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A left-sided incarcerated Amyand hernia in a 4-month-old male infant: a case report

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Abstract

Background Amyand hernias are inguinal hernias that involve the vermiform appendix and are very rare. Left-sided Amyand hernias are even rarer, and their diagnosis is often made intraoperatively.

Case presentation In this article, we report a case of left-sided Amyand hernia in a 4-month-old Persian male infant. He presented with left groin swelling, which extended to his left scrotum. He had suffered from a reducible left-sided inguinal hernia since he was 3 months old, which was no longer reducible in this episode. The diagnosis of left-sided Amyand hernia was made intraoperatively, and appendectomy, cecum reduction, and herniorrhaphy were performed.

Conclusion The best approach for treating Amyand hernias without appendicitis is controversial, and each approach has advantages and disadvantages; however, if there is acute appendicitis, appendectomy is recommended.

Keywords Amyand hernia, Appendix, Inguinal hernia, Appendectomy

Background

A hernia is the protrusion of an organ (such as the intestine) through an opening or weakened part of the wall that surrounds it. There are several types of hernia, and inguinal hernia is the most prevalent type in both females and males [1, 2]. Inguinal hernia is a subtype of groin hernia that protrudes above the inguinal ligament. There are several types of inguinal hernias based on the contents of the hernia. Amyand hernia, which is defined as appendix herniation, with or without appendicitis, into the inguinal canal, is one of the rare types of inguinal hernia, and its incidence is approximately 1% of all hernias [3–5]. The term Amyand's hernia was coined after Claudius Amyand noted a perforated appendix within the hernia sac during surgery in a patient with a right-sided inguinal hernia in 1735 [5].

Amyand hernias often occur on the right side because the appendix is normally located on the right side. Left-sided Amyand hernias are very uncommon, and their occurrence can be due to a mobile cecum, situs inversus, or intestinal malrotation [6]. A hernia is reducible when the contents of the hernia sac can be returned to their normal position through the defect, is incarcerated when the contents of the hernia become trapped in the hernia sac and become irreducible, and is strangulated when the contents within the hernia sac become ischemic owing to impaired blood supply [7].

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In this article, a case of left-sided Amyand hernia in a 4-month-old male infant is reported.

Case presentation

A 4-month-old Persian male infant who had suffered from a reducible left inguinal hernia since last month was admitted to the emergency department by his parents with the complaint of left groin and scrotum swelling, which had no longer been reducible for the last 4 hours. The child had bowel movements and normal urination. Vomiting and poor feeding were not mentioned by his parents. He had no other complaints or diseases according to his parents. His past surgical history was also negative.

Upon physical assessment, he was ill and slightly drowsy. There was bulging of his left inguinal region, which extended to his left scrotum. The bulging was slightly red, nontender, and irreducible. His vital signs were stable, and he had no fever. He had no abdominal distention, and his abdomen was soft to touch and nontender. Laboratory workup, including complete blood count (CBC) with differential, erythrocyte sedimentation rate (ESR), and C-reactive protein (CRP), was performed, and all of the results were within the normal range.

Following preoperative resuscitation with an intravenous crystalloid solution and placement of a nasogastric (NG) tube and a Foley catheter, the patient was taken to the operating room with the initial diagnosis of left-sided incarcerated inguinal hernia. After general anesthesia, a classic incision was made, and the hernia sac was opened. The contents of the hernia sac included the cecum and appendix, which were slightly erythematous, congested, and inflamed (Fig. 1); therefore, a diagnosis of left-sided Amyand hernia with acute appendicitis and without abdominal sepsis was made, and appendectomy, cecum reduction, and herniorrhaphy were performed.

Postoperatively and after the observation of the appendix on the left side, a chest X-ray and an abdominal and pelvic ultrasound were performed to rule out situs inversus and malrotation (Fig. 2).

The patient was given oral fluids 6 hours after surgery. He was discharged from the hospital on oral antibiotics after his general condition improved and his bowel movements returned to normal on the second postoperative day. He returned for follow-up 1 week later with no complaints, no evidence of surgical site infection, and no complications.

Discussion

There are two subtypes of groin hernias: (1) femoral hernia and (2) inguinal hernia (which is the most common hernia). There are several types of inguinal hernias based on the contents of the hernia sac. An abscess within the sac of an inguinal hernia is called an Amyand hernia. Amyand hernias are very rare and can occur on both the right and left sides. Left-sided Amyand hernias are rarer than right-sided hernias because the typical position of the appendix in the human body is on the right side [1–4, 6, 8, 9].

A left-sided incarcerated Amyand hernia in a 4-month-old male infant is reported in this article. The signs and symptoms of Amyand hernias can include inguinoscrotal swelling, abdominal pain, local swelling, bowel obstruction, acute appendicitis, among others. [6, 10].

Our patient presented with a slightly red, irreducible bulging on his left inguinal region that extended to his left scrotum. His abdomen was soft to touch and

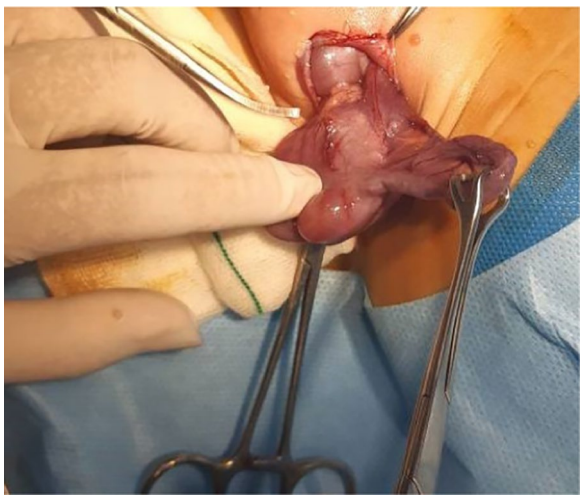

Fig. 1 Intraoperative image of the hernia sac

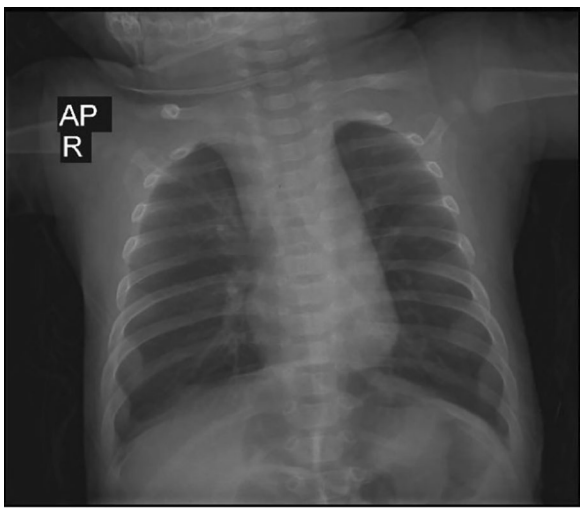

Fig. 2 Postoperative chest X-ray of the patient, performed to rule out situs inversus and malrotation

nontender, and his bowel movements were normal. A definitive diagnosis of left-sided Amyand hernia is often made intraoperatively during hernia sac exploration; however, computed tomography (CT) and ultrasound can aid in preoperative diagnosis [10–12].

In our case, as the patient had a left-sided incarcerated inguinal hernia, he was taken to the operating room without a preoperative CT scan or ultrasonography, and a diagnosis of left-sided Amyand hernia was made intraoperatively. Surgical management of Amyand hernias can be performed on the basis of Losanoff and Basson's classification of Amyand hernias and their management. With this approach, they recommend hernia reduction and mesh hernioplasty if the appendix is normal; in young patients, prophylactic appendectomy through hernia and primary-sutured herniorrhaphy can also be considered. In patients with acute appendicitis, if there is no abdominal sepsis, they recommend appendectomy through hernia and hernioplasty with endogenous tissues; if there is abdominal sepsis as well, appendectomy through laparotomy and hernioplasty with endogenous tissues is the preferred approach. Finally, if Amyand hernia, appendicitis, and other abdominal pathologies are present together, they suggest performing an appendectomy through the hernia or via laparotomy and a diagnostic workup following this procedure [13].

Appendectomy is the accepted approach for patients with appendicitis, but the best surgical approach for patients with a normal appendix is controversial [6, 14]. Some surgeons recommend prophylactic appendectomy in patients with left-sided Amyand hernias without appendicitis. This is owing to the high risk of hernia recurrence in these patients and the future atypical presentation of probable appendicitis. Conversely, some other surgeons are against prophylactic appendectomy in these patients because of the probable role of the appendix in intestinal immunity modulation and the avoidance of aseptic surgery [10].

Our patient had a left-sided incarcerated Amyand hernia with acute appendicitis and without abdominal sepsis or other abdominal pathologies. Therefore, we decided to perform an appendectomy through the hernia, reduce the cecum, and perform herniorrhaphy.

In these studies, three main underlying causes were reported for left-sided Amyand hernias [6, 15]:

1- Mobile cecum

2- Situs inversus

3- Intestinal malrotation

Imaging studies and ultrasonography performed after surgery did not show any evidence of situs inversus or malrotation. In our patient, the underlying cause was a mobile cecum, and it was managed accordingly.

Conclusion

Amyand hernias rarely occur, and the incidence of these hernias is approximately 1%. Left-sided Amyand hernias are much rarer, and their diagnosis is very difficult before hernia sac exploration; therefore, a diagnosis of left-sided Amyand hernia is often made during surgery.

The underlying causes of left-sided Amyand hernias are situs inversus, intestinal malrotation, and a mobile cecum. Our patient did not have situs inversus or intestinal malrotation, and the underlying cause of his hernia was a mobile cecum. The best approach for treating Amyand hernias without appendicitis is controversial, and each approach has advantages and disadvantages; however, if there is acute appendicitis, appendectomy is recommended.

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Author contributions
HMH and RGP contributed to the design of the study. KA, HMH, RGP, and RP contributed to the implementation of the research. AZ, RP, MAV, and KA participated in the writing of the manuscript. All authors read the final version of the manuscript.

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Data availability
If supporting data are needed, contact the corresponding author.

Declarations

Ethics approval and consent to participate
Informed consent was obtained from the participant included in the study.

Consent for publication
Written informed consent was obtained from the patient's legal guardian for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Competing interests
No conflicts of interest.

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