ACADAVERIC EXPOSURE OF AN DIRECT INGUINO-SCROTAL HERNIA

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Abstract:. Hernia is the protrusion of an organ or tissue through an opening in its surrounding walls, especially in the abdominal region.Inguinal canal is the usual site of herniation since it is a weak point in the abdominal wall. Inguinal hernias account for about 75%-80% of abdominal hernias. Inguinal hernias are of two types direct and indirect.The hernial sac can include intestines, bladder, colons, ovary and appendices and greater omentum. We present a rare case of an unusual left direct inguinal hernia in an adult male cadaver noticed during routine dissection for first MBBS students in Kasturba Medical College, Manipal University,Manipal. Hernial sac containing loops of small intestine (Ileum) occupied the upper part of canal,while hernial sac extended to the scrotal sac.

Indexterms:. Direct Inguinal hernia, ileum, Inguinoscrotal hernia

I. INTRODUCTION

Hernia is defined as an abnormal protrusion of an organ or a part of the organ through any weakness in the abdominal wall. Parts of the hernia are hernial sac (peritoneal protrusion), contents and coverings. The coverings of hernial sac are the layers of the abdominal wall.Protrusion of any viscus covered by peritoneal sac through the inguinal region due to weakness within anterior abdominal wall is called as inguinal hernia,(Sofia Anagnostopoulou et al., 2006).Inguinal hernias account for about 75-80% of abdominal hernias. These herniations occur in both sexes and more common in males (approximately 80%) than in females (Nilsson, et al., 1997; Fitzgibbons et al., 2015). They are more common on the right than on the left. Anatomically, inguinal hernias are of two types-indirect and direct. In indirect variety protrusion occurs through the deep inguinal ring, inguinal canal and superficial inguinal ring into the scrotum. In this hernial sac is narrow and passes down in the inguinal canal on lateral aspect of spermatic cord lateral to inferior epigastric vessels.Direct inguinal hernia arises medial to inferior epigastric vessels and through inguinal triangle (Sinnatamby,1999) and is further classified into medial and lateral types by means of obliterated umbilical artery. Here the protrusion occurs due to weakness in the abdominal wall muscles that develop over time.It is always acquired in nature,associated with straining factors like chronic cough and occurs in much oldermen (Neeta V Kullkurni, 2014). The hernial sac is wider lies medial to inferior epigastric vessels and posterior to the spermatic cord (Williams et al., 1995).In females this type of inguinal hernia is rare.

Indirect inguinal hernia is the commonest type (Williams et al., 1995) and congenital in nature due to the patent processus vaginalis, which usually gets obliterated after birth due to the descent of the testis (Russel et al., 2000). Hernia with congenital background can occur soon after birth or may be evident at later stages of life. It is important to realize even in the latter case that the sac into which the hernia occurs may have existed since birth (Valioulis et al., 1997).Complications that can develop as a result of an inguinal hernia include obstruction and strangulation to the gut. Contents of an inguinal hernia include part of small intestine (ileum commonly),Meckle's diverticulum, piece of omentum and rarely appendix, fallopian tube, ovary,urinary bladder,caecum,ascending colon on right and sigmoid colon on the left (Tufnell & Abraharn-Igwe, 2008). Many hernias occur as a result oflifting heavy weights and are much more common in men than women. The symptoms of an inguinal hernia may include pain, discomfort or a heavy feeling in the groin area, bulging ofeither side of the pubic bone or swelling near the testicles in men. Associated strainingfactors like chronic cough,chronic constipation and liftingheavy weightsusually inolder age groups in whom muscle tone is less maylead to direct hernia. The inguinal hernia usually presentsas swelling in the inguinal region, which increases in size with coughing.

II. CASE REPORT

During routine dissection for First MBBS Students in Kasturba Medical College, Manipal University, India in a formalin fixed adult male cadaver an inguinal swelling extending up to scrotum was noticed on the left side. The scrotal sac was huge and its lower sac extended upto medial side of junction between upper 1/3rd and lower 2/3rds of the thigh (Fig.1). Before dissection of the cadaver the swelling was diagnosed (with anatomical considerations) as left sided direct inguinal hernia. On further dissection, the external

oblique and internal oblique aponeurosis, transversus abdominis muscle with fascia transversalis were exposed and the descent of the herniated sac was clearly evident entering through the posterior wall of the inguinal canal (Fig.2) and continuing downwards through the inguinal canal. Longitudinal incisions were placed through the layers of hernial sac extending from the superficial inguinal ring to the scrotum. The spermatic cord was normal and testis was lower in position (Fig.3). Dissection of the hernial sac revealed only a few coils of ileum in the upper part as its content. The following findings were observed.

a) The neck of the hernia sac was medial to inferior epigastric artery and was wider. Some measurements taken included the length of the herniating mass (Fig.3) from the posterior wall of inguinal canal to the tip of the hernia measured 8.1cm; another measurement from the pubic tubercle to the tip of the hernia measured 5.2cm.

b. The spermatic cord was thinner than the right and the testis was shrunk and smaller than the right ones.

c. Dissection of the covering of the hernial sac in the scrotum revealed only a fold of peritoneum as its content.

d. No abnormality or atrophy were noticed with reference to right and left testicles.



Figure 1: Showinghernial sac within the scrotal sac
SC: Scrotal sac, HS: Hernial sac

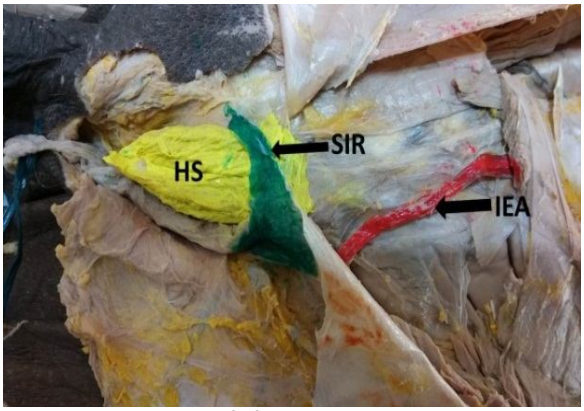


Figure 2: Relation of inferior epigastric vessels to hernial sac in inguinal canal HS: Hernial sac, SIR: Superficial inguinal ring, IEA: Inferior epigastric artery

Following measurements of the hernia sac were taken:(Panchanan kundu et al., 2013)

1. Length of the sac: Measured from neck to apex at four positions: a) Anterior, b) Posterior, c) Medial, d)Lateral aspects of the sac.

2. Breadth of the sac: Measured at three sites: a) At the neck b) At the apex c)Midway between the neckand apex.

Table 1. Measurements of the inguinal rings of canal where hernia occurred:

Measurements		Left side (cm)
Deep inguinal ring	Vertical length	2.4
	Breadth	1.9
Superficial inguinal ring	Vertical length	3.10
	Breadth	3.0

Table 2.Length of hernialsac:From neck toapex:

Different Aspects	Measurements (in cm)
Anterior	8.6
Posterior	7.8
Medial	7.3
Lateral	8.0

Table 3. Breadth of the herniated sac:

Taken at different sites	Measurements (in cm)
At neck	1.25
At apex	0.5
Midway between them	2.5
The widest one	3.3

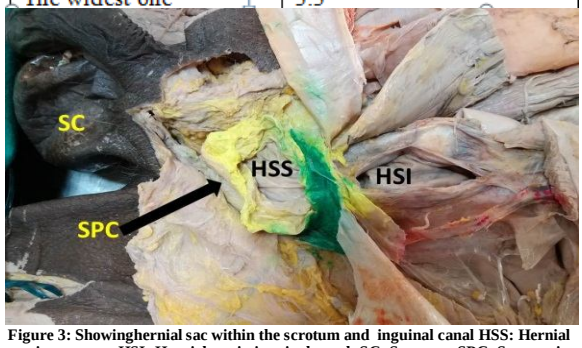


Figure 3: Showinghernial sac within the scrotum and inguinal canal HSS: Hernial sac in scrotum; HSI: Hernial sac in inguinal canal; SC: Scrotum; SPC: Spermatic cord

Position of large intestine and other abdominal organs were normal. The large intestine showed no abnormalities and were positioned normally. No abnormality was found on the right inguinal canal.

III. DISCUSSION

According to Galloday ES, (2000) 10% of the population develops some type of hernia during

lifetime.50% of the hernias are of indirect inguinal variety with a male to female ratio of 7:1. 25% are direct inguinal, 14% umbilical and 5% femoral hernia. Prevalence of all types of hernia increases with age.Commonest contents of hernia sac are terminal coils of ileum, caecum, ascending colon (Williams et al., 1995). In the present case, the coils of ileum were seen in the upper part ofhernialsac. The wall of ileum was thick just before its entrance into the inguinal canal. Probably due to the friction with the inguinal ligament due to hip movements. Inguinal hernias can lead to intestinal obstruction, strangulation (McFadyen and Mathis, 1994). In this report (Fig. 1), a left sided direct inguinal hernia extending from posterior wall of inguinal canal into the scrotum was observed. The left testis was below the hernial sac in the scrotum. In most of the true casesof undescended testicles are associated with the patent processus vaginalis (Elder JS, 1987).If an obvious hernia is present, quick hernial repair with orchidopexy is undertaken. Otherwise, the hernia should be repaired at the time of orchidopexy. A man with an untreated, undescended testis and an occult inguinal hernia may present at any time with symptoms and complications typical of any inguinal hernia (Steven et al., 2000). Congenitalindirect inguinal hernia results from a patent processus vaginalis, which usually gets obliterated after birth following the decent of testis. Abdominal contents may herniate through patent vaginal sac till the base of scrotum as seen in the vaginal type of inguinal hernia. Indirect hernia is commoner on the right side as the processus vaginalis on the right closes little latter than the left side (Mc Gregor, 1986).The present case is an example of left direct inguinal hernia and rarely reported. Differentiating an indirect from a direct inguinal hernia is not necessary, because it does not affect treatment. It is not always possible to differentiate an inguinal hernia from a more worrisome femoral hernia during physical examination, (Dahlstrand et al., 2009). The differential diagnosis varies according to the clinical presentation. In the case of a groin mass thought to be a hernia, other possible causes include lymphadenopathy, a soft-tissue tumor or an abscess. Possible causes of scrotal masses include a hydrocele or a testicular tumor (Schouten et al., 2012).

The present case of direct inguinal hernia was found in adult male cadaver.Inguinal hernias are more common in males, some studies have reported a major risk factor for inguinal hernia is a family history of groin hernias (Burcharth et al., 2013).Aberrant collagen states e.g. Ehler-Danlos Syndrome, Hurler and Hunter Syndromes, osteogenesis imperfecta, Marfan's syndrome, Alport's syndrome etc., and undescended testis are associated with increased prevalence of inguinal hernias.Clinical conditions like ascites,constipation,obstructive uropathies,chronic obstructive pulmonary diseases, chronic cough,smoking, lower body-mass index, high intraabdominal pressure, collagen vascular disease, thoracic or abdominal aortic aneurysm, history of open appendectomy, and peritoneal dialysis can also be associated with inguinal hernias (Lau et al., 2007).Olatunji SY and Balogun OA (2015) reported a rase case of strangulated unusual left indirect inguinal hernia in a 56 year old male cadaver with a large mass containing loops of small intestine extending from the public tubercle to the midthigh and found within the scrotal sac.Pooja G et al., (2015) reported in a 60 year old male formalin fixed cadaver bilateral indirect inguinal hernia with non obstructed loops of omentum noticed within the hernial sac on the right side and non obstructued loops of small intestine along with mesentery on the left side.On both the sides the contents entered inguinal canal through deep inguinal ring and passed out through the superficial inguinal ring reaching the scrotum thus confirming diagnosis of indirect inguinal hernia.Allwyn J et al., (2014) reported a case of oblique inguino-scrotal hernia in aformalin fixed male cadaver of 70 year old, inguinal swelling extending up to scrotum on the right side with enlarged superficial inguinal ring, thickened external spermatic fascia, hernia sac contained a non-obstructed loop of transverse colon and greater omentum. Pathak et al., (2012) presented a very rarecase of congenital inguinal hernia with sigmoid colon as a content (the six months old male child had a leftsided complete hernia). Bali et al.,(2011) presented an extremely rare case of a strangulated right inguinalhernia containing the sigmoid colon. Gregory RS (2006) presented a case of colonic inguinal hernia in a 43 year old man where the content of hernial sac was a loop of sigmoid colon with double constriction of thesegment. According to him, barium enema X-ray is to be done in such cases followed by appropriatesurgery.Upport et al, (2000), stated in a case report that a 47 year old man underwent colonic resection surgery of 23cm. long segment of perforated sigmoid colon following a road traffic accident; he had a six months history of left sided inguinal hernia of which the loop of perforated sigmoid colon was a content (as was revealed by a CT scan before surgery).

CONCLUSION

Eventhough inguinal hernia is a common finding, challenge lies in the reduction possibly because of the wide variation in the content of the hernial sac and also deformaties occurring in the abdominal cavity.Careful examination of the groin should be performed for any patient presenting with a bowel obstruction.Female patients presenting with inguinal hernias,need to undergo immediate hernia reduction, keeping in mindincidence of incarceration of fallopian tubes and ovary in thefirst year of life. Hernia repair should be done under

conservativetechnique and by skilled hands to avoid post operativecomplications, keeping in mind that every case has a profoundanatomical and surgical importance.

Conflict of interests

The authors declare no conflict of interests.

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