A skin incision was made over the right inguinal region and extended upwards towards McBurney's point to achieve a larger surgical field. The hernia was identified, which was strangulated at the internal ring. Sac was opened and find inflamed and perforated appendix within the sac (Figure 2). Internal ring required to be enlarged to release strangulated sac by dividing internal oblique and transverse abdominis muscles giving access to peritoneal cavity to visualize caecum better but there was no evidence of perforation caecum. An appendicectomy was performed followed by indirect sac discontinued from the inguinal canal. A plication of posterior wall was performed by closing the inguinal canal.The skin was closed with staples, and negative pressure dressing was applied. Postoperative admission to the ICU was uneventful,and the patient was discharged on day 2 weeks post-operatively to high level nursing home.

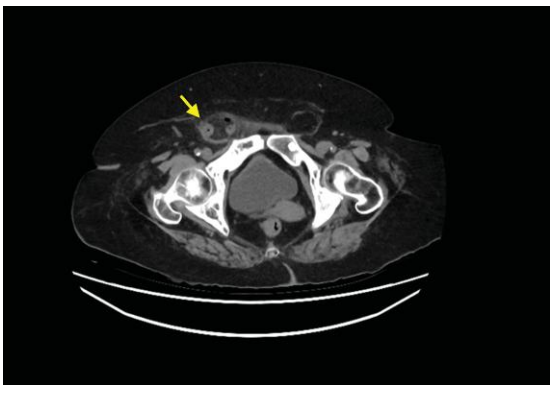

Figure 1.1: (Axial View of CT AP (non-contrast study). Right sided Indirect hernia with possible caecal perforation (arrow).

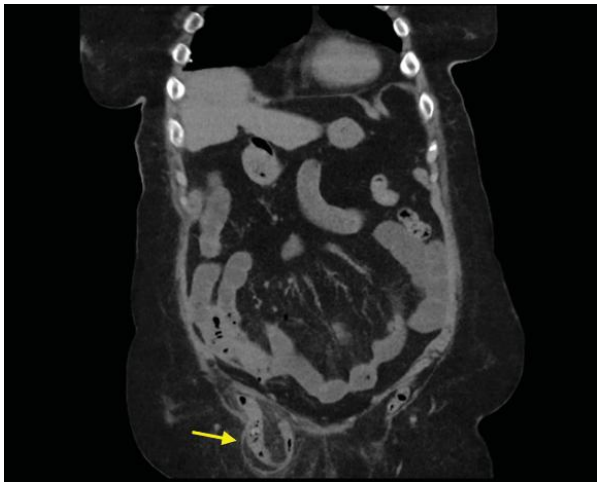

Figure 1.2: Coronal View of CTAP (Non contrast study).

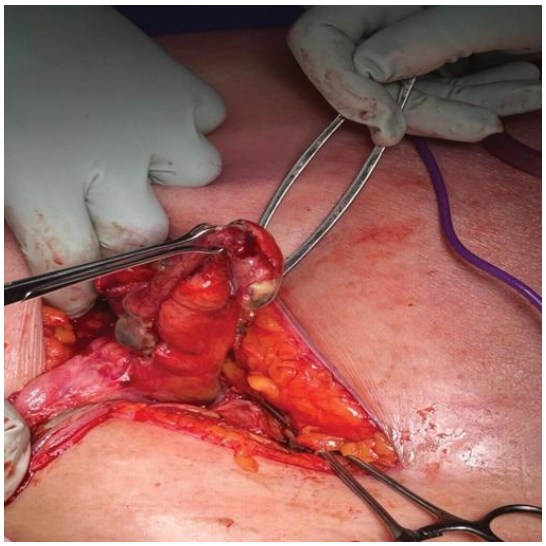

Figure 2: Perforated Appendix withing the Rt inguinal hernial sacRight sided Indirect hernia with possible caecal perforation (arrow).

4. Discussion

Amyand's hernia poses both a management and diagnostic challenge. Although it is a rare occurrence, diagnosis before surgery is difficult as preoperative imaging rarely confirms the presence of the appendix within the hernial sac. Radboy et al. observed that, even when CT imaging reveals complications like bowel perforation, Amyand's hernia cannot be positively confirmed unless the appendix itself is detected [2]. As such, the diagnosis is invariably made intraoperatively. In this case, the preoperative CT scan formally reported as possibility of perforated cecum but did not mention the presence of the appendix within the sac, which was only confirmed intraoperatively.

Losanoff and Basson introduced a stratification system for Amyand's hernia that classified it into four types based on whether and to what extent the appendiceal portion was involved. In this case, the Amyand's hernia can be classified as Type 3, which is defined by involvement of a perforated appendix within the inguinal hernia sac [8].

In patients of advanced age with multiple comorbidities, laparoscopic surgery is not always appropriate, despite its minimally invasive nature. The open approach is often considered safer. During laparoscopic surgery, insufflation of the abdomen may reduce venous return, increasing both intraoperative and postoperative complications [1]. Moreover, laparoscopic surgery could necessitate conversion to an open procedure, prolonging general anaesthesia duration and increasing the risk of requiring intubation and prolonged ICU admission.A negative pressure wound dressing was applied to the wound in this case, due to risk of contamination and subsequent wound infection and dehiscence in the setting of a perforated appendix [4]. It is especially beneficial for high-risk patients like this one, who have a compromised immune system and poor wound healing capacity [5]. Negative pressure dressing helps to manage soiled surgical wounds by offering a controlled environment to remove exudates and minimise the risk of infection.

5. Conclusion

Amyand's hernia is a rare, challenging condition that requires careful surgical management, especially in elderly patients with multiple comorbidities. The diagnosis is typically made intraoperatively, and the choice of surgical approach should be based on the patient's clinical condition.

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