CASE REPORT

Amyand's Hernia: Report of Two Cases from Irrua, Nigeria

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ABSTRACT

Background: Amyand's hernia, a rare form of inguinal hernia in which the hernia sac contains a vermiform appendix, poses diagnostic challenges due to its variable clinical manifestations and nonspecific radiological findings, particularly in low-resource settings. We present two cases of Amyand's hernia, one with acute appendicitis and the other with a normal appendix. Both were managed successfully at Irrua Specialist Teaching Hospital.

Case summary: Both patients presented with irreducible right inguinal or inguinoscrotal swellings, one of which was initially diagnosed as a strangulated hernia. Intraoperatively, the hernia sacs contained the appendix; one was inflamed. Appendicectomy and herniorrhaphy were performed in both cases. Postoperatively, both patients recovered well with no recurrence noted at follow-up.

Conclusion: Amyand's hernia is a rare and unusual condition that requires a high index of suspicion for diagnosis. Surgical exploration with appendicectomy remains the mainstay of treatment. This case series highlights the diverse ways Amyand's hernia can present and emphasizes the importance of early diagnosis and timely surgical intervention. Surgeons should consider Amyand's hernia as a differential diagnosis in patients presenting with irreducible inguinal swellings and tailor treatment to intraoperative findings.

INTRODUCTION

Amyand's hernia is a rare variant of an inguinal hernia where the hernia sac contains the vermiform appendix. It was first described by Claudius Amyand, who performed a successful appendicectomy while operating on an 11-year-old boy with a right inguinal hernia in 1735[1]. Amyand's hernia is uncommon, with an estimated incidence of 0.19-1.7% of all hernias. It is more common in children due to the persistence of the processus vaginalis and predominantly affects males. Other organs that may be found in an inguinal hernia sac include parts of the caecum, sigmoid colon, bladder, uterine tube, ovary and Meckel diverticulum[2,3,4]. While Amyand's hernia can be asymptomatic, it can sometimes cause significant swelling in the inguinal or inguinoscrotal area, leading to diagnostic challenges and potentially mimicking an

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incarcerated or strangulated hernia if appendicitis is present. However, appendicitis within an inguinal hernia is rare, occurring in about 0.07- 0.13% of cases, and a perforated appendix within a hernia is even rarer, accounting for only 0.1% of all appendicitis cases. These rare occurrences can lead to severe complications like necrotizing fasciitis.[5,6]

The management of Amyand's hernias is still a subject of debate and should be tailored to the specific operative findings and co-morbidity factors of each individual case. The classification system developed by Losanoff and Basson, which outlines four distinct types based on operative findings, is widely accepted as a guide for management. In Type I, the appendix is normal and asymptomatic, and herniorrhaphy combined with appendicectomy is recommended. In Type II, the appendix is inflamed, indicating acute appendicitis within the hernia sac. Here, herniotomy and appendicectomy can be performed simultaneously. In Type III, there is acute appendicitis with peritonitis, and in Type IV, acute appendicitis occurs alongside other abdominal diseases. For Types III and IV, a more extensive surgical approach is often required, starting with a laparotomy followed by hernia repair surgery[7]. In our cases, the patients were not initially diagnosed with Amyand's hernias, and they underwent surgery for presumed strangulated inguinoscrotal and inguinal hernias respectively. The discovery of the vermiform appendix within the hernia sac was unexpected. Both patients underwent appendicectomy and herniorrhaphy.

Despite the growing body of literature, Amyand's hernia remains underreported in low-resource settings. Our cases are notable because both patients were elderly males (5th and 6th decades), which is less common than pediatric presentations. This report aims to highlight the diagnostic challenges and management rationale in a resource-limited environment.

Case Series:

Case 1:

A 54-year-old male farmer was referred to our emergency department with a gradually enlarging right inguinoscrotal swelling that became irreducible one month prior to presentation. He experienced intermittent pain and discomfort in the groin and scrotum a day before presentation. There were no features of intestinal obstruction, but he had anorexia and a low-grade fever. There was a history of heavy lifting during farming activities but no chronic cough, constipation, or lower urinary tract symptoms. He had no other medical conditions. He also had no relevant medical, family, and psychosocial history, nor prior interventions.

On examination, a firm, tender and irreducible right inguinoscrotal swelling was noted. The overlying skin appeared normal, with no signs of inflammation or infection. Both testes were separately palpable, and no other abnormalities were detected. A clinical diagnosis of a strangulated right inguinoscrotal hernia was made. The preoperative misdiagnosis as strangulated hernia highlights the difficulty of diagnosing Amyand's hernia.

Laboratory investigations revealed mild leukocytosis and elevated neutrophils, with other parameters within normal limits.

An ultrasound of the groin area revealed a right inguinoscrotal hernia containing a loop of intestines, although the exact nature of the hernia contents could not be determined.

The patient underwent emergency groin exploration under general anesthesia. During surgery, a right inguinoscrotal hernia was identified, and surprisingly, the hernia sac contained a vermiform appendix (Figure 1), which was inflamed and adherent to the hernia sac. An appendicectomy (Figure 2) and herniorrhaphy were performed.

Histopathological examination revealed inflamed appendicitis. The patient had an uneventful recovery and was discharged on the third postoperative day. Follow-up at 10-months showed no recurrence.

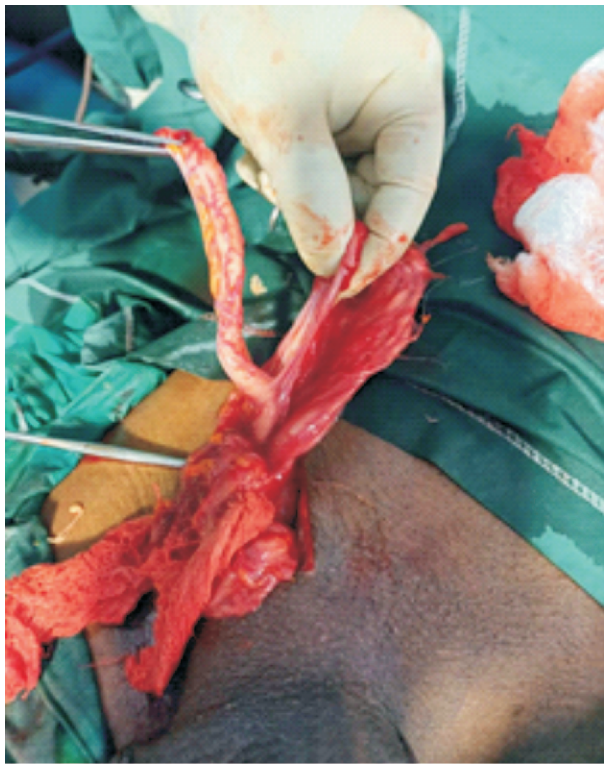

Figure 1: Hernia sac containing the inflammed appendix in the first case

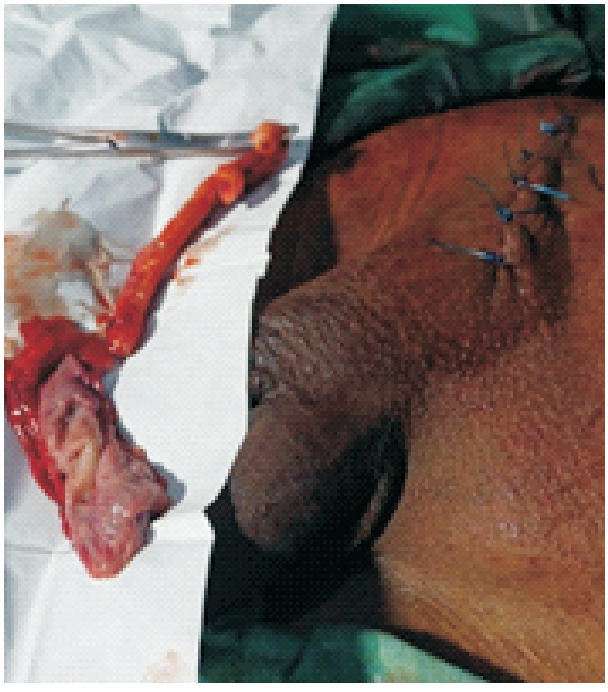

Figure. 2: The removed appendix tissue and the closed wound in the first case.

Case 2:

A 69-year-old man presented to our surgical outpatient clinic with a 2-day history of swelling in the right groin that was irreducible. He had a 4-year history of intermittent, painless, and reducible swelling in the same area that worsened when standing or coughing, but reduced when lying down. There was no history of chronic cough, constipation, or lower urinary tract symptoms, and no evidence of bowel obstruction. The patient did not have a fever and had no other medical conditions.

Upon examination, a nontender and irreducible right inguinal swelling was observed, along with a positive cough impulse. No other abnormalities were detected, and the patient was diagnosed with an irreducible right inguinal hernia, highlighting the difficulty of diagnosing Amyand's hernia. Laboratory investigations showed parameters within normal limits.

After obtaining informed consent, the patient underwent surgery under spinal anaesthesia. Intraoperatively, an indirect hernia was identified, with the appendix as the hernia content (Figure 4). The appendix was adherent to the hernia sac but could be reduced. An appendicectomy was performed, and the hernia was repaired using a modified Bassini technique.

The postoperative period was uneventful, and he was discharged on the fourth postoperative day. On **clinician-assessessment**, he remained asymptomatic 8-months during follow-up.

The histopathological examination revealed a normal vermiform appendix.

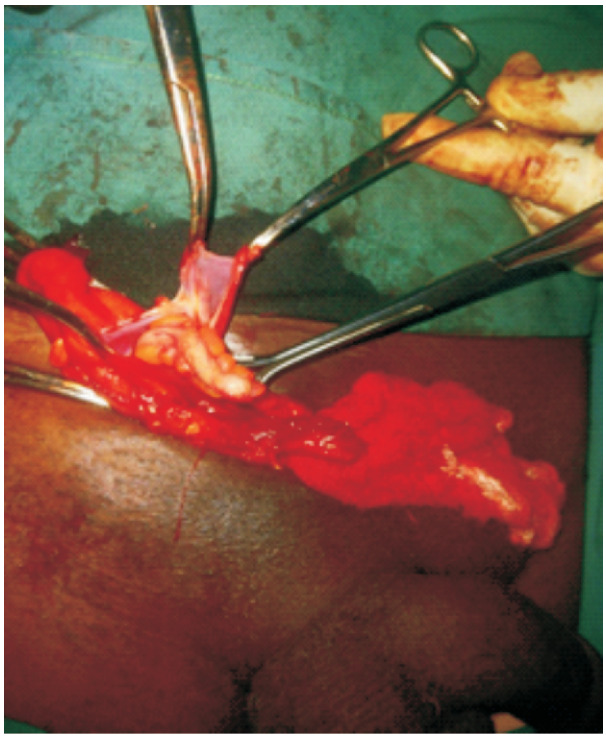

Figure 4: Hernia sac containing the appendix in the second patient

Preoperative imaging was limited to ultrasound in one case due to resource constraints. Computed tomography (CT), though ideal for diagnosis, was not feasible in our setting due to cost and accessibility limitations. This highlights the diagnostic challenge faced in low-resource environments. Differential diagnoses included incarcerated inguinal hernia and testicular torsion.

Both patients underwent appendicectomy and hernia repair. In the first case, appendicectomy was mandatory due to inflammation. In the second, appendicectomy was performed prophylactically to prevent future appendicitis and recurrence, consistent with the Losanoff and Basson type 1 classification. Mesh repair was avoided due to the risk of contamination. The choice of modified Bassini repair reflected the clean-contaminated field and resource constraints.

Both patients were very satisfied on their care while on follow-up.

DISCUSSION

Amyand's hernia is a rare and unusual type of inguinal hernia where the hernia sac contains a vermiform appendix. The incidence of Amyand's hernia is estimated to be between 0.19-1.7% of all hernias and estimated to occur in approximately 1% of all inguinal hernias. Amyand's hernia is more common in males and typically occurs on the right groin. Both of our patients were male and had Amyand's hernias on the right groin. While this condition can affect individuals of all ages, it is more frequently seen in younger people due to the persistence of the processus vaginalis, making them more prone to herniation.[2,3] However, this was not the case with our patients who were in their fifth and sixth decades of life. Our patients, both elderly males, highlight that this condition can occur outside the usual pediatric demographic.

In Amyand's hernia, the appendix may or may not be inflamed. Acute appendicitis within an Amyand's hernia can result from reduced blood supply to the appendix due to adhesions, which may prevent the hernia from being reduced and cause compression in the external ring. This can result in recurrent inflammation and bacterial overgrowth.[1] Amyand's hernia may also be associated with rare underlying conditions such as intestinal malrotation, situs inversus, or a movable cecum. The etiology of Amyand's hernia is complex and involves factors such as a patent processus vaginalis, fibrous adhesions between the testicle and appendix, or congenital laxity of the right colon.[8]

The presentation of Amyand's hernia can vary, from a painless inguinal swelling to an acute abdomen with symptoms of appendicitis. This condition can be asymptomatic or, if the appendix becomes inflamed, can result in complications such as incarceration, strangulation, or perforation. Due to its rarity, resource-limited setting and diverse presentation, diagnosing Amyand's hernia before surgery can be challenging. It may mimic a strangulated hernia, requiring a high index of suspicion for accurate preoperative diagnosis.[9] In our series, none of the

patients were diagnosed preoperatively. In rare cases, Amyand hernia can result in severe complications like necrotizing fasciitis. Amyand's hernia is almost always diagnosed during surgery. In our series, the first patient presented with symptoms of a strangulated right inguinoscrotal hernia without suspicion of appendicitis, while the second patient had symptoms of an irreducible right inguinal hernia. Both diagnoses were made during surgery.

Ultrasound and computed tomography (CT) scans can aid in identifying an appendix within the hernia sac, but they are not commonly used in cases of inguinal hernias that appear to be either reducible or incarcerated. In these situations, patients typically undergo elective or emergency surgery based on clinical evaluation without the need for imaging tests.[8] A preoperative ultrasound scan could have been beneficial for diagnosis in our patients, but it was not performed as it is not routinely done for all inguinal hernia patients in our centre and can be an additional cost burden for uninsured patients.

The management of Amyand's hernias is still a subject of debate and should be individualized depending on the operative findings and co-morbidity factors. The most widely accepted classification that epitomizes operative findings and management is the one by Losanoff and Basson which describes four distinct types.[1,7] Surgeons generally agree that inflamed appendices (Losanoff-Basson type 2-4) within hernias preclude the use of synthetic meshes or plugs. However, debate surrounds the necessity of appendicectomy in Losanoff-Basson type 1 Amyand's hernias. Decision-making hinges on factors such as patient age, appendix size and anatomy, hernia location, and potential intraoperative complications. In our series, both patients were classified as types 1 and 2 and underwent herniorrhaphy and appendicectomy, with good outcomes.

CONCLUSION

Amyand's hernia is a rare type of inguinal hernia where the appendix is found within the hernia sac. This condition is not common and may go unnoticed until symptoms develop or it is discovered during surgery by chance. Without proper identification, Amyand's hernia can lead to serious complications like incarceration and strangulation. Surgeons need to be aware of this condition, as early diagnosis and surgical intervention are crucial in preventing complications.

Limitation

Some of the acknowledged limitations of the case report include lack of imaging and short follow-up.

Patient Perspective and Consent

Both patients expressed satisfaction with their care and relief from symptoms. They appreciated the explanations provided regarding the rarity of their condition. Written informed consent was obtained from both patients for publication of their cases and accompanying images.

REFERENCES

1. Sengul I, Sengul D, Aribas D. An elective detection of an Amyand's hernia with an adhesive caecum to the sac: Report of a rare case. N Am J Med Sci. 2011; 3: 391-393.
2. Ballas K, Kontoulis T.H, Skouras C.H, Triantafyllou A, Symeonidis N, Pavlidis T.H, et al., "Unusual Findings in Inguinal Hernia Surgery. Report of 6 Rare Cases," Hippokratia, Vol. 13, No. 3, 2009, pp. 169-171.
3. Gurer A, Ozdogan M, Ozlem N, Yildirim A, Kulacoglu H, Aydin R, "Uncommon Content in Groin hernia Sac," Hernia, Vol. 10, No. 2, 2006, pp. 152-155.
4. Ghafouri A, Anbara T, Foroutankia R. A rare case report of appendix and cecum in the sac of left inguinal hernia (left Amyand's hernia). Med J Islam Repub Iran. 2012; 26: 94-95.
5. Ryan WJ. Hernia of the vermiform appendix. Ann Surg. 1937; 106: 135-139.
6. Carey LC. Acute appendicitis occurring in hernias: a report of 10 cases. Surgery. 1967; 61: 236-238.
7. Losanoff J, Basson M. Amyand hernia: a classification to improve management. Hernia. 2008;12:325-326.s

8. Bakhshi GD, Bhandarwar AH, Govila AA. Acute appendicitis in left scrotum. Indian J Gastroentterol. 2004;23:195.
9. Desai G, Suhani, Pandel P, Thomas S. Amyand's hernia: our experience and review of literature. Arq Bras Cir Dig.2017;30(4): 287-8.
10. Kouskos E,Komaitis S, Kouskou M, Despotellis M, Sanidas G. Complicated acute appendicitis within a right inguinal hernia sac (Amyand's hernia): report of a case. HIPPOKRATIA 2014; 18 (1): 74-76