

# Polyorchidism with lobulation and septa in supernumerary testis

Zülkif Bozgeyik, Ercan Kocakoç, Tülin Öztürk

## ABSTRACT

Polyorchidism is a rare anomaly of the genitourinary system which is defined as the presence of more than two testes within the scrotum. Lobulation of a testis is also a rare anomaly. To the best of our knowledge, this is the first report of polyorchidism with lobulation of a supernumerary testis. We present ultrasonography findings of lobulation of a supernumerary testis in a 38-year-old man.

**Key words:** • polyorchidism • lobulation • septa • ultrasonography

**P**olyorchidism is a rare anomaly of the genitourinary system which is defined as the presence of more than two testes within the scrotum (1). The first case of polyorchidism was reported in 1880. Since that first report nearly 100 cases have been reported in the literature (2). Testicular lobulation is also a rare anomaly of the testis (3). We present ultrasonography (US) findings of polyorchidism with lobulation. To the best of our knowledge, this is the first report of polyorchidism with lobulation.

## Case report

A 38-year-old man was referred to our radiology department because of a palpable mass in his left scrotum. The mass was first noticed by the patient 5 years previously. There was no surgery, trauma, or infection in his medical history. Both testes were normal on physical examination, but an approximately 3-cm non-tender solid mass was palpated in the left hemiscrotum. On scrotal ultrasonography (US), both testes were normal in size and echotexture. Additionally, a supernumerary testis was demonstrated at the inferiomedial aspect of the left testis (Fig. a). Its dimensions were 26 mm x 17 mm. The supernumerary testis had the same echotexture as the other testes and had lobulation and septa along the longitudinal axis (Fig. b). The lobulation area of the supernumerary testis was irregular and hypoechoic in appearance. We could not clearly demonstrate mediastinum testis. US demonstrated the head of the epididymis and the vas deferens of the supernumerary testis. Color Doppler sonography (CDS) showed a normal flow pattern (arterial and venous) of the supernumerary testis and normal testes (Fig. c). Also, a mild varicocele was seen around the right testis. Since the patient's symptom had been present for 5 years, he was placed in a follow-up program for malignancy.

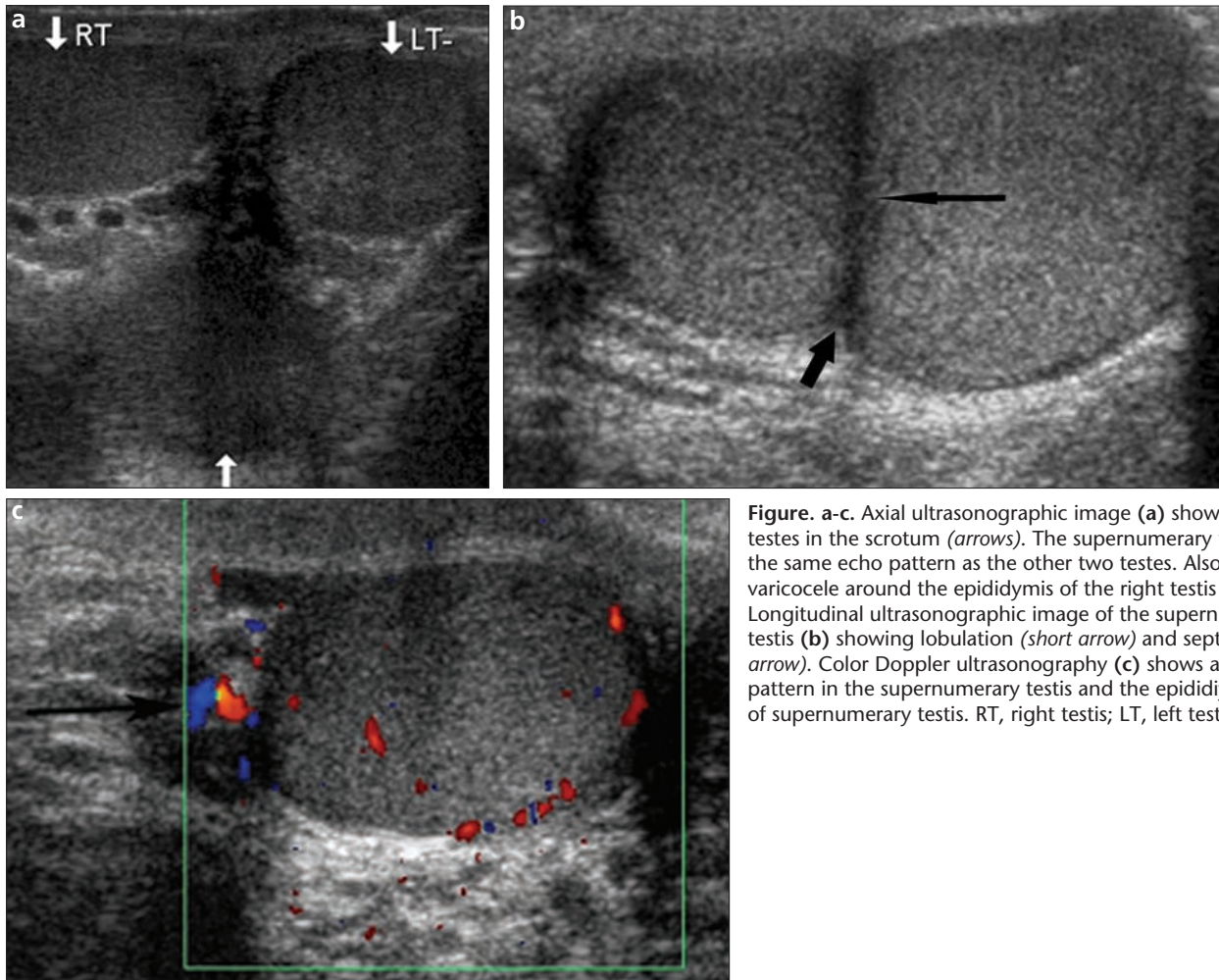
## Discussion

Polyorchidism is one of the rarest anomalies, with less than 100 cases reported in the literature (4). In most cases the extra testis is located on left side and there are two epididymides and a single vas deferens (5). Triorchidism is the most common type of polyorchidism. Polyorchidism consisting of more than three testes has been rarely reported in the literature (2). The testes develop embryologically from a mesodermal band called the urogenital ridge. The epididymis and vas deferens develop from mesonephric ducts. A developmental accident during any step in the union and division of the urogenital ridge and mesonephric ducts can result in a supernumerary testis (6).

According to one of the most popular theories put forth to explain the development of polyorchidism, if there is division of the primordial testis in the longitudinal plane, one testis would have vas deferens and

From the Department of Radiology (Z.B. ✉ bozgeyik4@hotmail.com), Firat University School of Medicine, Elazığ, Turkey.

Received 18 April 2007; revision requested 21 May 2007; revision received 25 May 2007; accepted 31 May 2007.



**Figure. a-c.** Axial ultrasonographic image (a) shows three testes in the scrotum (arrows). The supernumerary testis has the same echo pattern as the other two testes. Also, a mild varicocele around the epididymis of the right testis is noted. Longitudinal ultrasonographic image of the supernumerary testis (b) showing lobulation (short arrow) and septa (long arrow). Color Doppler ultrasonography (c) shows a normal flow pattern in the supernumerary testis and the epididymis (arrow) of supernumerary testis. RT, right testis; LT, left testis.

epididymis and the other testis would not have vas deferens and epididymis (7). This latter testis would have no reproductive potential and a higher malignancy risk. It is reasonable that these testes may have to be removed because of future concurrent complications such as torsion or increased malignancy risk (8). Although it has been reported that the incidence of cancer is less than 1% in patients with polyorchidism, the actual collective incidence among the reported series is 6.2% (6). If the division of the primordial testis occurred in the transverse plane, two testes and epididymis would have developed and be connected with the spermatic cord. Since the supernumerary testis had epididymis in our patient, the theory of division in a transverse plane is more likely applicable in this instance.

Benign testicular lobulation of congenital origin has been reported in the literature (3). However, it has been suggested that benign testicular lobu-

lation can be caused by orchiopexy operations related to an undescended testis (9). It has also been suggested that development of fibrosis and lobulation might be related to the suture material (9). This is unlikely in our case, since there was no history of surgery, thus favoring a congenital origin.

On US, a supernumerary testis usually has the same echo pattern as the ipsilateral testis. Also, we clearly demonstrated the epididymis and vas deferens. CDS showed a normal flow pattern for the supernumerary testis and normal testes.

In our case, the appearance of the septa with lobulation was prominent in the supernumerary testis. This appearance may be related the septa arising in the supernumerary testis or two supernumerary testes not being completely separated. The supernumerary testis was lobulated with septa and it was difficult to conclude whether it was a separate supernumerary testis or

a lobulated part of the supernumerary testis.

Radiologists should be aware during US examinations that if a supernumerary testis cannot be clearly shown to be attached to the epididymis, it may be prudent to remove the supernumerary testis due to the increased risk of developing malignancy. However, if a supernumerary testis and its own epididymis can be clearly demonstrated, regular and frequent follow-up (3 to 6 months) with US is recommended for management of polyorchidism (10).

In conclusion, polyorchidism is a rare congenital anomaly. In most cases, US is the major diagnostic tool for detecting nearly all testicular pathologies. We believe that testicular lobulation and septa are a part of the developmental anomaly of a supernumerary testis.

## References

1. Oner AY, Sahin C, Poca S, Kizilkaya E. Polyorchidism: sonographic and magnetic resonance image findings. *Acta Radiol* 2005; 46:769–771.
2. Amodio JB, Maybody M, Slowotsky C, Fried K, Foresto C. Polyorchidism: report of 3 cases and review of the literature. *J Ultrasound Med* 2004; 23:951–957.
3. Kao EY, Gerscovich EO. Benign testicular lobulation: sonographic findings. *J Ultrasound Med* 2003; 22:299–301.
4. Khetan N, Torkington J, Jamison MH. Polyorchidism presenting as retractile testes. *BJU Int* 1999; 83:524.
5. Deveci S, Aygun C, Agildere AM, Ozkardes H. Bilateral double by testis: evaluation magnetic resonance imaging. *Int J Urol* 2004; 11:813–815.
6. Hwang S, Aronoff DR, Leonidas JC. Case 82: polyorchidism with torsion. *Radiology* 2005; 235:433–435.
7. Nocks BN. Polyorchidism with normal spermatogenesis and equal sized testes: a theory of embryological development. *J Urol* 1978; 120:638–640.
8. Figler TJ, Olson MC, Kinzler GJ. Polyorchidism and rete testis adenoma: ultrasound and MR findings. *Abdom Imaging* 1996; 21:470–472.
9. Mihmanli I, Kantarci F. Benign testicular lobulation. *J Ultrasound Med* 2003; 22:1001.
10. Danrad R, Ashker L, Smith W. Polyorchidism: imaging may denote reproductive potential of accessory testicle. *Pediatr Radiol* 2004; 34:492–494.