

A Retrospective Study on Various Presentations of Amyand's Hernia at Tertiary Care Centre

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Abstract

Case Report

A vermiform appendix in an inguinal hernia is known as Amyand's hernia. The incidence of having a normal appendix within the hernia sac varies from 0.5% to 1%, whereas only 0.1% of cases complicate into acute appendicitis, underscoring the rarity of the condition. This is a case series of ten cases with different presentations and their management.

Keywords: vermiform appendix, Amyand's hernia, sac, herniorrhaphy.

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INTRODUCTION

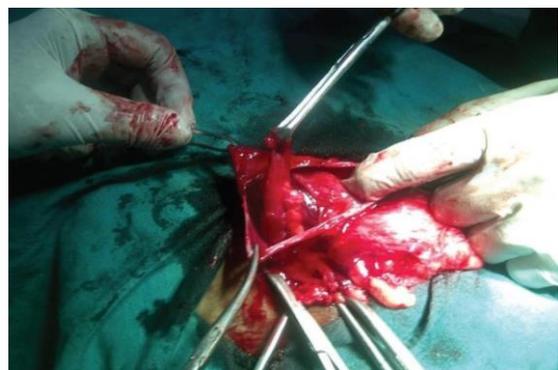
Inguinal hernia may display very unusual sac contents. Bowel, Ovary, fallopian tube, urinary bladder, incarcerated bladder diverticula, large bowel diverticula in the form of diverticulitis or abscess, Meckel's diverticulum (littre hernia) have been rarely reported. The presence of the appendix within an inguinal hernia has been referred to as "Amyand's hernia" to honor Claudius Amyand, surgeon to King George II. Amyand was the first to describe the presence of a perforated appendix within the inguinal hernia sac of an 11-year-old boy, and performed a successful trans herniotomy appendectomy in 1735.

Ten cases of Amyand hernia operated at our centre in a cohort of 600 inguinal hernia patients are presented here.

Case 1:

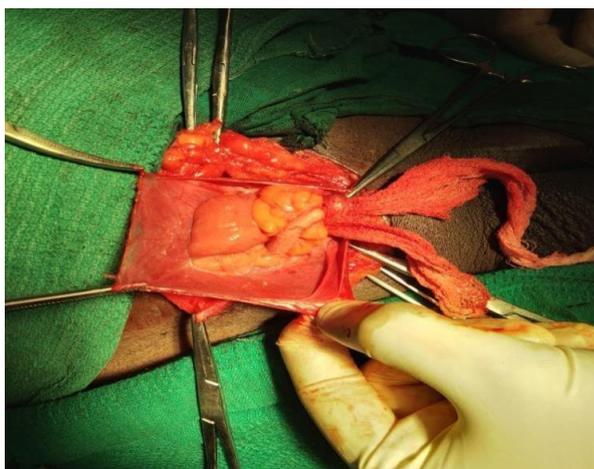
A 42-year-old male was admitted as a routine case of right-sided reducible indirect inguinal hernia since 2 years. Patient complained of occasional episodes of pain in the hernia and irreducibility now. Pt developed fever. Pt Full blood count revealed leucocytosis of 15400/mm³ and neutrophilia of 84%. Ultrasonography report was inconclusive. A diagnosis of strangulated inguinal hernia was made. The patient

was put on parenteral antibiotics before the surgery. A standard right inguinal incision was made; the hernia sac was unexpectedly bluish in color. The sac was densely adherent to the cord structures; when the sac was opened, it contained serosanguinous fluid which was drained. The contents of the sac included omentum and an acutely inflamed appendix with a fecolith in the mid part. An appendectomy was performed, and herniorrhaphy was done by modified Bassini's method. Mesh hernioplasty was avoided for the risk of mesh infection. The patient had a smooth postoperative recovery and was discharged on the 6th postoperative day without any complications. Patient was followed up for 4 months and reported no complaints.



Case 2:

1. A 28-year-old young man who presented with a right-sided inguinal hernia since 1 year. The patient complained of dragging pain during straining. On examination, the hernia was of indirect, incomplete, and reducible type. During operation under spinal anesthesia, the sac was found to contain an appendix. The appendix was normal with no visible neovascularization and there were no adhesions to the sac. The appendix was reduced back to the abdomen, herniotomy was performed, and Lichtenstein mesh hernioplasty was done. The patient was discharged after an uneventful recovery. 5 months follow up showed no symptoms of appendicitis.

**Case 3:**

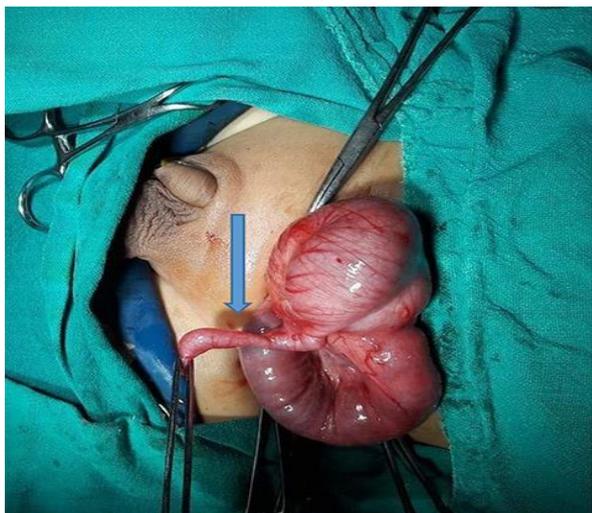
A 58-year-old male patient presented to our surgical emergency with a tender, erythematous right inguinal mass. He had a right-sided inguinal hernia since 4 years. His medical history included type II diabetes mellitus and chronic hypertension. Pain onset was sudden and involved the right inguinal area. Body temperature was raised. Laboratory findings included leukocytosis (13000/mm³) and elevated C-reactive protein (53 mg/L). A diagnosis of incarcerated hernia was made. On exploration, obstructed inguinal hernia was found. After opening the sac and suction of serosanguineous foul smelling collection, inflamed appendix was found inside the hernia sac, along with part of the cecum and omentum. All adhesions were released and appendectomy with resection of inflamed parts of omentum was done, along with excision of the sac. Modified Bassini procedure was performed. The postoperative period was uneventful. The patient had intravenous antibiotics for 4 days. The patient was followed up for 5 months, during which he had no inguinal or abdominal complaints, after which he was lost to follow-up.

**Case 4:**

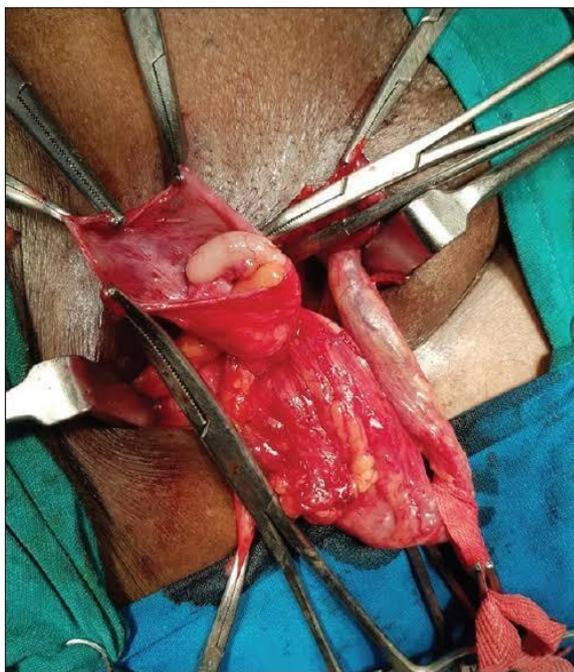
The fourth case is of a 60 yrs old man who presented to the emergency with an obstructed hernia. He had a right-sided inguinal hernia since 8 years. His medical history included type II diabetes mellitus. Pain onset was sudden and involved the right inguinal area. Laboratory findings included leukocytosis (14000/mm³). A diagnosis of incarcerated hernia was made. The patient was operated upon in the emergency operation room, and on opening the sac, there was serosanguineous collection and the cecum edematous and discoloured with normal appendix. Appendicectomy not done. The superficial inguinal ring was found to be constricting the neck of hernia sac, which was divided. Routine herniotomy and herniorrhaphy was done by modified Bassini method.

**Case 5:**

The fifth case is of a 55years old male who presented with a right-sided indirect complete inguinal hernia of long duration. He had no specific complaints associated with the hernia. He had no comorbid illness. He was operated under spinal anesthesia at elective theatre and intraoperatively in the hernia sac, appendix was an incidental finding, it was normal and appendicectomy was not performed. Hernioplasty done.

**Case 6:**

The sixth case is of a 33 years old male who presented with a right sided complete inguinal hernia of 3 years duration. He had no specific complaints associated with the hernia. He had no comorbid illness. He was operated under spinal anesthesia at elective theatre and intraoperatively in the hernia sac, appendix was an incidental finding, it was normal and appendicectomy was not performed. Hernioplasty done.

**Case 7:**

The seventh case is of a 43years old male who presented to emergency department with a right-sided indirect complete inguinal hernia of long duration but presented with features of irreducibility. He had no comorbid illness. He was operated under spinal anesthesia intraoperatively in the hernia sac, appendix was an incidental finding, it was normal and appendicectomy was not performed. Hernioplasty done.

**Case 8:**

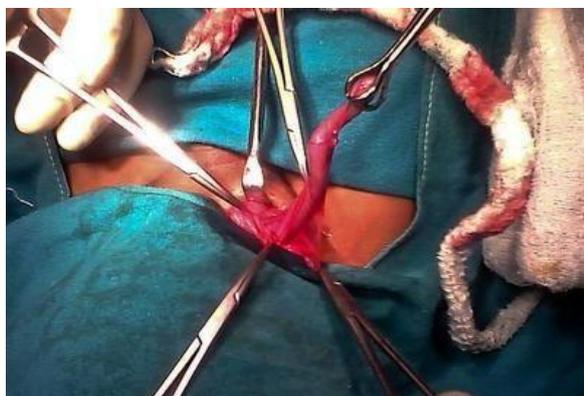
A 28-year-old male patient presented to our surgical emergency with a tender, right inguinal mass. He had a right-sided inguinal hernia since 4 months. His medical history no comorbidities. Pain onset was sudden and involved the right inguinal area. Body temperature was raised. Laboratory findings included leukocytosis (12000/mm³) and elevated C-reactive protein (23 mg/L).

On exploration, inguinal hernia was found. After opening the sac and suction of serosanguineous foul smelling collection, inflamed appendix was found inside the hernia sac, along with part of the cecum and omentum. All adhesions were released and appendectomy was done, along with excision of the sac. Modified Bassini procedure was performed. The postoperative period was uneventful. The patient had intravenous antibiotics for 4 days. The patient was followed up for 5 months, during which he had no inguinal or abdominal complaints.

**Case 9:**

The next case is of a 37years old male who presented with a right-sided indirect complete inguinal hernia of long duration. He had no specific complaints associated with the hernia. He had no comorbid illness.

He was operated under spinal anesthesia at elective theatre and intraoperatively in the hernia sac, appendix was an incidental finding, it was normal and appendicectomy was not performed. Appendix reduced back. Hernioplasty done.



Case 10:

A 38-year-old male patient presented to our surgical emergency with a tender, right inguinal mass. He had a right-sided inguinal hernia since 1 year. His medical history no comorbidities. Pain onset was sudden and involved the right inguinal area. Body temperature was raised. Laboratory findings included leukocytosis (13500/mm³) and elevated C-reactive protein (52 mg/L). On exploration, inguinal hernia was found. After opening the sac and suction of serosanguineous foul smelling collection, inflamed appendix was found inside the hernia sac, along with part of the cecum and omentum. All adhesions were

released and appendectomy was done, along with excision of the sac. Modified Bassini procedure was performed. The postoperative period was uneventful. The patient had intravenous antibiotics for 4 days. The patient was followed up for 5 months, during which he had no inguinal or abdominal complaints.

DISCUSSION

A hernia is defined as the protrusion of a viscus or part of a viscus through the walls of its containing cavity. The first description of an appendix in inguinal hernia is attributed to Amyand, a sergeant surgeon to King George I and II who, in 1735, found a perforated appendix in an 11-year-old boy who presented with a right inguinal hernia and fecal fistula. This was also one of the first documented descriptions of an appendectomy being performed. The incidence of having a normal appendix within the hernia sac varies from 0.5% to 1%, even left-sided Amyand's hernia have been reported, whereas only 0.1% of all cases of acute appendicitis present in an inguinal hernia, underscoring the rarity of the condition. Previous reports have also emphasized on the rarity of this condition. However, because we found five cases in a short duration of 1 year, the incidence rate in our case series is approximately 1.66% (10/600). Increased incidence found in these areas can be attributed to the general neglect of patients in getting the hernia operated; the time gap is generally approximately 3–5 years between the diagnosis and surgery. Inflammation of the appendix is attributed to external compression of the appendix at the neck of the hernia. The inflammatory status of the vermiform appendix determines the surgical approach and the type of hernia repair. As in the first and third cases in this series, it is widely accepted that, if appendicitis exists, the repair of the hernia should be performed with modified Bassini or Shouldice techniques, without making use of synthetic meshes or plugs within the defect in an infected field owing to the high risk of suppuration of such materials. Management should be individualized according to appendix's inflammation stage, presence of abdominal sepsis and co-morbidity. The Losanoff-Basson classification as shown in Table 1 offers a satisfactory guidance system.

Table 1: Losanoff and Basson classification of Amyand's hernia

Classifications	Description	Management
Type 1	Normal appendix in an inguinal hernia	Hernia reduction, mesh placement
Type 2	Acute appendicitis in an inguinal hernia with no abdominal sepsis	Appendectomy, primary no prosthetics hernia repair
Type 3	Acute appendicitis in an inguinal hernia with abdominal and abdominal wall sepsis	Laparotomy, appendectomy, and primary no prosthetic hernia repair
Type 4	Acute appendicitis in an inguinal hernia with abdominal concomitant pathology	Same as type 3 plus management of concomitant disease

Most surgeons agree that the presence of acute appendicitis (Losanoff–Basson type 2–4) within a hernia should be a contraindication for the use of synthetic meshes or plugs. However, a point of disagreement is whether or not to perform an appendectomy in a case of a Losanoff–Basson type 1 Amyand’s hernia with normal appendix within inguinal hernia. The decision should be based on factors such as the patient’s age, the size and anatomy of the appendix, the side in which the hernia occurs, and extension of the

intraoperative manipulations that can by themselves trigger an inflammatory process. We performed an appendectomy in the first and third case (both Type 2), especially because the appendix was inflamed in both the cases. It was not performed in the second fourth and fifth cases because of the presence of a normal appendix (Type 1). Definitive preoperative diagnosis could not be made because of lack of suspicion of the condition.

S. No	Total no of Cases		Male		Female	
	No. of cases	%	No. of cases	%	No. of cases	%
INGUINAL HERNIA	600	100	580	96.6	20	3.3
INDIRECT INGUINAL HERNIA	440	73	430	98	10	2
DIRECT INGUINAL HERNIA	160	27	160	100	0	
AMYAND HERNIA	10	1.6	10	1.6	0	
AMYAND HERNIA IN ELECTIVE	4	40	4	100	0	
AMYAND HERNIA IN EMERGENCY	6	60	6	100	0	
AMYAND HERNIA WITH INFLAMED APPENDIX	4	40	4	100	0	
AMYAND HERNIA WITH NORMAL APPENDIX	6	40	6	100	0	

CONCLUSIONS

Amyand’s hernia, although a rare condition worldwide, had an incidence of 1.66% in our case series. The diagnosis in all the five cases was made intraoperative, hence, we conclude that a preoperative diagnosis is rarely made in such cases. Management should be individualized according to appendix’s inflammation stage, presence of abdominal sepsis, and comorbidity factors. The decision should be based on factors such as the patient’s age, the size and anatomy of the appendix, and in case of appendicitis, standard appendectomy and herniorrhaphy without a mesh should be the standard of care.

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