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CASE STUDY

REDUCTION EN MASSE IN A DIRECT INGUINAL HERNIA PRESENTING AS INTESTINAL OBSTRUCTION: A CASE REPORT WITH LITERATURE REVIEW

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ABSTRACT

Inguinal hernias are very common in surgical practice. They are broadly subdivided into indirect and direct hernias on the basis of their entry into the inguinal canal. While indirect hernia have narrow neck, direct hernia are broad necked, therefore incidence of obstruction and strangulation is rare in direct hernia. A rare complication of hernia is "Reduction en masse" which is reduction or migration of a hernial sac into the preperitoneal space. It presents as persistent pain, obstruction or perforation even after disappearance of hernia. In this article we describe a case of reduction en masse hernia and its management along with literature review. As the complications can be fatal, it is important to keep this rare entity as a differential diagnosis while managing patients of acute abdomen.

INTRODUCTION

The lifetime rate of inguinal hernia is 25 percent in males and 2 percent in females. (Nicks *et al.,* 2010) The risk increases with age and the annual incidence is around 50 percent in men by the age of 75 years. (San Mateo, 2010) Approximately two-thirds of inguinal hernias are indirect and one-third are direct. (Nicks *et al.,* 2010) Direct and indirect hernia are defined by their relationship to the inferior epigastric vessels. Direct inguinal hernias occur medial to the inferior epigastric vessels when abdominal contents herniate through a weak fascia of the posterior wall of the inguinal canal. Indirect inguinal hernias occur when abdominal contents protrude through the deep ring, lateral to the inferior epigastric vessels which is usually caused by failure of embryonic closure of processus vaginalis.As the hernia progresses, contents of the abdominal cavity can descend into the hernia and run the risk of being entangled within the hernia causing an intestinal obstruction. Hernia with these features but without reduction in blood flow is called an obstructed hernia. If the blood supply of the portion of intestine caught in the hernia is compromised, the hernia is called as strangulated and gut ischemia and gangrene can result with potentially fatal consequences. Reduction en-masse of inguinal hernia means reduction or migration of a hernial sac along with the obstructed bowel into the preperitoneal space and is likely produced by forcible attempts at reduction. (Masahiro *et al.,* 2008) Occasionally, it can also be spontaneous. There is usually a history of difficult reductions, the last one being especially difficult after which the symptoms of intestinal obstruction occur. The hernia appears to have been reduced but the signs of bowel obstruction persist. (Masahiro *et al.,* 2008) Four types of reduction en masse have been identified- Retropubic, Intraabdominal, Preperitoneal and lastly Preperitoneal locule. (Louis *et al.,* 1974) (Figure 1). Emergency surgery for obstruction and strangulation carry much higher risk than planned surgery. We report a rare case of obstructed direct reduction en masse hernia with the literature review.

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Case Presentation

A 50 year male presented in emergency department with bilious vomiting for 3 days . Patient had a history of right sided inguinal hernia that was managed conservatively for the last 17 years. The hernia used to disappear manually but 5 days back it became irreducible. Forceful manual reduction lead to disappearance of swelling but vomiting persisted. There was no history of fever, pain or redness over the swelling. On abdominal examination the abdomen was distended, non tender and bowel sounds were exaggerated and obstructive. Right hernia orifice showed positive cough impulse at superficial ring

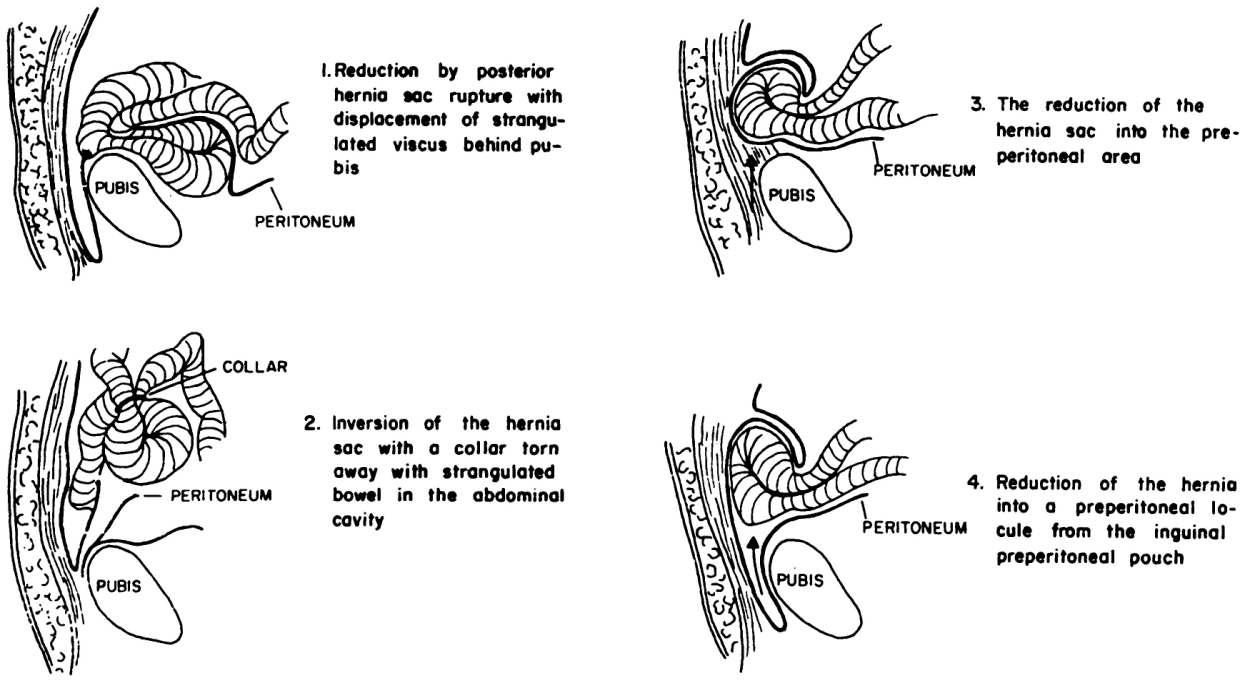

Fig. 1. Shows the pictorial representation of types of reduction en masse hernia. Taken from reference number 19-.Pearse HE. Strangulated hernia reduced "en masse". Surg Gynec Obstet 1931; 53:822-8

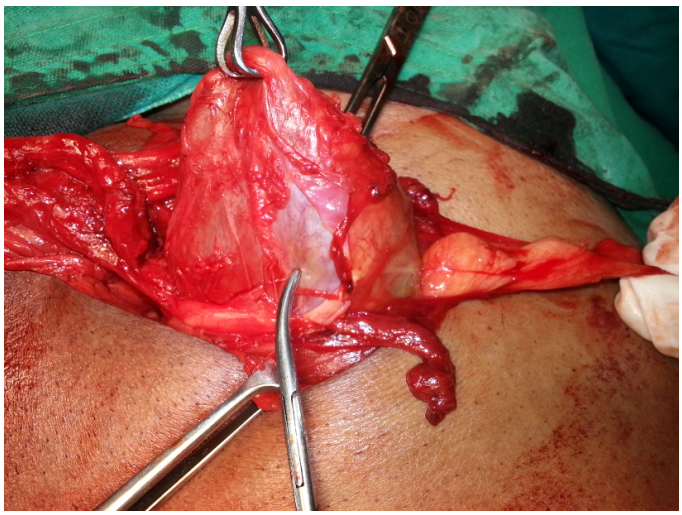

Fig. 2. Showing the contents of inguinal canal after giving the groin incision. Figure shows a direct sac

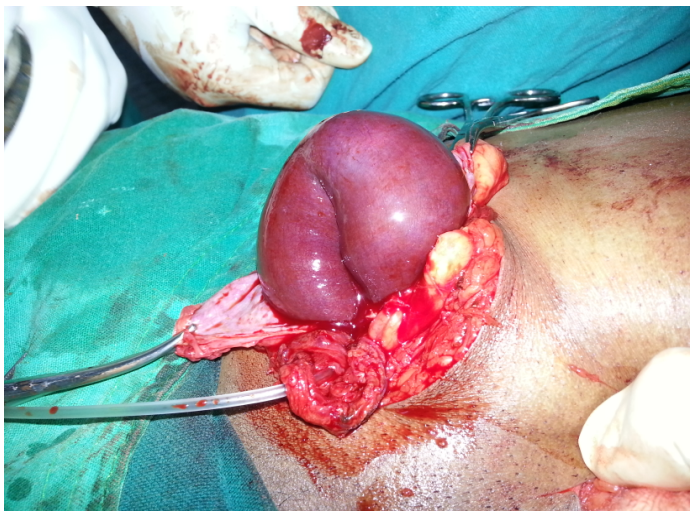

Fig. 3. Showing the dusky ileal loop after opening the direct sac

without any swelling. It was non tender. There was no erythma or raised superficial temperature. X ray abdomen revealed dilated ileal loops. Ultrasound showed bowel loops in inguinal region with sluggish peristalsis with fluid filled bowel loops inside the peritoneal cavity. Total leukocyte count was within normal limits. Provisional diagnosis of obstructed inguinal hernia was made and patient was shifted to OR. Right skin crease groin incision was given which revealed an obstructed direct sac in the preperitoneal.Sac was opened and bowel was dusky and without peristalsis (figure 2). As we were not able to reach the base of the sac, a lower midline incision was given and sac was freed (figure 3). On 100% oxygenation the ileal loop that was obstruct ed regained the normal colour and peristalsis. Closure was done after right sided herniorhapphy (Shouldice method). Hernioplasty was not done due to spillage of suspected infected fluid from sac as it was opened. Post operative course was uneventful. Fluid culture showed no growth. The patient was discharged on 4th postoperative day.

DISCUSSION

Obstructed or strangulated inguinal hernias can cause acute abdomen. (Stoppa,1989) A prospective study reviewed 161 patients admitted to hospital with small bowel obstruction and found that strangulated bowel occurred in 15 patients (9.3%) in which most of them was secondary to hernia. (Ihedioha *et al.,* 2006) This has been attributed not only to the fact that many patients particularly elderly,incarcerate not because they present very late to a hospital but many a times while they are on waiting list for elective surgery. (Allen *et al.,* 1987) Other

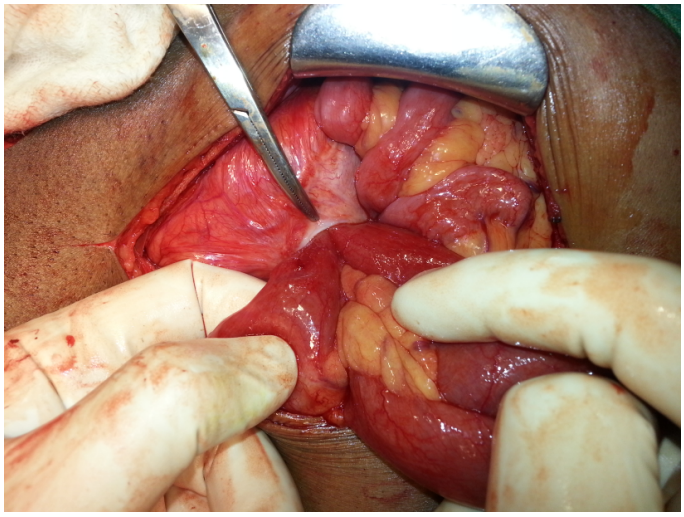

Fig.4. Showing the intraabdominal view of constricting ring in the posterior wall. The ring was widened in order to deliver loops intraperitoneally

factors primarily responsible are femoral hernias, incarcerating before patient notification of the family doctor, lack of public awareness of the dangers of hernia incarceration and reluctance on behalf of nonsurgical medical personnel to refer patients with known risk factors. (Mc Entee *et al.,* 1989) Late hospitalization is generally considered to be an important factor determining resection and subsequent morbidity and mortality .Mostly the cause of delay in admission is by the patient but physicians are also responsible in percentages varying from 12–33%. (Nesterenko and Shovskii, 1993) Along with late hospitalisation , American Society of Anaesthesiology class III or IV is a major factor in determining outcome. (Kulah *et al.,* 2001) The risk of strangulation and obstruction is lowest for direct inguinal hernias as they have a wide neck, which can often be monitored and managed conservatively. Indirect inguinal hernias have a higher risk of strangulation.this risk is highest in femoral hernias in which 40% patients may present as obstruction or strangulation. (Suzuki *et al.,* 2007; Kulacoglu *et al.,* 2000)

Though their repair is one of the most frequently performed surgical operations, elective hernia surgery is no longer recommended in minimally symptomatic cases due to the low risk of i ncarceration (<0.2% per year) and the significant risk (10–12%) of post herniorraphy pain syndrome. (Fitzgibbons *et al.,* 2006; Simons *et al.,* 2009) Open tension free hernioplasty was the method of repair most commonly used, in agreement with a recent trend. (The EU Hernia Trialists Collaboration, 2002) Management of incarcerated groin hernias is certainly not free from mortality. Past series recorded a mortality rate ranging from 2.6–9%. (Brasso *et al.,* 1989) There are few and controversial studies in the literature examining the effect of the duration of hernias present on outcome. Postoperative complications have been found more commonly in patients with hernia more than 10 years. (Kulah *et al.,* 2001) Reduction en-masse of hernia can be defined as reduction of the hernial sac together with its intestinal contents so that the bowel still remains incarcerated. (Louis *et al.,* 1974) It is a rare form of acute intestinal obstruction that few surgeons get to see and with which many radiologists are unfamiliar. It has been quoted by Pearse to occur in approximately 1 of 13,000 hernias. (Pearse, 1931) It is more common in males than females, right side than left side and in inguinal hernias with respect to femoral hernias. (Pearse, 1931) It is very rare because hernia surgery is done early and forcible and difficult reduction is not recommended even for the clinicians. (Renton, 1962) Four types of reduction en masse have been identified-

Retropubic: Posterior displacement of the viscus behind the pubis

Intra-abdominal: Inversion of the hernial sac with the strangulated bowel displaced into the abdominal cavity

Preperitoneal: Reduction of hernial sac with displacement into the preperitoneal area.

Preperitoneal Locule: Formation of the locule in the preperitoneal pouch due to reduction of the sac. (Louis *et al.,* 1974)

Most common is preperitoneal as it was in our case. Pathogenesis of reduction en masse of hernia is not very clear. Casten and Bodenheimer postulated that reduction en masse can occur only if there is a relatively unyielding neck of the sac and a lax internal ring. (Casten and Bodenheimer, 1941) Fibrosis is probably produced by recurrent trauma from difficult reductions. Pearse concluded that a preformed space between the parietal peritoneum and anterior abdominal wall, the properitoneal sac, or diverticulum was present in many cases, while Millard suggested that such a sac was equally likely to be produced by forcible attempts at reduction. (Millard, 1995) There is usually a history of difficult reductions, the last being more difficult, after which the symptoms of intestinal obstruction fail to subside or subside only temporarily (Wolfe, 1936; Bailie, 1953) as it happened in our case. Clinically, a tender mass can be palpated either high in the inguinal canal, above the inguinal ring or in the lower abdomen. Early surgical intervention of reduction en masse is necessary as prognosis is not always good due to the delay in time from onset of symptoms and surgery. Reduction through an inguinal incision is sufficient in many cases but this can be assisted by lower midline incision when not feasible. Few cases of laparoscopic reduction are also reported. (Goode *et al.,* 2007)

Conclusion

Direct hernias can present as obstruction or strangulation. Patients in whom conservative management is practised, forceful reductions should be avoided and surgeons managing these patients should have a high index of suspicion of reduction en masse especially if features of obstruction are present as clinical signs may be misguiding. Delay in diagnosis increases overall morbidly and mortality.

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Conflicts of interest – none

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