Case report

A peculiar variety of indirect inguinal hernia (juxtacordal indirect inguinal hernia)

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HIGHLIGHTS

- Juxtacordal indirect inguinal hernia is encountered every now and then in the theater.
- Precise and meticulous dissection help identifying the neck of the hernial sac.
- Clarifying the site of the sac appearance will decrease the chance of inferior epigastric vessels injury.
- Dealing correctly with the sac will reduce the recurrence rate of hernia.

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ABSTRACT

Background: Indirect inguinal hernias are usually congenital, forming a sac in the core of the spermatic cord covered by the internal spermatic, cremasteric, and external spermatic fasciae1–3. Direct inguinal hernias are acquired; the sac lies beside/behind the cord1–3. A rare third type is a combination of indirect and direct sacs on both sides of inferior epigastric vessels1–3. We describe a rare fourth type, juxtacordal indirect oblique inguinal hernia (Fig. 1), in which the sac emerges through a weakness in the deep inguinal ring, lateral to inferior epigastric vessels, and passes into the inguinal canal beside and in contact with the cord but outside of its covering fasciae.

Objective: Describes a very rare variety of inguinal hernia.

Design: Case reports.

Setting: Tikrit Teaching Hospital/Salahuddin/Iraq.

Participants: and presentation: The first case; a 5-year-old male with right inguinal hernia, the second case; a 25-year-old man with right inguinal hernia, the third case; a 60-year-old man with right inguinal hernia.

Interventions: Surgery has been done electively for all.

Results and discussion: Because the sac emerges through the deep inguinal ring and passes through the inguinal canal, it is an indirect type and because it passes beside the spermatic cord we call it juxtacordal hernia. Because of the thick extraperitoneal fat layer over the sac, we think this hernia is acquired.

Conclusions: Knowing this type of hernia might reduce the risk of inferior epigastric vessels injury and lower the rate of recurrence.

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1. Introduction

The factors leading to the development of a hernia are traditionally divided into two categories: congenital origins and acquired defects. Congenital factors are responsible for the majority of groin hernias [1–3].

Many hernia classifications have been proposed in the last 4 decades, the most commonly used are, Casten, Halverson & McVay, Panka, Nyhus (Table 1) and Gilbert (Table 2). Nyhus classification is one of the mostly used classifications by the American Hernia Society members. It is designed for the posterior approach based on the size of the internal ring and the integrity of the posterior wall [4,5], categorizing the hernial defect by location, size, and type (Table 1) [6].

Gilbert designed a classification for primary and recurrent groin hernias done through an anterior approach (Table 2). It is based on
The indirect hernia (oblique) is usually congenital type [1–3]. In this hernia the sac is derived from the peritoneum passing through the deep inguinal ring inside the internal spermatic fascia of the cord adjacent to the vas deferens and pampiniform plexus lateral to the inferior epigastric vessels [6,7]. It can be (a) a bubonocele where the sac and its contents are limited to the inguinal canal, or (b) a funiculus where the sac and its contents pass beyond the superficial inguinal ring, or it may reach down to the scrotum called (c) a vaginal or complete hernia [1].

The direct inguinal hernia, where the sac emerges through a weakness in the posterior wall of the inguinal canal (Hesselbach’s triangle) medial to the inferior epigastric vessels in contact with cremasteric fascia of the spermatic cord, it rarely reaches the scrotum [1–3,6,7].

A rare type is called pantaloon or saddle-bag hernia, which is a combination of indirect and direct sacs on both sides of the inferior epigastric vessels [12,7].

We described another very rare type of inguinal hernias, the juxtacordial indirect oblique inguinal hernia (Fig. 1) in which the sac emerges through a weakness in the lateral part of the deep inguinal ring lateral to inferior deep epigastric vessels (on the contrary to the direct inguinal hernia which emerges medial to the vessels) and passes into the inguinal canal beside and in contact with spermatic cord but outside of its covering fasciae (on the contrary to the usual indirect hernial sac which passes inside the spermatic cord within its contents). Within the last three years we have encountered five cases of this type in our centre and documented the following three ones:

2. The cases

In Case One, a 5-year-old boy presented with a right inguinal hernia of 1 year’s duration. The hernia was reducible and occasionally painful. He experienced constipation due to a recurrent anal fissure. A right inguinal incision was made under general anesthesia, the inguinal canal was opened by incision of the external oblique aponeurosis, and the cord was revealed; the proximal half was markedly thickened. Dissection of the cord layers was performed anteromedially. The hernial sac was not found inside the cord. Dissection was conducted from the anterolateral side of the cord, where the sac was identified, beside the cord outside of the cremasteric fascia, covered by a thick layer of fat. Sac isolation was performed upward to the deep inguinal ring, from which the sac emerged through the upper lateral border, lateral to inferior epigastric vessels. The sac was opened, found connected to the peritoneal cavity, and treated classically by transfixation, neck ligation, and excision of the excess. The stump was pushed back through the deep inguinal ring, which was slightly dilated but not patulous, narrowing was done for it by a single stitch of number 0 vicryl suture (Lytie's stitch).

In Case Two, a 25-year-old blacksmith presented with a right inguinal hernia of 3 years’ duration. The hernia was reducible but increasing in size and symptoms, reaching the scrotal neck. A right inguinal incision was made under general anesthesia. The external oblique aponeurosis was incised, opening the inguinal canal and the cord was revealed. Because of the thickening there, the sac was separated from the cord without opening the layers (Fig. 2). This was treated as in Case 1, following the sac upward and laterally to the deep inguinal ring, lateral to inferior epigastric vessels (Fig. 2). The internal inguinal ring was wide; its narrowing was done by two Lytie's stitches of number 0 vicryl suture, the posterior wall of the inguinal canal was strengthened by Shouldice repair by number 0 nylon suture.

Case Three involved a 60-year-old retired military officer with a non-complicated right inguinal hernia of 5-years’ duration, reaching the scrotal neck. Surgical findings and managements were identical to those for Case Two regarding the sac and internal inguinal ring (Fig. 3), but the posterior wall of the inguinal canal was strengthened by a polypropylene mesh patch.

3. Discussion

Is the juxtacordial indirect oblique inguinal hernia congenital or acquired? Because the lateral portion of the deep inguinal ring is weaker [6], the sac protrudes through this site, likely due to laxity and widening of the deep inguinal ring or increased intra-abdominal pressure; for this reason, we regard it as acquired. There could be congenital predisposition in the form of a wide deep inguinal ring, widening gradually owing to increased intra-abdominal pressure [1,4]. The sac elongates/enlarges into the
inguinal canal, anterolateral to the cord and in contact with its covering cremasteric fascia, taking along a layer of extraperitoneal fat; this indicates that the sac protrudes from behind this fat, passing through the deep inguinal ring, lateral to the inferior epigastric vessels and beside the cord. The most important point which we have noticed is that, this sac passes in the inguinal canal side by side and in contact with the spermatic cord outside its contents and covering fasciae (that is why it is juxtacordal) on the contrary to the sac of the usual indirect inguinal hernia where it passes inside the spermatic cord within its contents and covered by the spermatic fascial layers.

We think that this variety of hernia is underestimated because once the surgeon finds the sac during the operative dissection, he traces its neck and he is usually not concerned whether the sac was inside or outside the spermatic cord.

Knowing this variety of hernia is of an academic interest and if the surgeon is alert about it from the beginning of the operation, it facilitates the dissection and it increases the reported cases.

4. Conclusions and recommendations

A finding of a thickened upper portion of the spermatic cord, especially in the anterolateral aspect and if covered by a layer of fatty tissue, is suspicious for this type of hernia.

Dissection at this time might reduce the risk of inferior epigastric vessels injury and lower the rate of recurrence.

Concents

Written informed consents were obtained from the two adult patients and the father of the child patient for publication of these cases and accompanying images, a copy of the written consents are available for review by the Editor-in-Chief of this journal.

Conflicts of interest

The authors declare that they have no competing interests.

Author’s contributions

Harith M. Alkhateeb: surgery for Cases 1 and 2, writing of original text, design of Fig. 1, communication with editorial team; Thaer J. Aljanabi: surgery for Case 3, surgical photography;
preparation of references.

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