



Case Report

Stone in the hernial sac during inguinal hernioplasty- A case report and review of literature

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Abstract

Inguinal hernia repair is one of the most common operations performed in general surgery worldwide. It may contain either the omentum or small bowel as its contents. However, during hernia surgery, there may be surprises due to encounter of rare or unexpected contents in the hernial sac. Among these are Meckel's diverticulum, Amyand's hernia, Richter's hernia, bladder, fallopian tube and ovary. We present a case of herniolithiasis which was a term given for 'stone' in the hernial sac by Singal et al., in their case report. The first case of stone in the hernial sac was reported by Mazdak et al in 2007. Our patient, a 56 year old diabetic gentleman presented with bilateral inguinal hernia, left larger than the right with a left hydrocele. He was posted for left hernioplasty and hydrocelectomy. Intraoperatively, a direct hernia with omentum and bowel as contents was seen. There was a 2x2 cm stone adherent to the omentum at the fundus of the sac. Biochemical analysis of the stone revealed calcium and oxalate as its main constituents. Herniolithiasis or stone in the hernial sac is an exceedingly rare entity. Chronic infection and inflammation of part of the omentum has been hypothesised to cause saponification, calcification and stone formation. In this report, we intend to present such an encounter during hernia surgery and briefly outline the other rare contents in the herinal sac. It is important that the operating surgeon is aware of various unexpected contents in the hernial sac during hernia repair in order to plan proper surgery.

Keywords: *inguinal hernia, herniolithiasis, stone in hernial sac.*

Introduction

The prevalence of abdominal wall hernias is 4% for those aged over 45years. Almost three fourths of these are inguinal in origin, with a lifetime risk of 27% in males. Inguinal hernia repair is one of the most common operations performed in general surgery^[1]. Inguinal hernia may either contain the

omentum or small bowel as its contents. However, the operating surgeon may sometimes be surprised due to unexpected findings. The uncommon things that are encountered as the contents of the hernial sac include Meckle's diverticulum which is also known as Littre's hernia or a portion of the circumference of the bowel wall, known as

Richter's hernia^[2,3]. Amyand's hernia is the term given for hernia of the appendix with caecum^[4]. Tubal and ovarian herniation in the inguinal hernias in premenopausal women and adults are also been reported^[5]. Urinary bladder hernia occurs with a similar incidence of tube-ovarian hernia and requires special mention due to high risk of iatrogenic bladder injury during inguinal dissection^[6,7].

It is therefore essential that all surgeons are aware of these rare encounters during hernia repair in order to plan the best operation. In the present case report, the authors describe the clinical features and operative findings in a patient who was diagnosed with bilateral inguinal hernia and a left hydrocele. The relevant literature and possible hypothesis for the stone that was found in the hernial sac in this patient are discussed. The patient gave a written consent for his findings to be reported.

Case Report

A 56 year old, type II diabetic gentleman, presented with complaints of swelling in the left groin for 4 years. It was insidious in onset, gradually progressive in size and was associated with dragging type of pain. The swelling increased on coughing, straining and prolonged walking and decreased on lying down. He did not have complaints of abdominal distention, vomiting, constipation or fever. His work involved lifting of heavy objects as he was a manual labourer. There was no history of chronic cough, smoking or urinary complaints. He did not have any operations in the past. He was diagnosed with type 2 diabetes mellitus and was on oral hypoglycaemic agents. He did not have any other comorbid illnesses.

On examination, the patient was well built and nourished with a body mass index of 28. The general physical and other systemic examinations were unremarkable. There was a left manually reducible, incomplete direct inguinal hernia. The right testis, external genitalia and rectal examination were normal.

The routine blood tests were within normal limits. An ultra sonogram of the abdomen showed defects in the posterior wall of the left side with hernial sacs containing small portion of omentum and small bowel. His blood sugars were under control with oral hypoglycaemic drugs and fitness was obtained for the operation. He was then posted for elective left sided Lichtenstein's mesh hernioplasty.

The patient was painted, draped and the surgery was initiated as per standard protocols. Groin crease skin incision was made and deepened through the Camper's and Scarpa's fascial layers. External oblique aponeurosis was cut along the direction of its fibres. The cord structures were identified and secured. A direct hernial sac was noted which was adherent to the cord structures. The sac was dissected off the cord and opened. The contents were found to be omentum and bowel. Incidentally we also found a single stone measuring 2 x 2 cm which was adherent to the omentum at the fundus of the hernial sac (fig 1 and fig 2). The omentum was healthy without any features of chronic inflammation or infection. The stone was dissected off the omentum and sent for analysis. The hernial contents were then reduced and the sac was transfixed using 2-0 polyglactin. Following this, a standard Lichtenstein's tension free mesh hernioplasty was performed. The wound was closed in layers.

The post operative period was uneventful and the patient was discharged in a stable condition. On follow up, the wound was healthy and there were no clinical signs of recurrence. The stone was sent for biochemical analysis. On gross examination, it was pearly white in colour of size 2x2cm, oval in shape with a smooth outer surface. The stone contained calcium and oxalate as the principal constituents.

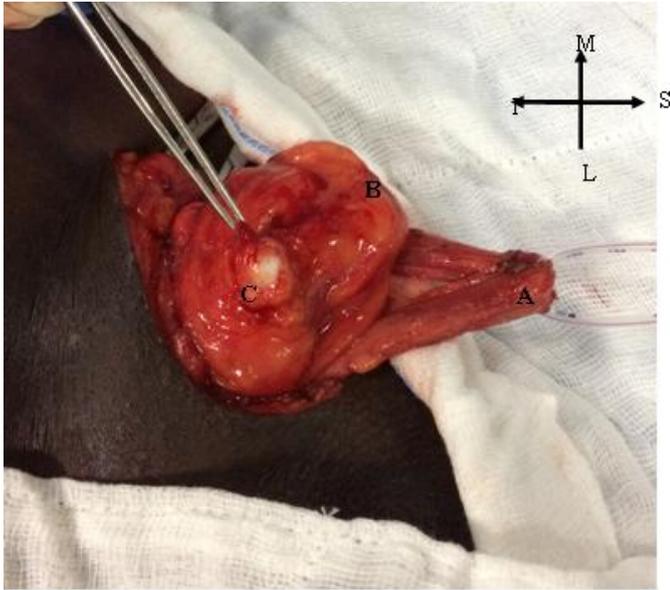


Fig 1. Left Hernial sac with contents. Omentum with a stone adherent to it. A- cord structures. B- Omentum in the sac. C-Stone

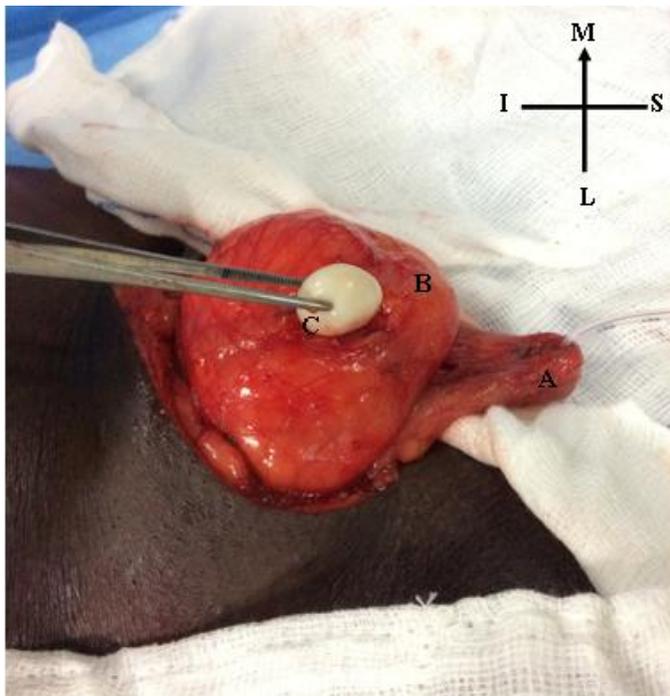


Fig 2. Stone retrieved from the hernial sac after dissecting off the omentum

Discussion

Inguinal hernias are known as the bread and butter of general surgeons. However, even a skilled surgeon can have surprises intra operatively on encountering very rare or unexpected contents. For instance, inguinal herniation of the bladder is reported fewer than 200 times in literature.

Mannatt et al reported this entity in a premature infant, whereas Fumado et al reported a case of huge bladder hernia completely into the scrotum^[6,7]. Singal et al reported three cases of Amyand's hernia with different contents as incarcerated appendix and colon^[8]. Spontaneous rupture of the biliary tree with retroperitoneal biloma and biliscrotum presenting as incarcerated inguinal hernia was reported by Brady et al^[9]. Kulacoglu et al reported a patient with hernial sac containing inflamed and swollen appendixepiloica of sigmoid secondary to torsion^[10]. The only case reported in the literature of a woman with Meckle's diverticulum causing strangulated inguinal hernia was described by Mongardini et al^[2]. Herniation of fallopian tube and ovary is common in a newborn female but exceedingly rare in a premenopausal women. Such a case of an ovulating ovary in an incarcerated hernia was reported by Golash et al^[5]. Staniscia et al reported a case of intrasaccular tumour of colon in an inguinal hernialsac^[10]. Coelho et al reported a case of the left ovary and fallopian tube and an ectopic rudimentary horn of the uterus^[11]

A stone or a calculus is a concretion of material that forms in an organ or duct of the body. The most common sites for occurrence of stone are biliary tree, urinary tracts, salivary glands, intestines and venous system. They can also be rarely seen in breast, nasal cavity and peritoneal cavity^[12].

Inguinal hernial sac is a very uncommon site for formation of a stone, as seen in our case report. Hernial stones can occur as two types. Extrasaccular- the stone outside of the sac but within the hernial defect and intrasaccular- the stone inside the sac^[12] The first case of stone in the hernial sac to be ever reported was in 2006 by Mazdak et al. The patient had two hard, painless and mobile mass in the inguinal canal on examination. Intra operatively they were pink-grey in colour with several hard, white nodules. Chemical analysis of the stone showed organic material with proteins, calcium and oxalate^[13].

Singal et al reported a similar case in 2012 where they encountered a single stone in the fundus of the hernial sac along with bowel loops. Chemical analysis results were similar^[12]. To the best of our knowledge, there have been no other reports on such an entity. In our patient, the hernial sac contained both bowel and omentum. The stone was found to be adherent to the omentum and embedded within. Biochemical analysis revealed similar findings.

The etiopathogenesis for stone formation in the hernial sac has not been described thoroughly. The postulated mechanisms are chronic inflammation with or without infection which causes fibrosis, saponification and calcification of the fatty tissue of the omentum leading to stone formation^[12]. This is mostly seen in uncontrolled diabetics as in our patient and the prior two reported cases. Ultrasonogram, plain X ray of the abdomen and computed tomography can detect stone in the hernial sac but may sometimes be misdiagnosed as bladder calculi. Stone in the hernial sac is an exceedingly rare surgical encounter and does not have a change in the line of management or modification in the steps of hernia surgery. Hence, evaluating for the same pre operatively using imaging modalities or biochemical tests is not warranted or recommended.

Conflicts of Interest

There are no conflicts of interest.

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