

Ultrasonographic 'whirlpool sign' in testicular torsion

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DESCRIPTION

A 16-year-old male adolescent with a history of retractile testes fell in the bath and hit his scrotum against the bathtub. The following day, he presented to the primary care clinic with severe right testicular pain and nausea 2 hours after the onset. Physical examination showed a tender right scrotum with elevation. Palpation revealed induration with tenderness of the superior portion of the right testicle. Colour Doppler ultrasonography of the right testicle showed a preserved intratesticular blood flow. However, ultrasonography of the upper scrotal sac revealed a swirl of the spermatic cord, known as the whirlpool sign (figure 1, video 1). This finding implied the testicular torsion, and the spermatic cord appeared to rotate inward about two turns. (figure 2).

The patient was subsequently referred to the emergency hospital for urological consultation. Manual detorsion was performed by grasping the testicle and rotating it within the scrotum outward two full 360-degree turns towards the thigh. Prompt relief of testicular pain and lower position of the right testis in the scrotum suggested successful detorsion. Six hours after the onset of pain, surgical exploration confirmed the mildly enlarged, congested and orthotopic right testicle (figure 3), which showed the resolved testicular torsion, and then fixation of both testes was performed. The patient's postoperative course was uneventful.

Diagnosis of testicular torsion is often based on the absence of intratesticular blood flow or significantly reduced flow in the affected testicle. However, a definitive diagnosis of partial or intermittent testicular torsion may be complicated on the study of testicular vascularisation with colour Doppler ultrasonography, since ischaemic change emerges late. The presence of preserved



Video 1 Swirl of the spermatic cord in the right upper scrotal sac were seen.

intratesticular blood flow, which can be observed in these cases, may lead to a false-negative diagnosis.¹

Baud *et al* and Kalfa *et al* have described a specific US finding (the whirlpool sign) in testicular torsion with high sensitivity and specificity.¹⁻³ It is caused by spiral twist of the spermatic cord and appears as a doughnut, a target, a snail shell or a storm on a weather map.¹ Although

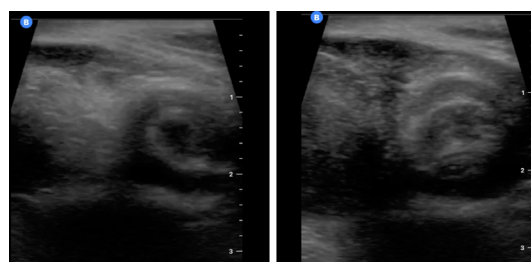


Figure 1 Ultrasonography of the right upper scrotal sac revealed a swirl of the spermatic cord, known as the "whirlpool sign." This structure was visualised at longitudinal view with perpendicular to the axis of twisted spermatic cord.

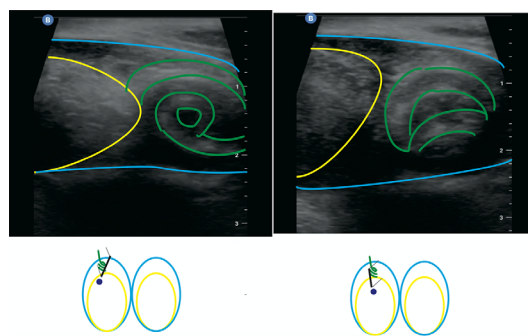


Figure 2 Diagram shows tunica vaginalis (blue), testis (yellow) and spermatic cord (green). The spermatic cord might rotate inward about two turns.



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Figure 3 Surgical exploration confirmed torsion of the mildly enlarged and congested right testicle.

Patient's perspective

The day after I hit my testicles, I was in agony with nausea and pain. Not knowing what department to go to, I went to see a general practitioner. I am very grateful for the proper diagnosis and prompt access to appropriate treatment.

Learning points

- ▶ The whirlpool sign is a spiral twist of the spermatic cord caused by testicular torsion.
- ▶ Although intratesticular blood flow in the affected testis was present in some cases of testicular torsion, the whirlpool sign was often positive.
- ▶ In cases of suspected testicular torsion, if there is a present whirlpool sign, the index of suspicion of torsion should be very high, even if there is preserved intratesticular blood flow.

intratesticular blood flow in the affected testis was present in some cases of testicular torsion, the whirlpool sign was positive in all cases.^{1,3} This sign is highly suggestive of testicular torsion, regardless of the normal colour Doppler ultrasonography finding. The severity of vascular impairment is determined by the number of twists, although generally a 4-hour to 8-hour window exists before significant ischaemic damage occurs that can affect long-term testicular morphology and sperm formation.⁴ Therefore, early diagnosis and treatment are important.

In this case, primary care physicians found the whirlpool sign in the upper scrotal sac and promptly referred the patient to the urology department. Learning point from this patient is that in cases of testicular pain, clinicians should consider a diagnosis of testicular torsion and find the whirlpool sign, even in the preserved intratesticular blood flow.

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Disclaimer Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

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