Laparoscopic diagnosis and management of splenogonadal fusion

Sir,

Splenogonadal fusion (SGF) of the testis is a rare congenital anomaly of which only 125 cases have been reported in the literature up until 1997.[1] By the 6th week of gestation, the primordial germ cells migrate from the wall of the embryonic yolk sac along the dorsal mesentery of the hind-gut to invade the genital ridges. The gubernaculum appears at this stage as a ridge of mesenchymal tissue that extends from the genital ridge to the genital swelling which is the site of the future scrotum. As the spleen also develops in the mesentery, a failure of the development of the gubernaculum at this stage would probably explain the ectopic position and subsequent fusion of the left gonad with the spleen.[2] Splenogonadal fusion is usually diagnosed during operation for surgical conditions such as inguinal hernia, cryptorchism, and abdominal tumor of testicular origin. As far as we are aware, this method of diagnosis and treatment has not been documented before in the literature. A 9-year-old boy presented at his first hospital attendance to the Urology Clinic of the Northern Area Armed Forces Hospital, King Khalid Military City, Hafr Al-Batin, Kingdom of Saudi Arabia with bilateral undescended testes since birth. There was also a history of a reducible left groin swelling probably of the same duration. Clinical examination showed that all other systems were normal without any evidence of congenital anomaly. Local examination of the groin and perineal region showed a reducible swelling in the left groin, bilateral impalpable testes and well-developed scrotum. A provisional diagnosis of bilateral undescended testes with left inguinal hernia was made. He had routine blood tests as well as pre-operative abdominal and pelvic ultrasound and computerized tomography scan for possible location of the testes.

The patient then underwent laparoscopic exploration of the abdomen and pelvis. At laparoscopy, the right testis was normal and the left testis was also found to be of normal size but discolored and seen to be attached to what looked like splenic tissue (**Figure 1**). The testis was then mobilized by incising and ligating the connection to the splenic tissue. Since the testis looked abnormal and could not be adequately mobilized to be brought down, orchidectomy was then performed and the specimen sent for histopathology with the invading tissue (**Figure 2**). The right side revealed a normal testis and laparoscopic assisted orchidopexy was carried out.

The histopathology result confirmed the presence of both testicular and splenic tissues in the specimens. The

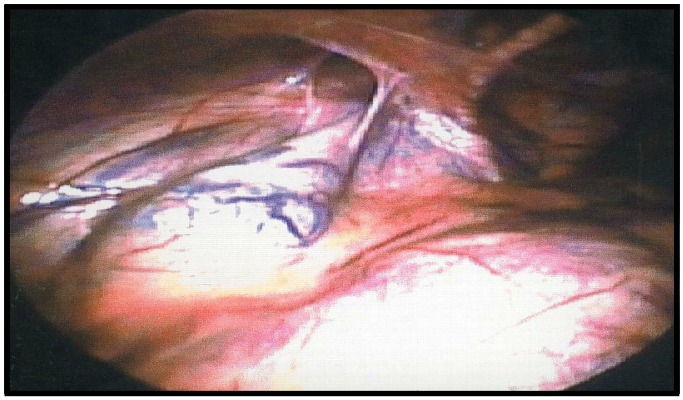

Figure 1 - Left testis attached to the spleen.

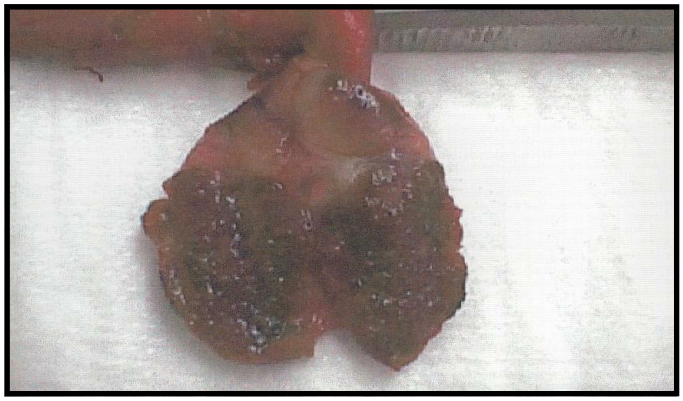

Figure 2 - Specimen of left testis with attached splenic tissue.

postoperative period was uneventful, and he was discharged home one week after his surgery. He was followed up in the Urology outpatient's clinic, and progress has been satisfactory regarding the other testis that was fixed to the right scrotum.

Bostroem first reported SGF in 1883, and since then, approximately 125 cases have been reported in the literature. Splenogonadal fusion may manifest as an inguinal tumefaction or can be discovered while exploring the abdomen for cryptorchism. It is usually caused by fusion of the spleen to the left urogenital bud during the 5th-8th weeks of fetal development. Splenogonadal fusion is classified as either of the continuous or discontinuous variety depending on whether there is a connecting cord between the gonad, and the spleen.[3] The continuous variety is reported to be slightly more common than the discontinuous type. Approximately half the cases of SGF are associated with hernias, found in boys under the age of 10; however, a few scattered cases have been reported in patients up to

the age of 81. In one-third of all reported cases, SGF is associated with other congenital defects and this association is usually common in the continuous type. The discontinuous type is usually not associated with congenital defects, and the gonad that fused with an accessory spleen has been found not to have any connection with the native spleen.[4]

The treatment modality for cryptorchidism is exploration of the abdomen, groin or both carried out either by open surgery or laparoscopically.[5]

Laparoscopic orchidectomy or laparoscopic assisted orchidopexy has also become an established procedure for intra-abdominal testes near the internal ring. Laparoscopy in recent years has become an important tool in the search for impalpable testes. Whenever a surgeon finds himself exploring for cryptorchidism, either laparoscopically or by open procedure, one must bear in mind the possibility of SGF and that it can also be dealt with laparoscopically simultaneously.

Julius A. Awe
Mohammed A. Soliman
Aziz U. Rahman
Ronald W. Gourdie
Department of Surgery
Northern Area Armed Forces Hospital
King Khalid Military City Hospital
PO Box 10018
Hafr Al-Batin 31991
Kingdom of Saudi Arabia

References

1. Karaman MI, Gonzales ET Jr. Splenogonadal fusion: report of 2 cases and review of the literature. ***J Urol*** 1996; 155: 309-311.
2. Rajfer J. Congenital anomalies of the testis and scrotum. In: Walsh PC, Retik AB, Vaughan ED, Wein AJ, editors. Campbell's Urology. 7th ed. Philadelphia (PA): WB Saunders: 1997. p. 2172-2192.
3. Gouw AS, Elema JD, Bink-Boelkens MT, De Jongh JH, ten Kate LP. The spectrum of splenogonadal fusion. Case report and review of 84 reported cases. ***Eur J Pediatr*** 1985; 144: 316-323.
4. Carragher AM. One hundred years of splenogonadal fusion. ***Urology*** 1990; 35: 471-475.
5. Aslan P, Burn J, Farrell C. Splenogonadal fusion of the testis: ***Aust N Z J Surg*** 1997; 67: 899-900.