Research Paper

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An Incarcerated Amyand's Hernia with chronic appendicitis – a rare surprise for a surgeon. A case report, with historical and literature review.

Medical Science

KEYWORDS : Amyand's hernia, appendicitis, inguinal hernia

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ABSTRACT

Some of the eponymous, rare, anterior abdominal hernias include Richter's, Littré's, De Garengeot's, Amyand's hernia. Inguinal hernia may display very unusual sac contents. Amyand's hernia, containing the vermiform appendix, is an example, that poses a surgical surprise. Author reports a case of Amyand's hernia with chronic appendicitis successfully treated in a rural medical centre of a developing country.

Introduction:

Inguinal hernia may display very unusual sac contents. Ovary, fallopian tube, urinary bladder, sigmoid colon, incarcerated bladder diverticulum, large bowel diverticulum with or without diverticulitis or an abscess, Meckel's diverticulum (Littre hernia) or foreign bodies (e.g., fishbones) have been rarely reported. [1,2,3]

Some of the eponymous, rare, anterior abdominal hernias include Richter's, Littré's, De Garengeot's, Amyand's hernia. Most of the times, they are not diagnosed preoperatively, and present to the surgeon as an "on table" surprise.

Case report:

A 25 year young man presented with swelling and discomfort in the right inguinal region and pain in right iliac fossa for 2 days. Clinically, Patient's vitals were stable. On local examination, a tender irreducible swelling was present in the right inguinal region. Cough impulse was absent. Scrotum examination revealed normal epididymis and testis. Bowel sounds were normal. We diagnosed that as a right-sided irreducible inguinal hernia probably an omentocele. Total leukocyte cell count, blood urea, serum creatinine, blood sugar levels and Chest X-ray were normal. He was explored as an emergency through inguinal skin crease incision as if for a standard inguinal hernia. It turned out to be a surprise "on table". The indirect hernial sac contained the vermiform appendix that was adherent to the sac from within, in its distal portion.[FIG 1] The appendix was freed by adhesionolysis. [FIG 2] The Caecum was pulled out into the sac through the internal ring. [FIG 3] Appendicectomy was performed and the tied appendicular stump was buried into the caecal wall by a purse-string suture. The Caecum was reduced back into the abdominal cavity. [FIG 4] Standard herniotomy was performed followed by transfixation of the sac at the highest point of the neck. Bassini's repair was added. The patient was put on intravenous fluids, injectable Ampicillin, metronidazole, and analgesics. Clear liquid diet was allowed after 24 hours, for 2 days, thereafter, he resumed to full diet. The patient had an uneventful recovery.

Historical:

Richter's hernia [partial enterocele] is incarcerated knuckle [partial circumference] of bowel entrapped and strangulated in the hernial orifice. Yet, signs of intestinal obstruction are often absent. Hernial orifice must be big enough to ensnare the bowel wall, but small enough to prevent protrusion of an entire loop of the intestine, and the margin of the hernial ring must be firm or, in Richter's words, "possess strong spring-force." The death rate is high for want of timely diagnosis.[was 17% in the series published by Wolfgang Steinke, René Zellweger]. The earliest known reported case of Richter's hernia occurred in 1598 and was described by Fabricius Hildanus. The first scientific description of this particular hernia was given by August Gottlob Richter in 1778, who presented it as "the small rupture."[4]

Alexis Littré (July 21, 1658 – February 3, 1726) was a French physician and anatomist, was the first to give a description of a hernial protrusion of an intestinal diverticulum (Meckel's diverticulum). De Garengeot, in 1731, described a rare subtype of an incarcerated femoral hernia with inflamed vermiform appendix within the sac.[5,6]

Claudius Amyand (1680-1740), sergeant-surgeon to King George the II of England and principal surgeon to the St. George's and the Westminster hospitals of London, is credited with performing the first documented successful appendectomy, in which he removed a perforated appendix from a right inguinal hernial sac in 1735. The 11 year old boy, Hanvil Anderson, on whom Amyand operated upon, had an enterocutaneous fistula, which was proven to originate from the appendix. Amyand reported the case to the Royal Society and it was published in their Philosophical Transactions. According to the surgeon's descriptions, the patient also had "a fistula between the scrotum and thigh" and the operation proved to be "very complicated and perplexing," as the pathology consisted of a chronically inflamed appendix contained within the inguinal hernia sac, perforated by a previously swallowed pin.[7,8,9]

Interestingly the first appendicectomy performed in the USA by Robert J Hall in 1886, was performed on a perforated appendix within an inguinal hernia, similar to Amyand's case one and half century prior.[7]

Thus, this condition is given the eponymous name Amyand's hernia wherein vermiform appendix is in the hernial sac in about 1% of inguinal hernia. Rarely, it is complicated by an acute appendicitis. [D'Alia reported this incidence as just 0.08%, in 1341 patients with inguinal hernias, over a 13 year period].[7,10]

Discussion:

Though most often misdiagnosed as an incarcerated inguinal hernia, its clinical presentation varies, depending on the extent of inflammation of the appendix. Differential diagnosis should include strangulated or obstructed hernia, strangulated omentocele, Richter's hernia, inguinal lymphadenitis. Most of the published cases have been reported as appendicitis incarcerated in a hernia. This comes as an operative surprise for the surgeon. A preoperative computed tomography scanning of the abdomen can clinch the odd diagnosis. However, this is not a routine practice after a clinical diagnosis of an inguinal hernia. One case of a three-month old boy has been reported in which a right- sided sliding appendiceal inguinal hernia was diagnosed preoperatively with sonography.[11]

In a review of 60 cases over a 12 year period, only one case was diagnosed pre-operatively.[7,12]

Commoner in men, it is almost exclusively right sided, although there have been occasional reports of left sided Amyand's hernia in an associated situs inversus, mobile caecum or intestinal malrotation.[13,14]

Gupta et al reported a left sided Amyand's hernia, without situs inversus or malrotation in a 9 month old boy.[7,15]

Amyand's hernia may present with symptoms mimicking appendicitis; [hence, treatment consists of a combination of appendectomy and hernia repair].[16,17]

The appendix of Amyand's hernia is more likely to become inflamed given that it is retained in that location by adhesions and becomes vulnerable to trauma.[7,18]

Weber et al raised the question of why the appendix in Amyand's hernia becomes inflamed. The inflammatory swelling may lead to incarnation enters the vicious cycle of ischaemia and bacterial overgrowth.[12]

It is also proposed that changes in abdominal pressure due to muscle contraction compress the appendix, increase intraluminal pressure, thereby decreasing blood supply and encouraging bacterial overgrowth and inflammation.[7,19]

In an uncomplicated case, appendicectomy is advocated followed by simple repair of the hernia using the same incision. [7,17]

Paediatric or adolescent patients have a significantly higher risk of developing acute appendicitis and should therefore have their appendices removed, compared to middle-aged or elderly individuals in whom the appendix should probably be left intact. [20,21]

If appendicitis exists, due to the presence of contamination, the repair of the hernia should be performed with Bassini or Shouldice techniques, without making use of synthetic meshes or plugs within the defect due to the high risk of suppuration due to presence of a "foreign body".[7,21,22,23,24]

Fig 1: Contents of the hernia sac : Appendix : within and adherent to the sac

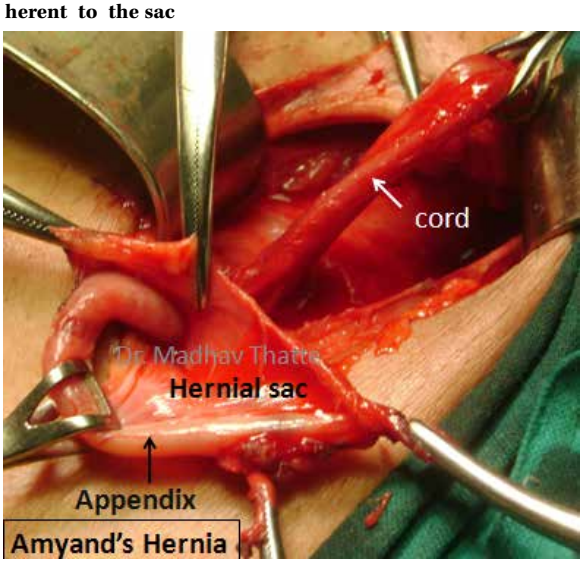


Fig 2: appendicular base & portion of the caecum pulled out of the internal ring

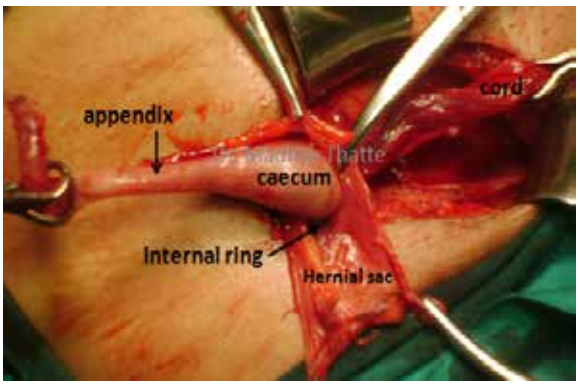


Fig 3: appendicular base & portion of the caecum pulled out of the internal ring

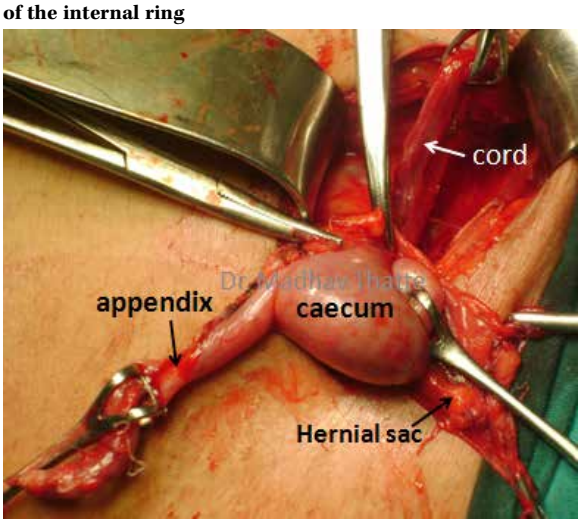
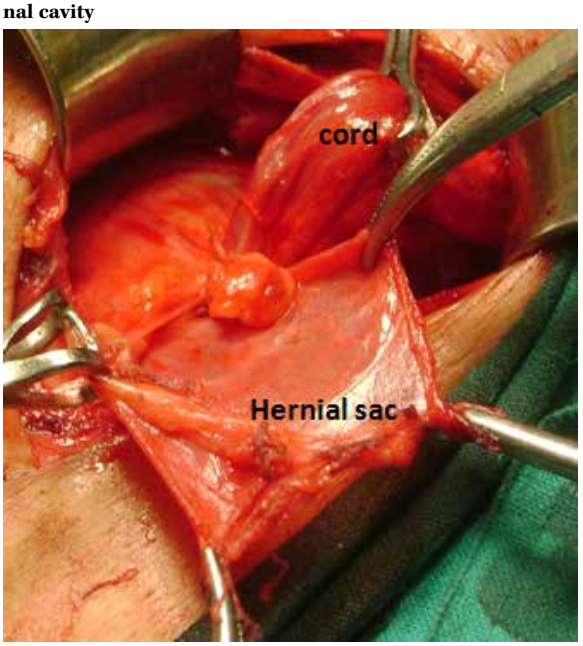


Fig 4: Appendix removed, Caecum returned back to abdominal cavity



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