Supplementary figures

**Supplemental figure 1.** Representative image of altered lie. Gray-scale transverse US image of both scrotum (A) in a 12-year-old boy with acute left scrotal pain shows abnormal horizontal lie of left testis. Color Doppler transverse US image of both scrotum (B) shows absent vascularity of left testis and was diagnosed as a left testicular torsion.

**Supplemental figure 2.** Representative image of avascularity of testis. Color Doppler US image of both scrotum shows avascularity of left testis (arrow) in a left testicular torsion case.

**Supplemental figure 3.** Representative images of increased vascularity of testis. Color Doppler US images of both scrotum (A) and right scrotum (B) show increased vascularity of right testis (arrow) (A) with swollen right epididymis (B). He was diagnosed as right epididymo-orchitis.
Supplemental figure 4. Representative images of decreased vascularity of testis. Color Doppler US images of left testis (A) and right testis (B) show decreased vascularity of left testis (arrow) (A) compared with contralateral side (B), but preserved vascularity flow to left testis. Longitudinal Color Doppler US image (C) of left testis shows whirlpool sign at suprastesticular area and also preserved blood flow to the torsion knot (O). Gray-scale US image of both scrotum (D) shows horizontal lie of left testis (rotated axis). He underwent orchiopexy and diagnosed as partial torsion (180 degree torsion).

Supplemental figure 5. Representative image of normal vascularity of testis. Color Doppler US image of both scrotum shows symmetric normal vascularity in a normal case.

Supplemental figure 6. Representative image of avascular nodule. Gray scale longitudinal US image of left testis in a 4-year-old boy with left scrotal swelling shows avascular nodule at suprastesticular area (arrow). He was diagnosed as a left testicular appendage torsion.
A simplified ultrasound approach to diagnose testicular torsion and predict unsalvageable testis

Supplemental figure 7. Representative images of epididymal enlargement and hyperemia. Gray scale longitudinal US images of right scrotum (A) and left scrotum (B) in a 10-year-old-boy with left scrotal pain and swelling show enlarged left epididymis (arrows in B) with increased vascularity, compared to right epididymis (arrows in A). He was diagnosed as left epididymitis.

Supplemental figure 8. Representative image of heterogeneous echotexture of a testis. Gray scale longitudinal US image of left testis in a 13-year-old boy with 3 days of acute left scrotal pain shows heterogeneous parenchymal echogenicity and absence of flow in left testis. He was diagnosed as a left testicular torsion.

Supplemental figure 9. Representative image of a whirlpool sign. Gray scale longitudinal US image of left testis in a 12-year-old boy with left scrotal pain shows whirlpool sign at the left spermatic cord. He was diagnosed as a left testicular torsion.