

A Clinical Study on Left Sided Indirect Inguinal Hernia Containing Sigmoid Colon

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Abstract

Aim: The aim of this article is "A clinical study on left-sided indirect inguinal hernia containing sigmoid colon". In this study, we have projected the incidence and management of sliding inguinal hernia containing a Sigmoid colon.

Materials and Methods: A three years retrospective clinical study, was done at the "General Surgery department" at Vydehi Institute of Medical Science and Research Centre, White field Bengaluru-560 066. This Institute is a tertiary hospital attached to a medical college.

Results: This analysis contained a total of 189 cases. Sliding sigmoid colon occurrence is very rare and only one case, which is less than one percent, was found in this study (0.52 percent).

Conclusion: The sigmoid sliding hernia is a per-operative diagnosis among left-sided indirect inguinal hernia. The surgical management/repair is meticulous and needs gentle dissection after identification of the sigmoid colon. Care must be taken to identify the contents of the hernia to avoid inadvertent injury to the structures. The Lichtenstein repair could be considered to lower recurrence and reoperation rates. Surgeons should function according to these standards and it is of utmost significance to be accompanied by a wide variety of prosthetic materials.

Key words: Sliding hernia; Amyand's hernia; Littre's hernia; Meckel's diverticulum; Spermatic cord; Round ligament of uterus; Inguinal (Poupart) ligament; Ilioinguinal nerve; Genital branch of the genito-femoral nerve; Midpoint of the inguinal ligament; EOM External oblique muscle IOM Internal oblique muscle PT-Pubic Tubercle; PS Pubic Symphysis; Hesselbach's triangle; ASIS=Anterior superior iliac spine.

Introduction

A sliding indirect inguinal hernia containing sigmoid colon is protrusion of a sigmoid colon through the defect in the internal ring. As we know, in general, a slipping inguinal hernia is part of the hernia sac, a section of a viscus or its mesentery. The parts of the colon may be part of either hernia sac (caecum on the right side, sigmoid colon on the left side). The ovary or fallopian tubes may become part of the hernia sac wall in women. Apart from this, sometimes rarely on right side inguinal sac, it may contain vermiform appendix (Amyand's hernia). On left side sometimes, rarely inguinal sac; it may contain Meckels' diverticulum (Littre's hernia).

Review of the literature

For almost three decades, after the first description by the Italian surgeon and anatomist from Pavia, Antonio Scarpa in 1809¹, sliding hernia has been known to surgeons as a complex surgical condition.

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The main challenge in the surgical approach to this type of hernia was, and still is, that part of the hernia sac is actually a retroperitoneal organ.¹

Compared to non-sliding inguinal hernia, reconstruction of a sliding inguinal hernia can have a greater likelihood of complications and recurrence. The prevalence of sliding hernias is calculated at 3-8% of all indirect inguinal hernia elective procedures. Not infrequently, every inguinal hernia that is wide enough or has any organ within its sac (e.g. small intestine and large intestine) is referred to as sliding. The proportion of sliding hernias is even higher in the aged. Hernias of this kind are found almost exclusively in males and usually on the left side.²

The best and most widely followed sliding hernia classification is actually the one by Robert Bendavid.³ The sliding hernias were categorised by Bendavid into three groups based on anatomical variations, sac size and retroperitoneal organ relationship.

Type I: is described as any hernia in which the wall of a viscus makes up part of the hernia sac.

Type II: is classified as any hernia comprising a mesentery and a retroperitoneal viscus in which a mesentery forms part of a peritoneal sac wall.

Type III: The sliding hernia consists of a viscous protrusion on its own and a very thin or sometimes missing peritoneal sac.

Surgical Anatomy

Two passages in the anterior abdominal wall of the inguinal canal convey the sperm cords in males and the round ligament of the uterus in females. The inguinal canals are larger and more evident in males than in females. Every side of the midline has one inguinal canal.

Located slightly above the medial half of the inguinal ligaments are the inguinal canals. Of both sexes, the ilioinguinal nerve is conveyed through the canals. The canals are between 3.75 to 4 cm deep, antero-inferiorly and medially angled.

In males, at the deep inguinal ring, its diameter is usually 2cm regarding boundaries, the canals is often simulates as box with six sides including two rings. The four sides are to be remembering as MALT.

M	Muscles	Roof	External oblique muscle (EOM) Internal oblique muscle (IOM)
A	Attachment to the Inguinal ligament	Anterior wall	Lateral 2/3rd to aponeurosis -EOM Lateral 1/3rd to IOM
L	Ligaments	Floor	Inguinal ligament Lacunar ligament
T	Tendon Transversalis fascia	Posterior wall	Tendon-conjoint Transversalis fascia

The deep inguinal ring: The surface marking of the deep inguinal ring is situated half an inch above the mid-point of the inguinal ligament, the mid-point between the anterior upper iliac spine and the pubic tuber. It is bounded by the arched lower margin of the transversal fascia above and laterally; the inferior epigastric vessels behind and below. The spermatic cord of the male and the round uterine ligament of the female are moved. A thin, funnel-shaped sheet, called the infundibuliform fascia, extends from its circumference over the cord and testis, enclosing it in a separate coating.

The superficial inguinal ring: The superficial inguinal ring (subcutaneous inguinal ring or outer inguinal ring) in the anterior wall of the abdomen is an anatomical structure. It is a triangular opening that forms the outlet of the inguinal canal, composed of the ilioinguinal nerve, the vaginal branch of the femoral nerve, and the spermatic cord (in males) or the uterine round ligament (in females). It is located directly above the pubic crest, 1cm above it, and super-medial to the pubic tuber, within the aponeurosis of the external oblique. The medial crura of the pubic crest, the lateral crura of the pubic tuber, and the inferior crura of the inguinal ligament of the following boundaries.

The contents of spermatic cords in the male are:

- 3 Arteries
 - Artery to vas deferens (Ductus deferens)
 - Testicular artery
 - Cremasteric artery
- 3 Nerves
 - Genital branch of genitofemoral nerve (L1 L2)
 - Ilioinguinal nerve (L1)
 - Sympathetic and visceral afferent fibers
- 3 Fasciae
 - External spermatic fascia
 - Cremasteric fascia
 - Internal spermatic fascia
- 3 Structures
 - Vas deferens (Ductus deferens)

Pampiniform plexuses of veins
Testicular lymphatics

The inguinal ligament: The band stretching from the pubic tuber to the anterior upper iliac spine is also known as the groin ligament. It forms the base of the inguinal canal into which the contents of the indirect inguinal hernia travel. It is referred to as Poupart's ligament, because Francois Poupart gave it relevance about hernial repair, calling it "the suspender of the abdomen."^{4,5} The inguinal ligament serves to contain soft tissues as they course anteriorly from the trunk to the lower extremity. This structure demarcates the superior border of the femoral triangle and the inferior border of the inguinal triangle (Hesselbach's triangle). The inguinal ligament in its medial end goes upwards as a reflected part of the inguinal ligament which goes towards linea alba called Colle's ligament/ triangular fascia or ligamentum inguinale reflexum.⁶ Another part goes down as lacunar ligament (Gimbernat's ligament and continues as pectineal ligament (Inguinal ligament of Cooper).⁷

Materials and Methods:

This clinical study is a retrospective study done in the Vydehi Institute of Medical Science and Research Centre, White field Bengaluru 56006, over three years. This institute is a tertiary hospital attached to a medical college. In these three years of a retrospective study, we studied clinically 189 cases of indirect inguinal hernias on the left side.

Results

Among 189 cases of left-sided indirect inguinal hernias, only one case of sigmoid sliding hernia was identified during operation. At the age of 70, when the patient arrived for treatment, this case was scientifically diagnosed. For 8-10 years, the patient had swelling in the left inguinal region, without any pain. This case belongs to the Bendavid category III classification.¹ The average age of sliding hernia patients was 60 years, according to the largest collection of inguinal sliding hernias reported by Ryan in 1956.³ The mean age of sliding hernia patients was estimated to be 70 years of age.³ As per the Bendavid type III, sliding hernia incidence is 0.01%.¹

The frequency of slipping hernia is also seen in our analysis to be 0.52%. Our study is limited only to left-sided indirect inguinal hernias. If compare to all indirect inguinal hernias, it comes to around 0.01%, which reiterates the findings of Bendavid's incidence of sliding hernias.

The per-operative results as under, in our case of slipping sigmoid hernia.

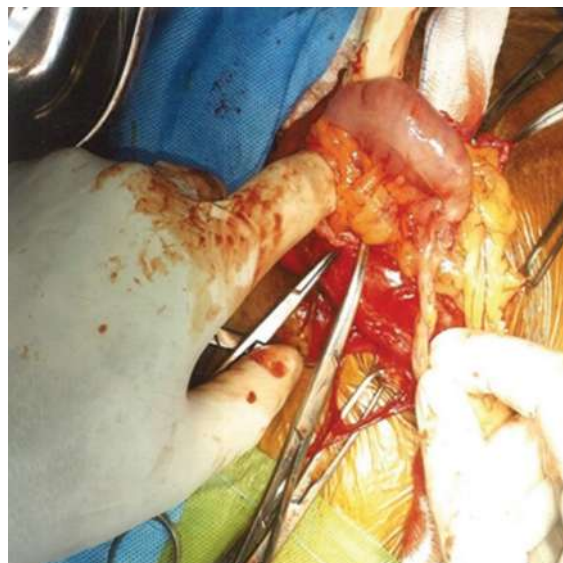


Fig. 1: Shows sigmoid colon in the sac.

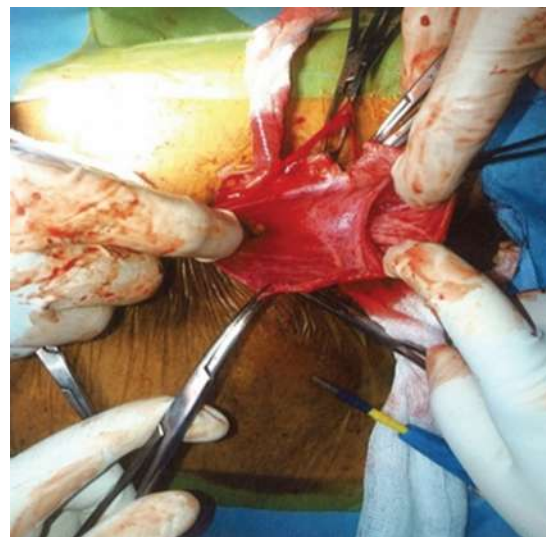


Fig. 2: After reduction of the colon the inguinal canal becomes empty.

The operative procedure followed: In this situation, the Lichtenstein repair was followed in our line of operating practice. The mesh was positioned as a hernioplasty component. We repaired the sliding hernia, meticulously with gentle dissection after noticed the sigmoid colon. The patient was free from recurrence after one year of follow-up after the postoperative phase.

Discussion

An indirect inguinal hernia is quite common in surgical practice. However, the sliding hernia is extremely rare. The exact diagnosis of sliding hernia

is made on the operating table. A sliding hernia is a form of inguinal hernia in which retroperitoneal structure "slides" down the abdominal wall and herniates directly or indirectly into the inguinal canal, dragging overlying peritoneum with it.

Caecum slipping hernia (on the right) or the sigmoid colon (on the left) under which a part of the hernial sac forms the wall of the viscus, the bulk of the sac becoming the parietal peritoneum. The development of a sliding hernia is related to the variable degree of posterior fixation of the large bowel or other sliding components, e.g, bladder, ovary, and their proximity to the internal inguinal ring.

At the age of 70 years, when the patient returned for treatment, this case was clinically diagnosed. The patient usually had swelling without any pain in the left inguinal region for 8-10 years.

Conclusion

In our case, the sigmoid sliding hernia belongs to Bendavid's Category III group of sliding hernias. This type III sliding hernia variation is exceedingly rare, with a 0.01 percent frequency. Our study also reveals the same incidence by and large that is 0.52%, when compared to left-sided indirect inguinal hernias. But if consider and compare to all indirect inguinal hernias the rate of incidence comes to 0.01%.

The Sliding inguinal (sigmoid colon) hernias represent a rare proportion of inguinal hernias of advancing age. The Lichtenstein repair followed in our line of treatment and we found zero reoperation rates after follow-up for one year.

The foundations of the sliding inguinal repair involve meticulous, gentle dissection and sigmoid colon recognition. According to these criteria, a surgeon performs and is assisted by a vast variety of prosthetic products. Good surgical procedures and the use of innovative prosthetic materials allow the surgeon to have the same chance of early and late problems after slipping and non-sliding inguinal hernia operations.

The sliding hernias containing sigmoid colon have no distinguishing features from other inguinal hernias but should be suspected in any large hernias that cannot be reduced or whenever a large scrotal sac is seen in an elderly man. The findings of a segment of colon in the scrotum on barium enema are highly indicative. It is important to recognize this condition at operation since failure to do so may result in the inadvertent incision of the bowel.⁸ The sliding hernias (Sigmoid colon) continue to test

the surgeon's understanding of the inguinal canal's anatomy and technical expertise with a significant rate of technical complications and its recurrence.⁸

The incidence of recurrence, due to primary indirect sliding hernias has increased over time and it is not just a male disease. With low complication rates and no elevated probability of reoperation attributable to recurrences, the overall findings are nice.⁹

A sliding hernia is a rare organism that is also rare among those containing the sigmoid colon. To prevent unintended damage to the structures during the procedure, caution must be taken to classify the contents of the hernia sac.

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