Case report

A CASE REPORT ON THE MANAGEMENT OF A RARE HERNIA

ABSTRACT:

INTRODUCTION: An Amyand's hernia (AH) is a rare type where a vermiform appendix is found within an inguinal hernia sac. According to the literature, the reported incidence is between 0.4%–1.0% of all hernia cases. Usually found in males and the pediatric population. It is mostly an incidental finding, whichis found more frequently intraoperatively rather than preoperative.

PRESENTATION OF CASE: We present a case of a 62-year-old male patient who presented with swelling associated with occasional pain of 01-year duration in the right groin. On evaluation diagnosed with a vermiform appendix within the hernia sac. The patient underwent elective hernia repair using the Desardas technique along with appendectomy.

DISCUSSION: An AH presents a diagnostic challenge and the treatment varies depending on the condition of the appendix and the surgeon's preference. In our case, it was Type 1 AH which was repaired through an open approach.

CONCLUSION: Being a rare variety of hernia, diagnosis is usually incidental. There is no consensus on the optimal operative management approach and the management depends on the presentation of the appendix and any complication associated with it. Each reported case helps in adding more light to the diagnosis and management of this rare hernia.

KEYWORDS:

Amyand's hernia (AH), vermiform appendix, Appendicectomy, Inguinal hernia

INTRODUCTION:

An Amyand's hernia (AH) is a rare variety of hernia wherein a vermiform appendix is found within an inguinal hernia sac. It is named after the French-born, English Surgeon Claudius Amyand who performed the first successful appendectomy in an 11-year-old boy who presented with a right inguinal hernia. He noticed an appendix in the hernia sac, with a pin within it, encrusted with stone. [1]The reported incidence in the literature ranges from 0.4%–1.0% of hernia cases [2,3]. It can present at any age, but it is more common in children due to the patency of the processus vaginalis in the pediatric population, especially males and on the right side [4]. While the incidence of inflamed appendix within an inguinal hernia is reported with an estimated rate of 0.07–0.13% [5], the incidence of perforated appendix in an inguinal hernia is even rarer, at 0.1% of all cases of appendicitis [6,7]. We present a case of AH managed by an open approach with appendectomy.

CASE PRESENTATION:

A 62-year-old male patient presented with swelling associated with occasional pain of 01-year duration in the right groin. On examination, the inguinal swelling was about 7x 5cm, oval, soft in consistency, smooth surface, non–tender, and extending up to the scrotum. The cough impulse was positive, and the swelling was partially reducible on lying down. There was no sign of obstruction or strangulation. A diagnosis of right inguinal hernia was made and planned for surgery. All hematological and biochemical parameters showed no abnormalities. As the swelling was partially reducible and associated with pain, CT abdomen was advised, which showed an appendix in the right hernia as shown in Fig.1. Intraoperatively the sac was identified and separated from the cord structures. On opening the sac appendix with its mesoappendix, the part of the cecum was found adherent to the sac wall as shown in Fig.2. Appendix with the mesoappendix was dissected from the sac wall. Mesoappendix with the appendicular artery coagulated and appendix excised after transfixation at the base. The sac was closed and reduced into the abdominal cavity through the internal ring with the repair done using the Desardas technique. The post-operative course was uneventful. On follow up surgical site was healthy and there were no signs of recurrence.

DISCUSSION :

AH is the presence of a vermiform appendix in an inguinal hernia with a reported incidence of 0.4-1.0%. It carries a bimodal distribution being found predominantly in the elderly and the pediatric population, with larger incidence in males and more prone to complications [8,9]. It is usually found intraoperatively than preoperative. Hernia being the clinical diagnosis, it is not customary to perform further preoperative investigations unless other symptoms like sudden pain or irreducibility are associated with it. Ultrasonography (USG) and Computed Tomography (CT) are the two imaging diagnostic methods. These investigations are very useful, especially in acute situations. These provide details regarding the content of the sac or about the strangulated organ which helps the surgeon in preoperative preparation and also guidesin choosing the type of surgical approach. (10) USG can show the presence of an intrasaccular structure while CT can show the presence of a tubular structure originating from the base of the cecum and entering the canal along with the sac. Additional features depend on the condition of the appendix inside the sac. [8,11,12,13]In our case, the presence of an appendix within the inguinal hernia was diagnosed preoperative by CT as the patient had presented with swelling associated with pain in the right groin region.

The mainstay of treatment is surgery. Losanoff and Basson's classification is supposed to act as a guide for the management of AH. [14]

CLASSIFICATION	DESCRIPTION	SURGICAL MANAGEMENT
Type 1	Normal appendix within an inguinal hernia	Hernia reduction, mesh repairs, appendectomy in young patients
Type 2	Acute appendicitis within hernia, no abdominal sepsis	Appendectomy through hernia primary repair of Hernia, no mesh

Type 3	Acute appendicitis within an inguinal hernia, abdominal wall, or peritoneal sepsis	Laparotomy, appendectomy, primary repair of hernia, no mesh
Type 4	Acute appendicitis within an inguinal hernia, related or unrelated abdominal pathology	Manage as type 1 to 3 hernia investigate or treat second condition as appropriate

The optimal treatment strategy for managing an appendix within AH remains a topic of debate in medical literature. Acute appendicitis is a common cause of right iliac fossa pain, though such pain does not always indicate the presence of an inflamed appendix. In many cases, the decision to remove the appendix becomes an intraoperative judgment.

Some experts advocate for appendectomy only if the appendix shows signs of inflammation, as supported by several studies. Others recommend removing even non-inflamed appendices to prevent potential future complications. Ofili et al. proposed that surgical manipulation of a healthy appendix might itself provoke inflammation, possibly leading to secondary appendicitis [15,16,17,18].

Hutchinson cautioned that removing a healthy appendix may not always be beneficial and might introduce risks. He argued that the removal of a fecal-filled organ during otherwise clean surgery could increase the risk of septic complications, contributing to higher morbidity and mortality [19]. Baldassarre et al. recommended leaving the appendix intact if it is not inflamed, especially in pediatric patients, as removal of appendiceal lymphoid tissue could compromise immune development [4].

Conversely, Ali et al. performed appendectomies on all patients, regardless of the appendix's condition, but emphasized that decisions should be made on a case-by-case basis [20]. Milanchi et al. suggested that hernia repair should proceed without appendectomy if the appendix is normal, while appendicitis should be managed through laparoscopic appendectomy, followed by open hernia repair if needed [21].

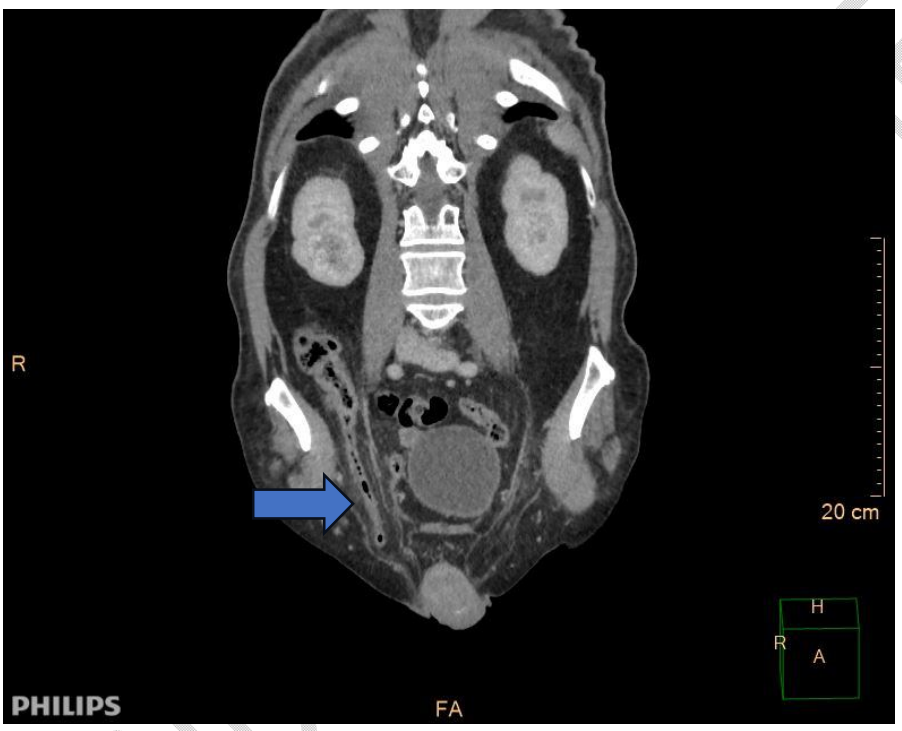
While the use of prosthetic mesh is generally discouraged in cases with an inflamed appendix due to infection risks, Chatzimavroudis et al. reported successful outcomes using synthetic mesh, even in septic conditions, without postoperative complications [22].

In summary, there is no consensus regarding AH management, as available data is limited. The therapeutic approach depends on the presentation type, symptom severity, appendix condition, and the surgeon’s discretion.

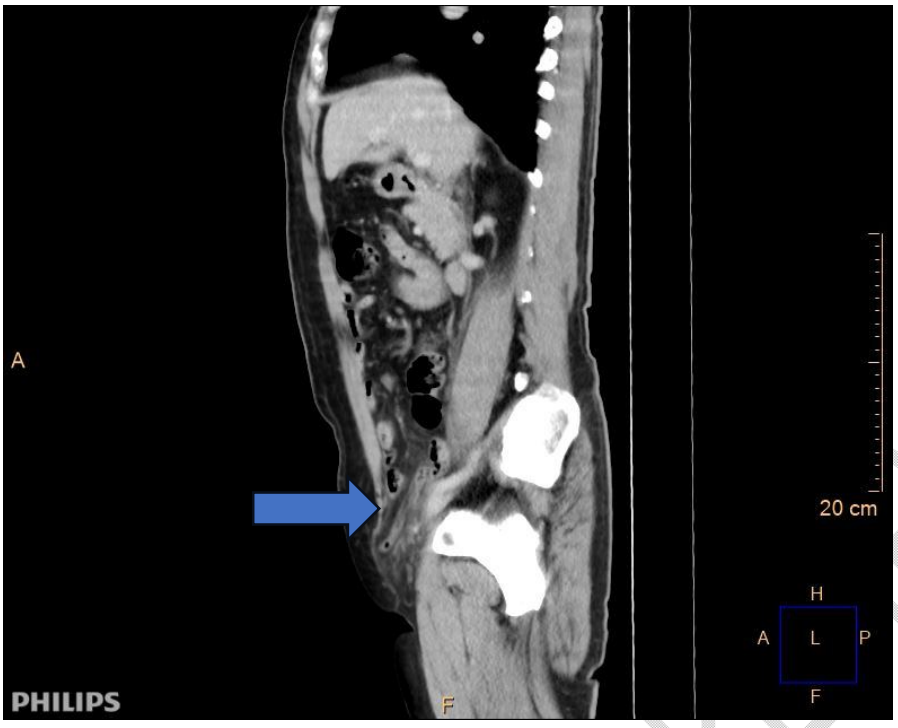
CONCLUSION:

AH is a rare surgical entity that still lacks a standard surgical approach. The presence of only one recent meta-analysis article found in theliterature underlines the importance of further investigation intothis topic. The use of CTscan can assist in pre-operative planning, but in most cases is notindicated. Although many algorithms indicate no need for appendectomy if the appendix is not inflamed, there still seems

to bea significant rate of appendectomy in AH withoutappendiceal inflammation. More research could change this lack ofconsensus. Lastly, regarding the use of mesh, although the status ofthe appendix needs to be taken into consideration, there seems tobe an increased favor of the more substantial use of mesh. In conclusion, each case should be given special consideration for multiplefactors. In our case, we performed open repair of hernia without mesh and appendectomy. Overall surgical treatmentdepends on the surgeon's experience and on the clinical situation, butfurther research is needed into this rare surgical disease.



A.



B.

Fig1 -Non-contrast-enhanced CT image (Coronal view (A) and Sagittal view (B)). A blind-ending tubular structure in the right inguinal canal (Blue Arrow).

Fig 2 – Intraop view of an appendix held with an instrument in the hernia sac

REFERENCES:

1. Amyand C: Of an inguinal rupture, with a pin in the appendix caeci, incrusted with stone; and some observations on wounds in the guts. Phil Trans R Soc Lond, 1973; 39: 329.
2. A. Michalinos, D. Moris, S. Vernadakis, Amyand's hernia: a review, Am. J. Surg. 2017; 207(6): 989–995.
3. T. Kalayci, UHIliklerden, Management of incidental Amyand hernia with a case report, Eastern J Med. 2019; 24(4): 551-553.
4. Baldassarre E, Centozea A, Mazzei A et al: Amyand's hernia in premature twins. Hernia, 2009; 13: 229–30.
5. Sharma H, Gupta A, Shekhawat NS: Amyand's hernia: a report of 18 consecutive patients over a 15-year period. Hernia, 2007; 11: 31–35.
6. Hauser U, Merkle P: Differential diagnosis of incarcerated inguinal hernias in infancy. Acute appendicitis in the hernial sac. Z Kinderchir, 1984; 39: 72–73.
7. Pelligrino JM, Feldman SD: Case report: Acute appendicitis in an inguinal hernia. N J Med, 1992; 89: 225–26.
8. D. Patoulias, M. Kalogirou, I. Patoulias, Amyand's hernia: an Up-to-Date Reviewof the Literature.Acta Medica (Hradec Kralove), 2017;60(3):131-134.
9. B. Sarici, S. Akbulut, T. Piskin. Appendiceal Carcinoid Tumor within Amyand'shernia: a Case Report and Review of the Literature, Turk. J. Emerg. Med. 2019;19 (2):73–75.
10. Naz J, Sharif MI, Kadry S, Rauf HT, Ragab AE. A Comparative Analysis of Optimization Algorithms for Gastrointestinal Abnormalities Recognition and Classification Based on Ensemble XcepNet23 and ResNet18 Features. Biomedicines 2023; 11(6): 1723.
11. Akaishi R, NishimuraR, Naoshima K, Miyazaki S. Amyand's Hernia Complicated with Appendix Perforation Treated by Two-Stage Surgery Consisting of Laparoscopic Appendectomy Followed by Elective Inguinal Hernioplasty: A Case Report. Int. J.Surg. Case Rep. 2018; 47: 11–13.
12. Singhal S, Singhal A, NegiSSet al. Amyand's Hernia: Rare Presentation of a Common Ailment. Case Rep. Gastrointest. Med. 2015; 2015:629127.
13. Psarras K,Lalountas M,BaltatzisM et al. Amyand's Hernia-a Vermiform Appendix Presenting in an Inguinal Hernia: A Case Series. J. Med. Case Rep. 2011; 5: 463.
14. Y. Shaban, A. Elkbuli, M. McKenney, D. Boneva, Amyand's hernia.A Case Report and Review of the Literature. Int. J. Surg. Case Rep. 2018;47: 92–96.
15. Cankorkmaz L, Ozer H, Guney C et al. Amyand's hernia in the children: a single center experience. Surgery. 2010; 147: 140–43.
16. Burgess P, Brockmeyer JR, Johnson EK. Amyand hernia repaired with Bio-A: a Case Report and Review. J SurgEduc, 2001; 68: 62–66.
17. Singal R, Mittal A, Gupta A et al. An incarcerated appendix: report of three cases and a Review of the Literature. Hernia. 2012; 16: 91–97.
18. Upadhyaya VD, Kumar V, Srivastava P, Gangopadhyaya AN.Amyand's hernia in infant: A rare entity. Kathmandu Univ Med J. 2009; 7: 143–44.
19. Hutchinson R: Amyand's hernia. J R Soc Med. 1993; 86: 104–5.

20. Ali SM, Malik KA, Al-Qadhi H.Amyand's hernia: study of four cases and literature review. SQU Medical Journal. 2012; 12: 232–36.
21. Milanchi S, Allins AD.Amyand's hernia: history, imaging, and management. Hernia. 2008; 12: 321–22.
22. Chatzimavroudis G, Papaziogas B, Koutelidakis I et al.The role of prosthetic repair in the treatment of an incarcerated recurrent inguinal hernia with acute appendicitis (inflamed Amyand's hernia). Hernia. 2009; 13: 335–36.