Real-time scrotal ultrasound of patients with varicoceles: correlation with impaired semen analysis

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Abstract

Objectives to evaluate the potential relationship between scrotal ultrasound findings and abnormal semen analysis. **Methods** Eighty-seven patients with varicoceles underwent semen analysis and scrotal sonography. On ultrasound, estimated testes volume and the largest pampiniform vein diameters on the affected side at rest and with Valsalva manoeuvre in both the supine and upright positions were examined. In addition, the differences between the largest venous diameters at rest and during the Valsalva manoeuvre in each position (supine and upright) and also the differences between the largest venous diameter in the supine position and the upright position in each condition (at rest and during the Valsalva manoeuvre) were calculated. The relationship between various ultrasound parameters and impaired semen analysis was evaluated using receiver operating characteristic curves.

Results Seventy-one patients had spermatogenesis impairment, and the remaining 16 had normal semen analysis. The difference in the mean spermatic vein diameter at rest between the supine and upright positions (cut-off point, 0.25 mm) had the highest diagnostic accuracy in differentiating the patients with abnormal sperm analysis from those with normal spermatogenesis with an area under the curve of 0.86.

Conclusions Real-time scrotal ultrasound can be helpful in predicting abnormal sperm analysis in patients with varicoceles.

Key Points

• Scrotal ultrasound is a non-invasive method to evaluate spermatic veins in varicoceles.
• Ultrasound can evaluate venous dimension change at rest after upright position (ΔDR).
• ΔDR>2.5 mm distinguishes patients with abnormal semen analysis.
• ΔDR has the most accuracy in predicting abnormal spermatogenesis.
• Ultrasound findings improve differentiation between patients with abnormal and normal spermatogeneses.

Keywords Varicocele . Semen analysis . Scrotum . Ultrasound . Doppler . Colour .Valsalva manoeuvre