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Case Report

Amyand Hernia with Acute Appendicitis: A Case Report

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Definition

An Amyand Hernia is defined as an inguinal hernia that contains the vermiform appendix inside the hernial sac. This entity is a rare condition, accounting for approximately 1% of all inguinal hernia cases; however, the presence of acute appendicitis in an Amyand Hernia account for only 0.1% [1].

History

It was first described in 1735 by the French surgeon Claudius Amyand, who described the finding of a perforated appendix within the hernia sac of an eleven year old boy. The operation was carried out in St George's Hospital in London and the organ was described to be perforated secondary to the ingestion of a pin. [2] On October 8th, 1735 the eleven year old Hanvil Anderson arrived at St George's Hospital with an inguinal hernia. The initial impression of the physical examination was that the finding was "small and not troublesome". Amyand was more concerned about the formation of a fistula or an ulcer beside the hernia that appeared to be "leaking a great quantity of an unkindly sort of matter'. On the 6th of December, 1735 Amyand operated on the boy, without the use of anaesthetics, and discovered an inflamed perforated appendix with leakage of faecal matter. Amyand proceeded to perform the first ever successful appendectomy.

He later wrote, "This operation proved the most complicated and perplexing I ever met; with many unsuspected Oddities and Events concurring to make it as intricate as it proved laborious and difficult.'Tis easy to conceive that this Operation was as painful to the Patient as laborious to me. It lasted nearly half an Hour - and the Patient bore it with great Courage. He was composed by half an Ounce of Diacodium (a syrup made of poppies) and Emollient Embrocations." Hanvil Anderson was discharged after a month of nursing and inpatient care to live a normal and healthy life [3].

Case Report

AA is a fourty-nine year old gentleman who presented to the Dubai Hospital Emergency Department with a one day history of abdominal pain and nausea. The pain was situated in the right lower quadrant of the abdomen with radiation to the left lower quadrant. It had started a few hours prior to seeking hospital care, was aggravated by movement and was alleviated by simple analgesia. The patient had a similar episode of such pain six months prior; however, he did not pursue medical treatment at that time. This was associated with a vague generalized feeling of nausea. The patient's symptoms were not associated with fever, vomiting, urinary symptoms, or changes in bowel habit. His past medical history only included hypertension which was well controlled. His past surgical history included a fibular fixation procedure following a road traffic accident, in the year of 2019. He also had an intercostal drain insertion after suffering a pneumothorax secondary to a stab injury experienced five years prior. The patient had no known allergies. The patient works as a waiter in a restaurant.

On examination: He was vitally stable and afebrile. An abdominal examination revealed a soft abdomen with mild tenderness to palpation of the right lower quadrant with a positive rebound and Rovsing sign.

His laboratory investigations revealed the following:

WBC Count	8.5
Haemoglobin	13.9
C-Reactive protein	11.4
Amylase	62
Bilirubin, Total	1.4
Procalcitonin	0.42

All other parameters were within normal including a urinalysis & Covid-19 test that were negative.

With regards to the patient's radiological investigations:

He only underwent an X-Ray Abdomen during this presentation, which was unremarkable. Of note, the patient had underwent a CT KUB six months prior to this presentation that was positive for findings of Acute Appendicitis. The appendix was found to be severely thickened, measuring up to 16mm, with apparent wall thickening and peri-appendicular fat stranding. Multiple mildly enlarged lymph nodes were also detected in the right lower quadrant. A diagnosis of acute appendicitis was made and the patient was offered admission under the care of The General Surgery Team as well as a laparoscopic appendectomy. The patient; however, chose to be discharged against medical advice. After thorough explanation of the risks and consequences of his decision, his autonomy was respected and he was discharged with oral antibiotics and pain medication. He was advised to re-attend the Emergency Department in the case of worsening symptoms.

The patient represented to the Emergency Department the following day. His pain had intensified in severity over the following morning, was associated with two episodes of vomiting, and the sudden development of a marked swelling in the right lower quadrant of his abdomen. It was the first time he had experienced pain of this magnitude. He had passed a small amount stool earlier before presentation to the Emergency Department. The patient had a BMI of 30.5, without a previous history of hernias, chronic cough, or long standing constipation.

On review of systems: He had a long standing history of lower back pain

On examination: He was hypertensive with a blood pressure of 148/63, with all other vital readings within normal range. He was alert with a GCS of 15 and was markedly distressed.

A bedside examination revealed the presence of a noticeable swelling in the right lower quadrant. Local examination of the swelling displayed a 5 x 3 cm mass in the right groin extending to the right hemiscrotum without overlying skin changes. The mass was markedly tender to palpation, irreducible, had a tense and hard consistency, and had a positive cough impulse. This was consistent with a right sided inguinoscrotal hernia. His laboratory investigations were not significantly dissimilar since his previous presentation to the Emergency Department, which revealed the following: His laboratory investigations revealed the following:

WBC Count	9.8
Haemoglobin	13.6
C-Reactive protein	15.9
Bilirubin, Total	0.6

His urinalysis disclosed the presence of a mild haematuria; however, his urine culture was negative for any bacterial growth.

In term of medical Imaging, the patient underwent an Abdominal Ultrasound that revealed the findings of a right inguino-scrotal hernia containing bowel loops with a mild hydrocele. Both testicles and epididymis were normal in size and echogenicity without any focal lesion. The vascularity of the right testes was normal on colour doppler. The presence of a bilateral varicocele was noted. There was no hydrocele on the contralateral left side (Figure 1).

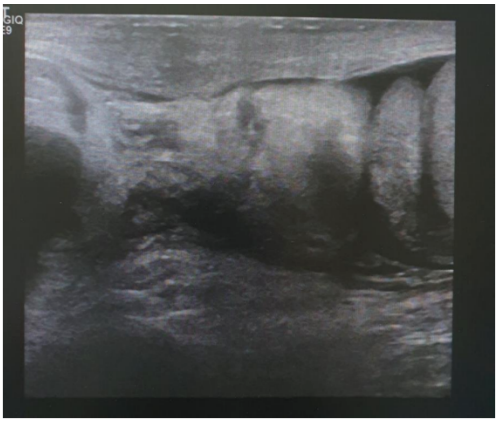

Figure 1: Right inguino-scrotal hernia containing bowel loops.

The patient was re-offered admission under the care of General Surgery and was advised to undergo an urgent open inguinal hernia repair, to which he agreed.

The procedure: A dose of 1.5g of Cefuroxime was administered pre-operatively.

The patient was placed in the supine position after the administration of a spinal block. An oblique skin incision was made at the right inguinal region. The external oblique aponeurosis was incised and the inguinal canal was opened until the superficial inguinal ring. The spermatic fascia was divided and a thick large hernial sac was observed. The hernial sac was opened and an inflamed appendix was discovered. The appendix was followed until it's base at the level of the taenia. A transection

was performed at this level using a 60mm GIA stapler. The stapler was fired once more across the mesoappendix. Haemostasis was adequately secured at this step. A redundant portion of the sac was marked and excised and the sac was closed using Vicryl 2-0. The decision was made against the insertion of a mesh in this case. The posterior inguinal wall was reinforced with Vicryl 2-0 by approximating the conjoint tendon with the inguinal ligament. The external oblique aponeurosis was approximated with Vicryl 2-0, Scarpa's fascia with Vicryl 3-0, and the skin was stapled using a surgical skin stapler.

The operative findings included: An inflamed and engorged 14 cm long and dilated appendix with a mesoappendix that had a fimbriated appearance towards it's tip. The appendix was found inserted into the right inguinal canal from the deep inguinal ring in the form of a sliding hernia. The cord structures were intact and undamaged. Oedematous tissue containing turbid fluid was appreciated while opening the inguinal canal (Figures 2,3).

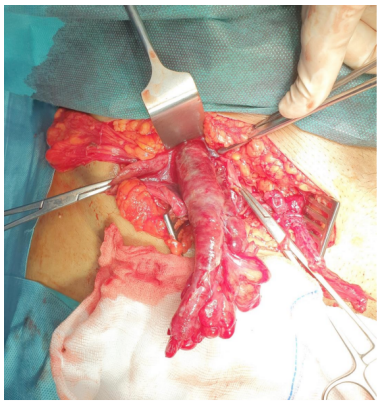

Figure 2: Intra-operative finding: inflamed appendix with a mesoappendix containing a fimbriated appearance towards its tip, appreciated after extraction and opening of the hernial sac.

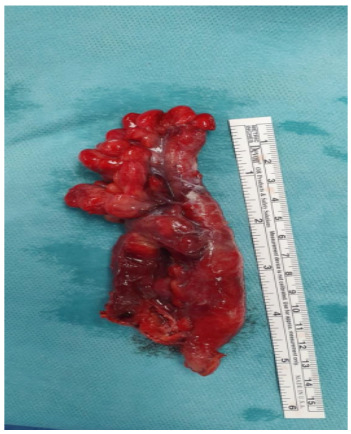

Figure 3: Specimen: Approximately 14 cm inflamed appendix with a mesoappendix containing a fimbriated appearance, resected from its base.

The histopathology report confirmed the presence of acute appendicitis as well as periappendicitis. No evidence of perforation or malignant pathology, such as a carcinoid tumour, was identified. The patient was closely monitored in the post-operative period in a high dependency bed. He developed a new onset mild pain in the operative region on the fourth post-operative day, he underwent a repeat abdominal ultrasound, which revealed a fluid collection in the right inguinal region. This was aspirated at the bedside using aseptic measures without complication. The content of the aspirant was serosanguinous in character. The patient continued to experience mild pain, which was controlled with intravenous paracetamol and the COX-2 selective inhibitor Parecoxib.

The patient was recovering well thereafter, he was discharged on post-operative day 10 after his pain had eventually settled and he had recieved a full course of the intravenous antibiotics Cefuroxime (750 mg TDS) and Metronidazole (500mg TDS). Upon discharge from the hospital setting, he was without pain, tolerating a normal diet, mobilizing well, and his wound was clean. He was advised to avoid heavy lifting, to avoid first and second hand smoking, constipation, or any other causes or increased intra-abdominal pressure. He was discharged with a scheduled clinic follow up after two weeks. Postoperative outpatint clinic follow up was unremarkable and he was couseled about future possibility of hernia recurrence as the repair was anatominal without mesh due to inflammation and infection.

Discussion

A classification was put forward by Losanoff and Basson for Amyand's Hernia, which set to provide a therapeutic framework. Type 1 describes a non-inflamed appendix situated in an inguinal hernia. Type 2 includes acute appendicitis within an inguinal hernia without the presence of abdominal sepsis. Type 3 includes acute appendicitis into an inguinal hernia along with the presence of intra-abdominal and abdominal wall sepsis. Lastly, type 4 is described as acute appendicitis in an inguinal hernia accompanying an associated abdominal pathology. The case presented encounters a Type 2 Amyand Hernia, and the recommended management of this presentation involves an appendectomy with a primary hernia repair without the use of prosthetics, such as a surgical mesh. [4-8] The herniorrhaphy technique utilized in this case was the Shouldice Technique. Other modalities considered were the Bassini, and McVay Repair techniques; however, The Shouldice technique was the technique of choice due to its favourably low recurrence rates (0.6-1.4% in specialised centres). [9-11] The anatomy of the transversalis fascia, internal oblique, conjoint tendon, and inguinal ligament were also easily identifiable and within appropriate proximity after sufficient excision of the redundant hernial sac.

Limitations

Being a case report, this study cannot be generalized, however, it provides an interseting narrative and open access for clinicians and researchers .

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