CASE REPORT OPEN ACCESS

Laparoscopic Assisted Management of Spigelian Hernia with Ipsilateral Undescended Testis in an Infant

Yousuf Aziz Khan *, Ashraf Elkholy, Sunil Kumar Yadav, Abdullah Rajab Ali

Department of Paediatric Surgery, Ibn Sina Hospital of Surgical Specialties, Al-Sabah Health Region, Safat - 13115, State of Kuwait.

ABSTRACT

Spigelian hernia (SH) is a rare variety of anterior abdominal wall hernias in which the defect is lateral to the rectus abdominis muscle. It is considered congenital in children and usually contains an ipsilateral undescended testis (UDT) in boys. We report our experience of managing a SH with UDT in a nine months old boy. Laparoscopic assisted hernia repair and primary orchidopexy were done successfully. Paediatric surgeons should be familiar with the presentation and management of this rare variety of hernias in children.

Key words: Abdominal wall hernia; Spigelian hernia; Undescended testis; Laparoscopic hernia repair

Correspondence*: Yousuf Aziz Khan. Pediatric Surgery, F.I.C.S. Registrar - Department of Pediatric Surgery, Ibn Sina Hospital of Surgical Specialties, Al-Sabah Health Region, Safat – 13115, State of Kuwait.

E-mail: dr_yousufaziz@yahoo.com

Submitted: 07-08-2018 Accepted: 14-10-2018

Conflict of Interest: None Source of Support: Nil

INTRODUCTION

Spigelian hernia (SH) is an uncommon type of abdominal hernias with a frequency of about 1-2%.[1] It is a protrusion of extra-peritoneal fat, peritoneum, or intra-abdominal organs through a defect in the abdominal wall that occurs alongside the linea semilunaris. Typically it occurs inferior to the arcuate line where the posterior fascia is lacking. It is unusual in children and less than 100 cases have been reported in the English language literature. [2] SH in children is considered to be a congenital defect, in contrast to adults where it is usually acquired. [1] Males are affected more than females (M:F - 3.7:1). It can occur on either side with right sided SH more common than left. In 15% cases it can be bilateral. Various anomalies are associated with SH and, an undescended testis (UDT) being the most common in boys.[3] Herein we share our experience of managing a SH and UDT in a boy.

CASE REPORT

One-month-old male baby was referred with right sided lower abdominal wall swelling that appeared on crying with empty right hemiscrotum. Baby was born at full term and neonatal period remained unremarkable. Clinically he had a reducible hernia at the lateral border of right rectus abdominis muscle about 3-4 cm above the inguinal canal region. The right testis was impalpable along its line of descent with under developed right hemiscrotum. A clinical impression of Spigelian hernia and an undescended testis was made.

An ultrasound examination confirmed an abdominal wall muscular defect of 2 cm with protrusion of peritoneal contents. Right testis was neither visualized in hernial contents nor in the inguino-scrotal region. At the age of nine months he underwent elective surgery which was started with laparoscopy using 5mm camera

port through the umbilicus, and two 5mm working ports at mid-clavicular lines in both flanks. A circular abdominal wall defect of approximately 2.5 cm size was confirmed which contained average sized right testis with gubernaculums attached to the sac with significant adhesions. The vas and vessels were clearly noted exiting the defect at its medial margin (Figure 1). No inguinal canal was identified. After dividing the gubernaculum and adequate mobilization by releasing adhesions, the testis with vas and accompanying vessels were found of adequate length appropriate for primary orchidopexy. A right hemi-scrotal incision was made and a subdartos pouch created. A step-trocar port size 11 was then introduced through the scrotal incision into abdomen, medial to inferior epigastric vessels and just lateral to pubic tubercle (location of neo-internal ring) under direct camera vision. The testis was then brought down and anchored in the subdartos pouch with minimal tension without any twist. Under laparoscopic light guidance a small transverse skin incision was made over the hernia defect which was repaired using braided polyester suture (Ethibond 0 – Ethicon) interrupted extracorporeal stitches. Postoperative recovery was uneventful. At 3-month follow-up the child had no hernia recurrence and right testis was in mid-scrotum, lax and of average size.

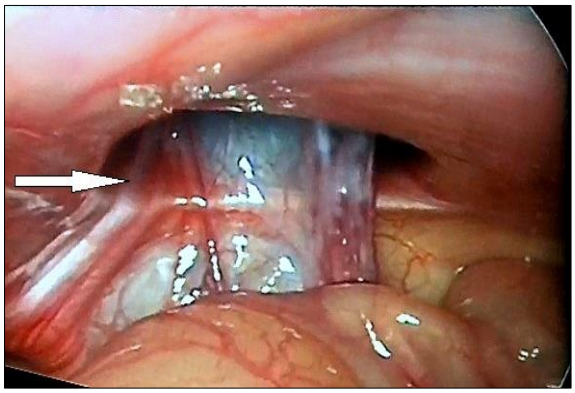

Figure 1: Intra-operative picture showing SH defect with vas and vessels exiting the defect at the medial margin.(pointer).

DISCUSSION

Spigelian hernia (SH) is named after Adriaan van den Spiegel (1578 - 1625), a Belgian anatomist who first described the semilunar line.[2] Spangen introduced the concept of 'Spigelian hernia belt', a transverse belt extending 6 cm cranially from the plane between anterior superior iliac spines, in which approximately 90% SHs in adults are seen.[2] In children the etiology for SH is not clear and various hypotheses have been put forward such as developmental aberration of the abdominal wall with structural alterations of the internal oblique and transversus abdominis muscles, neuro-vascular orifices in the fascia causing weakness and subsequent infiltration of muscles with fat, and muscular paralysis.[3] Post-traumatic and post-operative SHs have been rarely described in children. [3, 4]

Various anomalies are reported in association with paediatric SHs such as umbilical and inguinal hernias, gastroschisis, omphalocele, myelomeningocele, congenital diaphragmatic hernia etc. Worth mentioning is the association of ipsilateral cryptorchidism which is reported to be as high as 75%. [3] There was no other anomaly in our patient except an impalpable right testis. Schoofs first reported a SH with ipsilateral UDT in a child in 1895 and various concepts have been put forward for this concurrent occurrence.[2] There is an ongoing debate among authors whether SH is the primary defect and UDT occurs secondarily or vice versa, or developmental failure of gubernaculum is the primary cause.[5] A recent theory by Brendon et al proposed cranially mislocated gubernaculum in the Spigelian fascia.[2] The resultant development of inguinal canal away from the external inguinal ring and genitofemoral nerve, causes the testis to pass into a SH within the muscles of abdominal wall. Although Brendon et al's theory which is based on animal models of testicular descent, does not explain SH in females and SH without UDT, however, they still do suggest that UDT in a SH as a variant of ectopic testis. Because of the frequent association of paediatric SH and UDT, some authors have suggested it as a new syndrome, Spigelian-cryptorchidism syndrome.[3,6]

The age at presentation for congenital SH ranges from newborn to 17 years of age with an average of 4.52 years.[3] A high index of suspicion should be raised in a baby presenting with an UDT and reducible anterior abdominal wall swelling.[1] The presentation may range from asymptomatic to localized pain abdomen and intermittent abdominal wall bulge along the lateral border of rectus abdominis, visible especially at exertion and disappearing at rest. A similar presentation was seen in our patient. There are also occasional reports of paediatric SH presenting with strangulation.[3]

Because of the rarity and non-specific symptoms and signs, the diagnosis may be delayed and only 50% cases are diagnosed preoperatively. Ultrasonography is the first imaging modality with high success rates in defining the size and contents of the hernia.[5] In our case, however, it only confirmed the fascial defect. In doubtful

cases, computerized tomography and magnetic resonance imaging can be used.[7]

Given the high possibility of incarceration and subsequent strangulation, early surgical repair of the SH is recommended.[8] However, from the experience of a testicular atrophy after orchidopexy in a newborn with SH and UDT, Inan et al suggest properly planned and well-timed approach for such newborns. [9] They advise to repair the hernia early and, address the UDT at one year of age either through single or staged procedures. An alternative recommendation is to address both SH and UDT at the end of first year of life while maintaining strict follow-up for the child for the given rare risk of SH incarceration. In our case we followed the second approach and kept the baby in close out-patient clinic follow-ups. Open and minimally invasive surgery (MIS) are both being used to manage SH-UDT. MIS is safe and effective and has been well documented in adults. Recent reports favor MIS in the diagnosis and treatment of pediatric SH as well. Whether open or laparoscopic approach chosen, the main aim is to close the defect effectively with orchidopexy without complications.

In conclusion, SH is a rare type of hernia usually associated with UDT in males. It needs a high index of suspicion for proper diagnosis. Planned approaches for the timing of surgery as well as the surgical procedure are needed. Laparoscopy is a useful and safe tool in the management of SH with UDT.

Consent:

Authors declared that they have taken informed written consent, for publication of this report along with clinical photographs/material, from the legal guardian of the patient with an understanding that every effort will be made to conceal the identity of the patient however it cannot be guaranteed.

Authors' Contribution:

The author contributed fully in concept, literature review, and drafting of the manuscript and approved the final version of this manuscript.

REFERENCES

1. Shea B, Fasano G, Cohen IT. Pediatric Spigelian hernia: A case report and review of the literature. J Pediatr Surg Case Rep. 2017;21:7-9.
2. Jones BC, Hutson JM. The syndrome of Spigelian hernia and cryptorchidism: a review of paediatric literature. J Pediatr Surg. 2015;50:325-30.
3. Spinelli C, Strambi S, Pucci V, Liserre J, Spinelli G, Palombo C. Spigelian hernia in a 14-year-old girl: a case report and review of the literature. European J Pediatr Surg Rep. 2014;2:58-62.
4. Thakur SK, Gupta S, Goel S. Traumatic Spigelian hernia due to handlebar injury in a child: a case report and review of literature. Indian J Surg. 2013;75S1:404-6.
5. Parihar D, Kadian YS, Raikwar P, Rattan KN. Congenital Spigelian Hernia and Cryptorchidism: Another Case of New Syndrome. APSP J Case Rep. 2013;4:41.
6. Raveenthiran V. Congenital Spigelian hernia with cryptorchidism: probably a new syndrome. Hernia. 2005;9:378-80.
7. Goyal S, Singla S. Spigelian Hernia - Diagnostic dilemma: case report with review. Open Access Library J. 2014;1:e661.
8. Vaz-Silva A, Pratas-Vital V, Alves F, Cardoso D, Catela-Mota F, Casella P. Spigelian hernia and ipsilateral cryptorchidism–Case Report. Acta Urol Port. 2015;32:123-6.
9. Inan M, Basaran UN, Aksu B, Dortdogan Z, Dereli M. Congenital Spigelian hernia associated with undescended testis. World J Pediatr. 2012;8:185-7.