Spigelian Hernia in Children
—Report of Two Cases and Review of the Literature—

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Two children with spigelian hernias are presented in this report. The etiopathogenesis and surgical anatomy of these rare hernias were discussed. Our cases are the fourth and fifth cases of spigelian hernia (SH) in infants under 2 years of age. Surgical intervention is indicated in all cases of SH because of the danger of strangulation of the bowel.

Key Words: Spigelian hernia, children, infant

Spigelian hernia (SH) or spontaneous ventral hernia is a rare type of hernia protruding through the spigelian fascia (Bar-Maor 1989). Presently over 300 cases of SH have been described. With rare exceptions, almost all occurred in adults. So far only nine cases of SH have been reported in the pediatric age group and three of nine cases were under 2 years of age (Bar-Maor 1989; Gravier 1970). We report on two further cases of spigelian hernias under 2 years of age (Table 1).

CASE REPORTS

Case 1

An 18 month-old boy was admitted to the hospital with a history of swelling on the right lower abdominal wall when the child coughed or cried since birth. There was no specific history of trauma. Physical examination revealed a reducible 7×7 cm diameter mass on the right abdominal wall and undescended testis on the right side (Fig. 1). The diagnosis of spigelian hernia and cryptorchidism were made. He was operated on and a small defect 1×1 cm in diameter was found where semilunar and semicircular lines cross. The hernia sac was contained in the small intestine. The sac was excised and the defect was repaired after which orchiopexia was performed using the Dartos pouch technique. The postoperative period was uneventful.

Case 2

A 2.5 month-old male was the second child of healthy unrelated parents. He was admitted to our department with a mass in his right inguinal region. He had no history of surgery or trauma. The pregnancy of his mother was uncomplicated. There was no exposure to drugs, alcohol or other known to toxins.

Physical examination showed a 4×4 cm soft and reducible mass on the right lower abdominal wall and a 3×4 cm reducible mass in his right inguinal region. The physical and laboratory examination of other systems were normal.

A preoperative diagnosis of spigelian hernia and indirect inguinal hernia were made and the patient was subsequently explored through a transverse right lower quadrant incision, pass-
Table 1: Spigelian hernia in children under 2 years

<table>
<thead>
<tr>
<th>Author</th>
<th>Sex</th>
<th>Age at operation</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scopinaro</td>
<td>Male</td>
<td>6 days</td>
<td>Incarcerated hernia; died</td>
</tr>
<tr>
<td>Graiver and Alfieri</td>
<td>Male</td>
<td>10 months</td>
<td>Bilateral hernias; both sides repaired</td>
</tr>
<tr>
<td>Bar-Maor and Sweed</td>
<td>?</td>
<td>2 months</td>
<td>Left sided hernia; left side repaired</td>
</tr>
<tr>
<td>Pul and Pul</td>
<td>Male</td>
<td>18 months</td>
<td>Right sided hernia; right sided repaired</td>
</tr>
<tr>
<td>(Present report)</td>
<td>Male</td>
<td>2.5 months</td>
<td>Right sided hernia; right side repaired</td>
</tr>
</tbody>
</table>

**Fig. 1. Photograph of the first case demonstrating the reductable right-sided spigelian hernia.**

**Fig. 2. Photograph of the second case demonstrating the reductable right-sided spigelian hernia and indirect inguinal hernia.**

**DISCUSSION**

Spontaneous lateral ventral or spigelian hernias are so rarely recognized that they are considered a curiosity in the surgical literature. Adrian Van der Spiegel first described the spigelian semilunar line as the transition between the aponeurotic and muscular portion of the transversus abdominis muscle (Olson 1968; Singer 1973). Klinkosh in 1764 was the first to localize a hernia to this area and introduced the term spigelian hernia (Read 1960). Since that time about three hundred cases have been reported in the literature (Bar-Maor 1989).
first case of SH in an infant was described by Scopinaro in 1935. Two cases of SH have been reported in patients under 2 years of age since that time (Gravier 1970). We believe that our cases are the fourth and fifth cases of SH in patients under 2 years of age that can be found in the literature (Table 1).

The spigelian semilunar line extends from the eighth or ninth costal cartilage to the public tubercle and is formed by the transition between the muscle bundles and the aponeurosis of the transversus abdominis muscle, lateral to the edge of the rectus abdominis (Singer 1973). That portion of the aponeurosis between the lateral edge of the rectus sheath and the semilunar line is known as the spigelian fascia (Gravier 1970); the SH is a hernia occurring in defects of this zone as in our cases.

Spigelian hernias are most often located below the umbilicus as in our cases (Gravier 1970). On rare occasions the hernial orifice is located proximal to the umbilicus (Lawler 1966; Mason 1948; Wokeloy 1974). The SH can be seen on the left side, right side or bilaterally (Gravier 1970; Weis 1974). The peritoneal sac in SH extends through a well-defined ring defect in the transversalis fascia, transversus abdominis, and internal oblique aponeurosis, and usually lies beneath the stronger external oblique aponeurosis. Occasionally the external oblique aponeurosis is penetrated and the hernia comes to lie subcutaneously as in our cases (Jarvis 1977). The hernial orifice measures from 0.5 to 2.0 cm in diameter as in our cases, although defects up to 6.0 cm have been described (Lawler 1966; Larson 1951). The hernia sac is usually preceded by a mass of preperitoneal fat. Most often the small intestine, as in our first case, and omentum, as in our second case, are found in the sac, but the stomach, the colon, and the ovaries have been reported as constituting the hernial content (Koontz 1952; Leis 1957; River 1942). The hernial orifice of the SH is narrow and also fibrous. Incarceration of SH is common and has been reported in more than one third of the cases at the time of surgery. (Bertelsen 1966). Strangulation is seen as commonly as with femoral hernias, since the constricting ring in both types is small and has sharp edges (Leis 1957).

The tendency for a lateral ventral hernia to develop is best explained by the demonstration of the variations of the structures of the normal anterior abdominal wall. Zimmerman et al. (1944), in their anatomic dissection of 250 adult cadavers, demonstrated acquired weakness in the abdominal fascia. These authors observed bunding of the fibers of the internal oblique muscle in 21.8% of these dissected specimens that created weakened areas of the musculofascial sheath. The maximum diameter of the defects varied from 0.2 to 1.5 cm and were covered only by the investing fascia of the internal oblique muscle. Similar defects were found in 16.4% of dissected, transverse muscle specimens. In 45 of 100 specimens, defects were observed in one or both of the above mentioned layers, 25 in the internal oblique muscle alone, ten in the transverse muscle and 10 in both. Of these last ten specimens, six had superimposed defects. By contrast little bunding and weakness was found in dissection of the external oblique muscle. These anatomic facts support the usual operative findings in SH (Singer 1963). The etiology of SH is this congenital predisposition with herniation occurring between segmented muscle fibers as in our cases (Gravier 1970; Lawler 1966). Other causes of SH are trauma and abdominal operations (Bar-Maor 1989; Read 1960; Hurlbut 1967). Our cases did not involve a history of trauma or abdominal operations.

The characteristic finding is a visible mass localized to the area of the anterior abdominal wall where lateral ventral hernias occur (Gravier 1970). The size of the mass increases when the baby cries or coughs. Reduction of the mass with palpation of the defect in the spigelian fascia establishes the diagnosis (Weis 1974). In older children the major complaint is mild pain in the low part of the abdomen, which may only be present when the patient is upright (Singer 1973). The pain may be intensified by coughing, straining, or physical activities, and it may be relieved by lying down.

The patient or the physician may notice a lump that appears in the lower abdominal wall and disappears on external pressure or on reclining as in our second case (Lawler 1966; Weis 1974). With partial intestinal obstruction there may be cramping pain, colic, and constipation. Repeated evaluations are required if the hernia is not found on initial examination (Lawler 1966). It is obvious that spigelian hernias are often misdiagnosed (Gravier 1970). They are commonly mistaken for an inguinal or ventral
hernia. Acute appendicitis, cholecystitis, bladder calculi, tumors of the large intestine, diseases of the internal female genital tract, and the rare spontaneous hematoma of the rectus sheath should be considered in differential diagnosis (Gravier 1970; Read 1960; Lawler 1966; Bertelsen 1966).

Surgical intervention is indicated in all cases of SH because of the danger of strangulation of the bowel (Lawler 1966). A transverse or oblique incision is made over the hernia and the external oblique aponeurosis is split parallel with its fiber. The hernia sac is isolated and either reduced intact or excised. The defect is closed with interrupted nonabsorbable sutures. Overlapping repair of the external oblique muscle adds support to the repaired fascial defect (Gravier 1970).

REFERENCES


