Intratesticular Varicocele Associated with Ipsilateral Extratesticular Varicocele

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Intratesticular varicocele is a rare entity and refers to a dilated intratesticular vein radiating from the mediastinum testis into the testicular parenchyma. A 22-year-old man was admitted to our hospital with left testicular pain. On physical examination, a grade III varicocele was noted on the left side. Gray-scale ultrasound and color Doppler ultrasound examinations revealed intratesticular and extratesticular varicocele. The patient underwent spermatic vein ligation by open modified Palomo varicocelectomy. *(Korean J Urol 2009;50:822-824)*

**Key Words:** Varicocele, Ultrasonography

Extratesticular varicocele is a common condition, occurring in approximately 15% of males. The condition is characterized by dilatation of the vein of the spermatic cord. Varicocele may be associated with male infertility, scrotal mass, and testicular pain. Intratesticular varicocele, however, is a very unusual finding. It has been described as dilated intratesticular veins radiating from the mediastinum testis into the testicular parenchyma. A large series of patients showed that the incidence of intratesticular varicocele ranges from 0.05% to 1.7% in patients with testicular problems. Intratesticular varicocele mostly presents with symptoms as extratesticular varicocele, although frequently it is not associated with ipsilateral extratesticular varicocele. In one study, 33.6% of all testes involved had isolated intratesticular varicocele, without an associated testes=4.0x2.9x1.9 cm, left testis=3.5x2.7x1.6 cm). Abnormal tubular, straight hypoechoic structures (maximum diameter, 2.5 mm) arising from the mediastinum testis and extending into the testicular parenchyma were present in the left testis (Fig. 1A). During the Valsalva maneuver, a marked increase in venous flow was seen within these tubular structures (Fig. 1B). After cessation of the Valsalva maneuver, the flow pattern reverted to normal. The patient underwent spermatic vein ligation by open modified Palomo varicocelectomy. Six months after the operation, color Doppler ultrasound scanning with the Valsalva maneuver was performed again, and the intratesticular varicocele were shown to be regressed (Fig. 2).

**CASE REPORT**

A 22-year-old man was admitted to our hospital with a history of left testicular pain for 3 months. He had previously undergone bilateral orchiopexy for bilateral undescended testes at the age of 10 years. On the physical examination, the left testis was soft, and a grade III varicocele was also noted on the left side. On the semen analysis, sperm density was 2.2x10^6/ml. The sperm motility and strict morphology were 22% and 8%, respectively. The testosterone and follicle-stimulating hormone levels were within normal limits. Gray-scale ultrasound and color Doppler ultrasound examinations were performed at rest and during the Valsalva maneuver with the patient in the supine position. Gray-scale images revealed that the left testis was slightly smaller than the right (right testis=4.0x2.9x1.9 cm, left testis=3.5x2.7x1.6 cm). Abnormal tubular, straight hypoechoic structures (maximum diameter, 2.5 mm) arising from the mediastinum testis and extending into the testicular parenchyma were present in the left testis (Fig. 1A). During the Valsalva maneuver, a marked increase in venous flow was seen within these tubular structures (Fig. 1B). After cessation of the Valsalva maneuver, the flow pattern reverted to normal. The patient underwent spermatic vein ligation by open modified Palomo varicocelectomy. Six months after the operation, color Doppler ultrasound scanning with the Valsalva maneuver was performed again, and the intratesticular varicocele were shown to be regressed (Fig. 2).

**DISCUSSION**

Intratesticular varicocele is a rare entity characterized by dilated intratesticular veins radiating from the mediastinum into the testicular parenchyma and an ipsilateral extratesticular varicocele. A large series of patients showed that the incidence of intratesticular varicocele ranges from 0.05% to 1.7% in patients with testicular problems. Intratesticular varicocele mostly presents with symptoms as extratesticular varicocele, although frequently it is not associated with ipsilateral extratesticular varicocele. In one study, 33.6% of all testes involved had isolated intratesticular varicocele, without an associated

Fig. 1. Gray-scale and color Doppler ultrasound. (A) Gray-scale ultrasound longitudinal scan of testis at rest reveals tubular, straight hypoechoic structures extending from the mediastinum. (B) Color Doppler image during the Valsalva maneuver showing abnormal blood flow.

extratesticular varicocele. Testicular pain was the most common clinical presentation, attributed to stretching of the tunica albuginea after active or passive venous congestion and dilatation of the veins. The pathogenesis is thought to be similar to that of an extratesticular varicocele and thus may possibly affect spermatogenesis and male fertility. On the other hand, intratesticular varicocele development may also be a consequence of testicular atrophy. It is indeed possible that atrophy deteriorates the properties of testicular tissue and allows enlargement of intratesticular venous structures. On sonography, it appears as multiple tubular or oval anechoic structures, usually greater than 2 mm, located in or around the mediastinum testis, with venous flow on color or pulsed Doppler sonography and a positive response to the Valsalva maneuver. The differential diagnosis includes intratesticular cyst, tubular ectasia of rete testis, hematoma, focal infection, and cyst intratesticular neoplasm, but color Doppler ultrasound is accurate for the differentiation of intratesticular varicocele from other

Fig. 2. (A) Gray scale image 6 months following spermatic vein ligation. (B) Color Doppler flow during the Valsalva maneuver with the patient supine 6 months after spermatic vein ligation.
causes. Treatment options are similar to those for extratesticular varicocele. Successful results have been reported for varicocelectomy, percutaneous sclerotherapy, and percutaneous embolization.  

REFERENCES