

S. Breitenstein · C. Eisenbach · G. Wille · M. Decurtins

Incarcerated vermiform appendix in a left-sided inguinal hernia

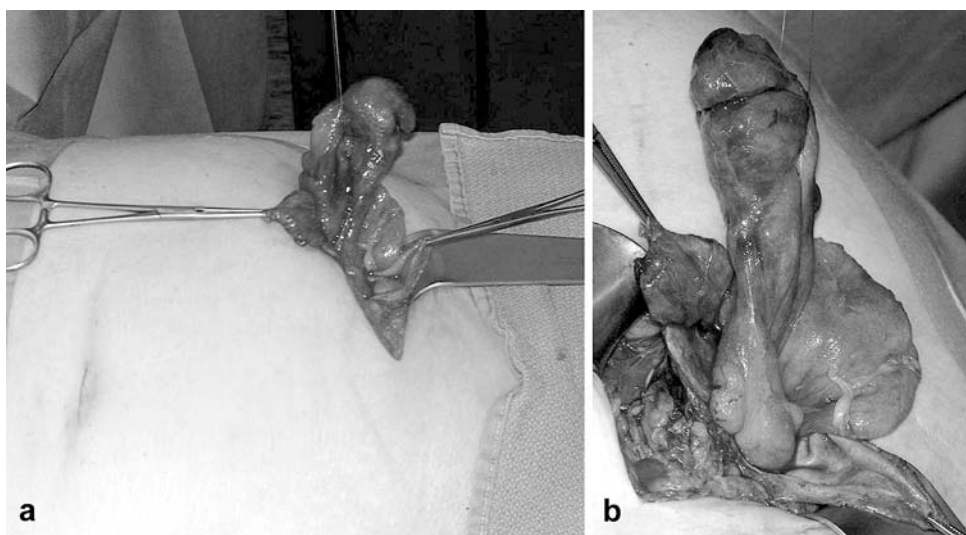
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Abstract We report here of a patient with an incarcerated vermiform appendix occurring in a left-sided indirect inguinal hernia. Occasionally, appendices are found in a hernial sac; however, the finding of an incarcerated vermiform appendix in an inguinal hernia on the left side is very unusual and has only been previously described once. The patient suffering this rare entity underwent

appendectomy and repair of the hernia and experienced an uneventful postoperative recovery. The possibility of the presence of a situs inversus, or malrotation, as an underlying cause for the observed pathology was excluded by x-ray examination.

Keywords Appendix · Hernia · Incarceration

Fig. 1 **A** Left inguinal approach. **B** Situs. Note the appendix and parts of the coecum



S. Breitenstein (✉) · C. Eisenbach · G. Wille · M. Decurtins
Department of Surgery, Kantonsspital Winterthur,
8401 Winterthur, Switzerland
E-mail: stefan.breitenstein@usz.ch
Tel.: +41 1 255 3041
Fax: +41 1 255 4449

Present address: S. Breitenstein
Department of Visceral and Transplantation Surgery,
University of Zurich, Rämistrasse 100,
8091 Zürich, Switzerland

Introduction

The finding of the vermiform appendix in an external hernia sac is not uncommon. It is estimated that it is found in inguinal hernias in approximately 1% of cases of appendicitis [1].

However, the finding of an incarcerated appendix in a left-sided inguinal hernia sac is very rare and has, to the best of our knowledge, only been reported once previously [2]. Correct preoperative diagnosis is almost

impossible and is largely based on intuition. We present the unusual case of an incarcerated vermiform appendix occurring within a left-side inguinal hernial sac.

Case report

An 81-year old woman presented with a long history of an inguinal mass—irreducible for the previous 5 days—together with the sudden onset of pain in the left groin.

The clinical examination of the abdomen was normal. In the left groin, a tender swelling was present, but the skin showed no signs of inflammation. The white blood count was $5.4 \times 10^9/l$, temperature afebrile, and CRP 52 mg/l. Ultrasound examination confirmed the clinical diagnosis of an incarcerated left-side inguinal hernia.

The operation was performed by an anterior approach through an inguinal incision. The indirect hernia was found, and the relatively small hernial port could be extended by a small incision of the transversal fascia. The hernial sac was opened to reveal parts of the cecum and the incarcerated vermiform appendix. The appendix showed signs of inflammation and beginning necrosis (Fig. 1). No pus was seen, and the appendix had not yet clinically perforated. Appendectomy using the standard oblique herniotomy incision was carried out, encountering no difficulties. Due to the risk of infection following appendectomy, the initial plan to implant a mesh graft, according to the Lichtenstein technique, was aborted, and a Shouldice repair of the hernia was carried out after copious lavage of the situs. We administered 1.5 g Cefuroxime intravenously before the operation. Histopathological examination confirmed the diagnosis of ulcerophlegmonous appendicitis. In order to exclude situs inversus, or malrotation, as an underlying cause of the observed condition, an x-ray examination was performed (Fig. 2).

Postoperative recovery was uncomplicated, the wound healed well, and the patient was discharged 7 days after admission to the hospital.

Discussion

The presence of an appendix in an inguinal hernia is not uncommon. It has been eponymously named “Amyand’s hernia” to honour Claudius Amyand, surgeon to King George II, who first performed a trans-herniotomy appendectomy on an 11-year-old boy with a perforated appendix within an inguinal hernia in 1736 [3].

If appendicitis occurs in an external hernial sac, it is most often in a right femoral hernia in postmenopausal women [4]. In men the occurrence of herniated appendices is mostly reported in a right inguinal hernial sac, but herniation has reportedly been observed in umbilical, incisional, left femoral, and even left inguinal hernia [2, 5]. To the best of our knowledge and after extensive

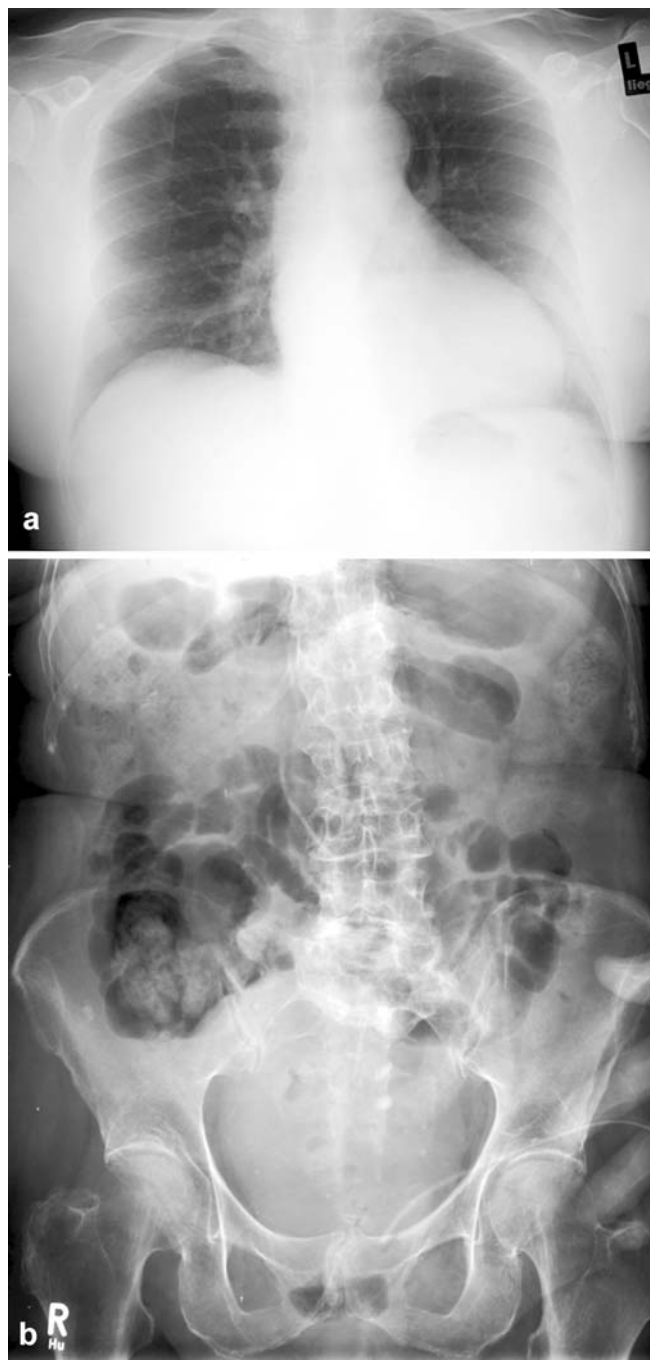


Fig. 2 A X-ray of thorax. B X-ray of abdomen postoperatively

research of the literature, we believe, that Carey’s report is the only one up to now of a left-sided inguinal incarceration of the vermiform appendix.

Correct preoperative diagnosis of a herniated vermiform appendix is difficult and largely based on clinical suspicion. Patients with a painful irreducible lump in the groin and localized tenderness over the hernia usually undergo surgery because of the suspicion that an incarcerated or strangulated hernia is responsible for the symptoms [6]. Other clinical signs and systemic symp-

toms are unspecific. Even in cases of primary appendicitis in a hernia, white blood count and temperature need not necessarily be elevated [7].

Most of the published cases have been reported as “appendicitis” incarcerated in a hernia. It is difficult to determine whether a primary visceral inflammation, which could be referred to as appendicitis, is the pathological mechanism, or if the primary event is strangulation of the herniated appendix, leading subsequently to ischemic necrosis and secondary inflammation [8]. In the past, mortality rates of up to 14–30% have been reported [2], although more recent reports suggest a decreased risk [1]. We did not implant a mesh graft in this patient because of potential contamination of the abdominal wall following the transherniotomy appendectomy. It is well known that the use of prosthetic material in the repair of a contaminated abdominal wall can promote infection and lead to severe complications [9].

In patients with apparently incarcerated herniation, the differential diagnosis of an incarcerated vermiform appendix must be included even in unlikely locations, such as umbilical or, as our report shows, left-sided inguinal herniation. Even though we believe that the more likely pathophysiological mechanism leading to appendicitis is secondary inflammation following the incarceration, the possibility of a primary appendicitis subsequently herniating must be taken into consideration. It is imperative to take immediate action in all

cases of incarceration, especially if systemic symptoms, such as pyrexia or elevated white blood count, are present to avoid serious and potentially fatal complications.

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