

Amyand's Hernia: Case Report of a Rare Finding in Inguinal Hernia Surgery

Ogbetere FE.

Department of Surgery, Edo State University, Uzairue, Edo State, Nigeria

Article Metrics

Date submitted: 07/04/2021
Date Accepted: 06/05/2021
Date Published: 30/07/2021



ABSTRACT

Amyand's hernia is a rare form of inguinal hernia in which the vermiform appendix is situated within the hernia sac. The vermiform appendix may become incarcerated within the sac resulting in complications like inflammation, strangulation, and rupture. Amyand's hernia has the same mode of presentation as inguinal hernia. This indistinguishable clinical feature presents a diagnostic dilemma to the surgeon. Reported herein is a case of Amyand's hernia in a fifteen-year-old boy. He was seen at our surgical clinic with a presumably uncomplicated reducible right inguinal hernia. He underwent elective surgery under a spinal block. Operative findings were a lipoma of the sac and a non-inflamed appendix as content. He subsequently had a reduction of the vermiform appendix and high ligation of the inguinal hernia. He had a smooth recovery after surgery and was discharged on the second postoperative day. He has had an uneventful six months follow-up. This case report emphasizes the need to individualize the management of patients with this rare pathologic condition and a review of the management of Amyand's hernia.

Keywords: Amyand's hernia, Inguinal hernia, Vermiform appendix, Hernia sac, Hernia surgery.

INTRODUCTION

Inguinal hernia repair is one of the most frequently performed procedures in surgical practice. However, the surgeon sometimes comes across some unusual contents such as the urinary bladder, the fallopian tube, the ovary, and the appendix which may give rise to some difficulties in management.^[1] Inguinal hernia with a normal, inflamed, or ruptured vermiform appendix as its content is regarded as


Amyand's hernia.^[1] It is a rare pathologic entity with a diagnostic enigma.^[2] In about 0.5% to 1.0% of inguinal hernia cases, a vermiform appendix is found within the inguinal hernial sac while an inflamed appendix is seen in 0.07% to 0.13%.^[1] Less frequently found within the inguinal hernia sac is a perforated vermiform appendix.^[1] The diagnosis of Amyand's hernia is often made intra-operatively as it gives the

*Correspondence: Dr Friday Emeakpor Ogbetere, Department of Surgery, Edo State University, Uzairue, Auchi, Edo State, Nigeria.

Access to the article



website: <http://www.jmbsr.com.ng>

 : <https://doi.org/10.46912/jmbsr.59>

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How to cite this article:

Ogbetere FE. Amyand's Hernia: Case Report of a Rare Finding in Inguinal Hernia Surgery. J Med Bas Sci Res 2021;2(1):155-159.

clinical impression of a simple or a strangulated hernia.^[1,3,4] The option of surgical management is determined by the operative findings and the clinical status of the patient.^[1]

This rare pathologic condition is presented here to reawaken the clinician's consciousness with an emphasis on individualized patient management according to the status of the vermiform appendix.

Case Report

A fifteen-year-old student presented with a reducible right groin swelling of seven months duration. The swelling had gradually increased in size to its present size. He had no associated pain, gastrointestinal symptoms, or fever. On physical examination, he had a blood pressure of 120/70 mm Hg, pulse rate of 72 per minute, respiratory rate of 16 per minute, and temperature of 36.4°C. Examination of the abdomen showed a flat non-tender abdomen with a normoactive bowel sound. He had a smooth-surfaced, non-tender right groin mass extending a little beyond the deep inguinal ring and measuring 4 cm × 4 cm with a positive cough impulse. The swelling was reducible with no redness or differential warmth. Both testes were palpable and found within the scrotum. A diagnosis of a right reducible indirect inguinal hernia was made. The full blood count, electrolyte, and creatinine done were within normal range. Informed assent was obtained from patient and consent given by his father for hernia surgery. He was subsequently scheduled for an open hernia repair under spinal anaesthesia. An incision was made, about 2cm above the superficial ring in the skin crease of the right inguinal region. The deep fascia was incised and the external oblique aponeurosis identified and parted to expose the spermatic cord below. The hernial sac was identified, separated from the cord structures, and opened. The intraoperative findings were a lipoma of the sac and

a non-inflamed appendix as content (**Figures 1 and 2**). The deep inguinal ring was essentially normal. He subsequently had a reduction of the vermiform appendix and high ligation of the inguinal hernia sac. He had a smooth recovery after surgery and was discharged on the second post-operative day. His follow-up at one week (**Figure 3**), four weeks, and six months did not reveal any sequelae.



Figure 1: Intraoperative picture of a non-inflamed vermiform appendix (blue arrow) in the inguinal hernia sac.



Figure 2: Intraoperative picture showing the caecum (yellow arrow), the vermiform appendix (blue arrow), and lipoma of the hernia sac (black arrow).



Figure 3: Fifth day post-operative picture of the patient with Amyand's hernia.

Table 1: Losanoff and Basson classification and suggested surgical management modalities of Amyand's hernia.^[14]

Classification	Description	Surgical treatment
Type I	Normal appendix as the content of inguinal hernia sac.	Hernia reduction; mesh repair; appendectomy may be considered in young patients.
Type II	Acute appendicitis in an inguinal hernia, no abdominal sepsis.	Appendectomy through hernia incision; primary hernia repair; no mesh repair.
Type III	Acute appendicitis in inguinal hernia with an abdominal wall or peritoneal sepsis.	Laparotomy; appendectomy; primary hernia repair; no mesh repair.
Type IV	Acute appendicitis in inguinal hernia with abdominal pathology (may be related or unrelated)	Treat as for type I-III and appropriate treatment of concomitant abdominal pathology

DISCUSSION

The atypical and uncommon presence of the vermiform appendix in the inguinal hernia sac is described as Amyand's hernia. The vermiform appendix may be non-inflamed, inflamed, or perforated.^[1,4] This pathologic condition was first described by Claudius Amyand in 1735 when he reported a perforated appendix within the hernia sac of an eleven-year-old boy who underwent a successful appendectomy.^[1]

With an incidence of between 0.5% and 1.0% of inguinal hernias,^[1,2,4] Amyand's hernia is a rare pathologic condition. D'Alia *et al* reported only seven cases (0.08%), in 1341 patients of inguinal hernias over a thirteen-year study period. An inflamed vermiform appendix is seen in 0.07% to 0.13% of all inguinal hernia cases.^[1,4] Less frequently found within the inguinal hernia sac is a perforated vermiform appendix with an incidence of less than 1.0%.^[4]

Amyand's hernia affects all age groups.^[1,1] However, it's three times commoner in children than in adults as a result of the patency of the processus vaginalis among the paediatric population.^[1,8] The incidence of the disease is more in men than women, with a higher probability of locating the hernia on the right side, due to the usual location of the vermiform appendix on the right side and more common occurrence of inguinal hernia on the right.^[1,2] The index patient was a male

teenager with right-sided Amyand's hernia. However, cases of Amyand's hernia have also been reported on the left side of the abdomen, due to intestinal malrotation, situs inversus, or a mobile caecum.^[8,]

Amyand's hernia has no distinguishing clinical features. It has the same mode of presentation as inguinal hernias. These similar clinical features include progressing groin swelling, tenderness over the inguinal region with the likelihood of obstruction or strangulation complicating it. This accounts for why a pre-operative diagnosis of reducible right inguinal hernia was made in this index patient. In emergency situations, differential diagnoses such as obstructed hernia, strangulated omentocele, Richter's hernia, inguinal adenitis, acute scrotum, and epididymitis should always be considered.^[1,]

It has been opined by some scholars that pre-operative investigations such as abdominal ultrasonography, hernioscopy, laparoscopy, or abdominal computed tomography may be helpful in diagnosing Amyand's hernia.^[1,8,] However, most of these modalities are conventionally not employed since they are viewed as not necessary for a normal clinical workup of inguinal hernia, and may only be tantamount to waste of resources and treatment delay.^[1,2,8] That said, the diagnosis of Amyand's hernia is most frequently made during surgery.^[2,3,8] All eighteen patients reviewed by Sharma^[2] and

colleagues, as with this index patient, had Amyand's hernia diagnosed intra-operatively. No radiological investigation was considered necessary for this patient as a preoperative diagnosis of uncomplicated reducible inguinal hernia was entertained.

The treatment modality for hernia is surgical intervention. The pathological status (normal, inflamed, or perforated) of the vermiform appendix is a very crucial determinant of appropriate treatment modality.^[1] A non-inflamed appendix as the content of inguinal hernia sac may be managed by vermiform appendix reduction or appendectomy, high ligation of hernia sac or mesh repair as indicated.^[1,2,8] If the vermiform appendix is inflamed, a transherniotomy appendectomy should be considered.^[1,2] In the presence of associated intraabdominal abscesses, open drainage should be done. Losanoff and Basson^[1] summed this up in their proposed management algorithm for this pathology (**Table 1**). This protocol is now widely applied in the management of Amyand's hernias.

By the above classification, the index patient had a type I Amyand's hernia. He did not undergo appendectomy during the inguinal hernia repair as the vermiform appendix was non-inflamed. Hernia reduction and high ligation of the inguinal hernia sac was performed without complication. He has been followed up for six months without any sequelae. The majority of scholars agree that a non-inflamed vermiform appendix within the hernia sac does not require appendectomy, as the vermiform appendix may be useful in the future for reconstructive and other medical purposes such as in appendicovesicostomy.^[1,2,3] Hence, the best way to treat Amyand's hernia without appendicitis may be to perform a high ligation of the hernia sac with or without mesh repair of the posterior wall of the inguinal hernia after reducing the vermiform appendix and content into the peritoneal cavity.

CONCLUSION

Amyand's hernia is a rare and atypical hernia with a towering diagnostic challenge due to its low incidence, indistinguishable clinical characteristics, and equivocal features on imaging. Surgery is both diagnostic and therapeutic. Removal of the non-inflamed vermiform appendix, when found within the inguinal hernia sac, may not be necessary.

Declaration of patient consent

The author certifies that he has obtained all required patient consent form. In the form, the patient and his father have given his consent for his clinical photographs and information to be reported in the journal. They understand that his names and initials will not be published and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interests

There are no conflicts of interest.

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