Case Report

A male patient with amyand hernia: A case report and literature review

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ABSTRACT

An Amyand hernia is a protrusion of an organ or its fascia through the wall of the abdominal cavity which contains the appendix, which has an incidence rate of 0.5–1% of the many hernia cases. This review reports the case findings of a 63-year-old male patient with an inguinal hernia containing the appendix (Amyand hernia). The patient came with complaints of abdominal pain and a lump in his testicles, with a history of frequent lumps coming and going. Physical examination from the right inguinal to the scrotal sac found a lump the size of three adult fists with the same skin color as the surroundings. The patient was diagnosed with a giant right scrotal hernia and underwent herniorrhaphy surgery and mesh placement. During the operation, the appendix and mesoappendix were visible upon opening the hernia sac, so it was decided to perform an appendectomy, return the contents of the hernia sac into the abdominal cavity, and do a mesh installation. Amyand hernia itself presents a diagnostic challenge because of its low incidence, vague clinical signs and symptoms, and lack of clear radiological diagnostic features. In addition, there are still no clear guidelines for its management.

Key words: Amyand hernia, Appendix, Inguinal hernia

An inguinal hernia is a protrusion of the contents of the abdominal cavity through the inguinal canal. The inguinal hernia sac contains the abdominal organs including the small or large intestine. Amyand hernia is a very rare and uncommon form of inguinal hernia where the vermiform appendix is in the hernia sac. Amyand hernias have an incidence of 1% and are complicated by acute appendicitis in 0.8–0.13% of cases [1]. In 1735, the English surgeon Claudius Amyand performed an appendectomy on an 11-year-old boy with a perforated appendix in the inguinal sac who was imprisoned; hence, the condition is now named after him [2]. Inguinal hernias have no preference for age group or sex, there are reported cases of Amyand Hernia ranging from the neonatal period to the age of 92 years. Its incidence varies from 0.19% to 1.7% and is diagnosed during hernioplasty, more often in children because of the patent vaginal process [2]. The diagnoses of Amyand hernia are usually discovered incidentally during surgery, and there is still no context for an optimal surgical management approach due to the paucity of case reports. In addition, surgeons must also be familiar with hernias containing the appendix and the lack of literature makes it a time-consuming process for doctors to broaden their knowledge and skills regarding these hernias [1].

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There is limited literature due to the rare case reports of Amyand Hernia, so the authors compiled this case report with the aim of reporting the findings of a case of a male patient with an inguinal hernia containing an appendix and reviewing the literature on Amyand's hernia to add to the literature review on this case.

CASE REPORT

A 63-year-old male patient came to the Emergency Room at Bendan Hospital, Pekalongan City with complaints of abdominal pain and a lump on his scrotal sac. A lump size of three adult fists was felt about 2 years ago, at first, it felt a little painful and could be put back in. The lump is felt more and more often in and out, especially when the patient is tired and at this time, the lump cannot be put back in. A previous history of disease in the form of a similar lump, diabetes mellitus, and hypertension was denied. The patient works as a casual laborer who often lifts heavy loads.

Physical examination of the patient showed a good general condition of the patient with a blood pressure of 130/80 mmHg, heart rate of 90×/min, temperature of 36.5°C, and oxygen saturation of 99% with room air. Physical examination of the head, neck, chest, heart, lungs, and extremities was within normal limits. Local examination showed the presence of a lump in the right inguinal region to the scrotum which was of the size three adult fists and had the same skin

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color as around. There was no bleeding or fistula associated with the lump (Fig. 1a). On palpation, the lump cannot be reduced manually, both testicles were difficult to feel, and there was no tenderness.

The patient performed blood laboratory investigations and found hemoglobin 11.3 g/dL, hematocrit 27.7%, leukocytes 11.45×10ˆ3/uL, platelets 369×10ˆ3/uL, erythrocytes 3.34×10ˆ6/uL, mean corpuscular volume 82.9 F1, mean corpuscular hemoglobin (MCH) 72.8 p, MCH concentration 33.6 g/dL, and prothrombin time/activated partial thromboplastin time 9.5 s/9.7 s.

Based on the results of the physical examination, the patient was diagnosed with a giant right scrotal hernia. Furthermore, the patient underwent herniorrhaphy surgery by placing a mess on June 9, 2022. When the operation was performed, the appendix and mesoappendix were seen on opening the hernia sac (Fig. 1b), so it was decided to perform an appendectomy and return the contents of the hernia sac into the abdominal cavity, as well as placing a mesh and close the operating wound.

After surgery, the patient was given treatment with B-fluid infusion alternating with Asering running 20 drops per minute, injection of Gabaxa 1 amp/24 h, injection of Anbacim 1 g/8 h, injection of Paracetamol 1 g/8 h, and injection of Ketorolac 30 mg/8 h. After being treated for 3 days, the post-operative pain was reduced, the patient was able to walk, the surgical wound look good, and no seepage was found. Hence, it was decided that the patient could undergo treatment at home with controls every week.

DISCUSSION

Amyand hernia is a rare condition characterized by the presence of an appendix within the inguinal hernia sac. The presence of an inflamed appendix within an inguinal hernia is rare with an incidence of 0.07–0.13% [1]. Amyand's hernia was originally named for Claudius Amyand, who on December 6, 1735, performed the first successful appendectomy in his treatment of an 11-year-old boy with a right inguinal hernia. During the operation, Amyand found a pin in the appendix, which was covered with stones and the appendix was found in the inguinal hernia sac. Therefore, the term Amyand's hernia refers to an incarcerated hernia containing an appendix, which may be normal or inflamed. Due to the rarity of the condition, the term "Amyand's hernia" has recently been adopted as the eponymous description of the appendix trapped in an inguinal hernia [2]. The incidence of Amyand hernias varies in the literature, ranging from 0.19% to 1.7% of reported hernia cases. Amyand hernias are 3 times more likely to be diagnosed in children than in adults, because of the patency of the processus vaginalis in the pediatric population. The incidence of appendicitis in inguinal hernias is even less; with an estimated rate of 0.07–0.13% [3]. In this case, this hernia did not occur in a child, but in an adult aged 63 years.

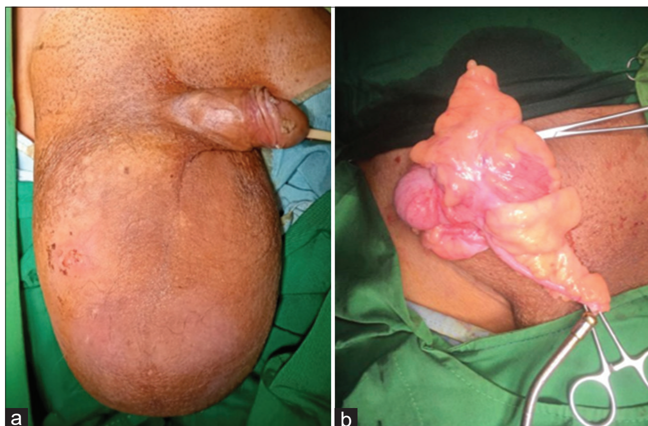

Figure 1: (a) Inguinal hernia appearance; (b) The hernia contains the appearance of the appendix

The pathophysiology of Amyand's hernia is unclear. Assad *et al*. suggested that it may result from the coexistence of a patent vaginal process and a fibrous connection between the appendix and testis. Congenital weakness of the right colon is another theory put forward. There is no clear causal relationship between appendicitis and Amyand's hernia, although an explanation may be that an inflammatory swelling of the appendix may have caused its incarceration [3].

The pre-operative diagnosis of Amyand's hernia is indirect and is generally an incidental finding during surgery. Abdominal examination, physical signs, laboratory results, and imaging are not always helpful in making the diagnosis. Common complaints include sudden onset of epigastric or periumbilical pain with localized tenderness in the right lower quadrant, combined with an irreducible mass in the inguinal or inguino-scrotal area. However, this presentation often gives the clinical impression of a strangulated hernia, making the clinical diagnosis of an Amyand hernia difficult [4]. In this case, the patient was diagnosed with a right permagna scrotal hernia on the basis of history and physical examination before surgery.

A differential diagnosis must be made between Amyand's hernia and pathologies such as a hemorrhagic testicular tumor, testicular torsion, acute hydrocele, inguinal lymphadenitis, focal panniculitis, and epididymitis. However, the most important thing in a hernia is asking the patient about the history of the lump in the inguinal which usually comes and goes and occurs repeatedly [5]. In this case, the results of the anamnesis pointed toward a hernia where the patient had a lump that intermittently appeared in the inguinal region.

The use of computed tomography (CT) and ultrasound is often used to improve accurate diagnosis. Ultrasound sometimes fails to identify an appendix within an inguinal hernia, but in the hands of an experienced radiologist, it can delineate a blind appendix within the hernia sac. An abdominal CT scan is more sensitive and specific because it allows direct visualization of the appendix in the inguinal canal. However, since CT is not performed routinely as a first-step evaluation tool for inguinal hernia, the diagnosis of Amyand's hernia is usually made incidentally during an abdominal CT scan performed for other purposes [6].

The most common treatment options for Amyand's hernias are the usual hernia repairs which include the excision of the appendix. The usual treatment for hernias is herniotomy and hernioplasty. However, until now, there is no consensus in the literature regarding the best course of action in treating appendicitis in Amyand hernia [7]. The use of Mesh during operation is also being debated and the use of repair nets is contraindicated in cases of an inflamed or perforated appendix as this increases the risk of septic complications. In contrast, Chatzimavroudis *et al*. reported that synthetic mesh can be used successfully in cases

of Amyand Hernia, even when inflamed or perforated, without post-operative complications, and a septic environment is not an absolute contraindication to the use of prosthetic nets [8].

In the end, the research from Losanoff *et al*. proposed the classification of Hernia Amyand to improve treatment [9]. Type I is a normal appendix: reduction or appendectomy with mesh hernioplasty is performed. Type II is acute appendicitis localized in the hernia sac: Appendectomy is performed through the hernia, hernia repair with mesh; associated with a higher risk of mesh infection. Type III is acute appendicitis complicated by peritonitis: appendectomy is performed through laparotomy. The decision for hernioplasty must be made based on the extent of the sepsis. Type IV is acute appendicitis accompanied by other abnormal pathology: Hernioplasty may be contraindicated if the damage is extensive. Finally, surgery is one of the diagnostic and therapeutic measures through which, an amyand hernia can be diagnosed and treated by performing herniorrhaphy, appendectomy, and mesh.

CONCLUSION

Amyand's hernia is a rare finding of an inguinal hernia, in which the appendix becomes trapped within the hernia sac. The low incidence rate, unclear clinical presentation, and ambiguous appearance on imaging such as CT pose challenges in this case. Treatment of appendicitis during the surgery depends on the surgeon because there are no standard guidelines as seen in this case, so each case study and review article brings new and useful information about treatment and diagnosis.

AUTHOR'S CONTRIBUTION

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