

Testicular torsion in a newborn: a case report

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SUMMARY: **Testicular torsion in a newborn: a case report.**

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Discovery of an apparent scrotal mass is a non common entity in neonates. Testicular torsion is rare in newborn infants and is an urologic emergency that requires emergency surgical management. We present a rare case of testicular torsion in a neonate.

KEY WORDS: Testicular torsion - Neonatal.

Introduction

Testicular torsion is a surgical emergency and discovery of scrotal mass is uncommon in neonates that can be a source of anxiety for physicians. Testicular torsion in a neonate often presents clinically with non specific signs such as discoloration and scrotal swelling, leading imaging to play a key role in management (1). Approximately 10% of all testicular torsions occurs in neonates and all of these are extravaginal, which is associated with lack of tunica vaginalis attachment to the scrotum, occurring at the level of the spermatic cord (2). Intravaginal torsion is seen in older children (3). The cause of neonatal testicular torsion is unknown, however in neonate is associated with breech presentation, birth trauma, vaginal delivery and full-term birth (2). In neonates found to have a torsed testicle at birth even with prompt treatment, irreversible ischemic damage to the testis damage to the testis likely has already occurred. Interestingly, most pediatric surgeons per-

form orchiopexy of the contralateral testis because the consequences of anorchia (4). We report a rare case of a newborn with testicular torsion and we suggest an early diagnosis and treatment in torsion of the testis is essential and surgical exploration should be always performed. Furthermore it is important orchidopexy to the controlateral testis in order to prevent late torsion of this gonad.

Case report

A full-term birth was born by vaginal delivery and a mass with discoloration was observed in the left scrotum (Figure 1). The newborn underwent a color Doppler ultrasound study of the scrotum before the operation which did not reveal any flow signal but heterogeneous echogenicity on the affected side, controlateral testis was normal. Unilateral testicular torsion was suspected and we perform an emergency exploration through the scrotum (inguinal) route under general anesthesia. The left testis was necrotic (the spermatic cord was dark blue color and edematous), we perform orchiectomy and contralateral orchidopexy (Figure 2). Histology of the removed testes showed hemorrhagic necrosis.

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Figure 1 - Testicular torsion - Examination.



Figure 2 - Testicular torsion - Surgical specimen.

Discussion

Testicular torsion (TT) is defined as a rotation of the longitudinal axis of the spermatic cord, resulting in obstruction of testicular blood flow, which accounts for 13-54% of acute pediatric scrotal disease (5-7). Torsion, or rotation of the testis with twisting of the spermatic cord, is a surgical emergency. Late presentation or failure to diagnose and correctly manage this condition leads to loss of the testis on the affected side. The triggering reason for scrotal swelling, reddening, and pain without previous trauma is not always obvious. However, (TT), torsion of the appendages of the testis, and epididymo-orchitis (EO) will account for 90% of cases. Other diagnoses that can rarely mimic torsion include idiopathic scrotal edema, hydrocele, scrotal hernia, testicular tumor, thrombosed varicocele, and Schönlein Henoch purpura (8).

TT can occur at any age but is most common in the adolescent age group, with a smaller peak in the neonatal age group (9). This distribution results from the different types of torsion. TT in newborns results almost exclusively from extravaginal testicular torsion. Neonates present with swelling, discoloration of the scrotum on the affected side, and a firm painless mass in the scrotum. The testis is typically infarcted and necrotic at birth (8, 10). Pubertal boys develop intravaginal torsion that occurs within the tunica vaginalis. The predisposing factors include a long and narrow mesentery or a bell-clapper deformity. TT is defined as a rotation of the longitudinal

axis of the spermatic cord, resulting in strangulation of testicular blood flow. The extent of testicular ischemia depends on the degree of torsion, varying from 180° to 720°. The testicular salvage rate hinges on the degree of torsion and the duration of ischemia. Almost all testes are salvaged within the first 6 hours after the onset of symptoms. With later treatment, the salvage rates rapidly decrease (11, 12). Typically, TT presents with a sudden onset of severe pain followed by inguinal and/or scrotal swelling. Many patients also have gastrointestinal symptoms with nausea and vomiting. Often, a high riding testis with a transverse orientation is found. The absence of the cremasteric reflex in a patient with acute scrotal pain supports the diagnosis of TT (8, 13). The child's age is an important clue to the diagnosis of TT. Torsion of the appendix testes or epididymis is more common in prepubertal boys, whereas TT more commonly presents in adolescents and newborns (14). Yang et al. in 2011 published a study indicated that TT in children was most common in adolescence, with a smaller peak in neonatal children. Decreased or absent cremasteric reflex, swelling of the scrotum, and tenderness of the testes were the most common symptoms in TT (9).

According to Kadish and Bolte (15) no TT patients had a normal cremasteric reflex. Color Duplex Ultrasonography (CDUS) has become a popular technique in most institutions because it allows determination of blood flow, is less time consuming, is more readily available, and does not expose the patient to ionizing radiation (16). Recent studies show a sensitivity of 89.9% and a specificity of 98.8%

(17). By investigating the sonomorphological parameters of TT, including parenchymal echo texture, volume of bilateral testis, and the perfusion of testis, testicular viability can be predicted before surgery and emergent scrotal exploration can be avoided in the nonviable cases (18, 19). Patients in whom TT is strongly suspected clinically should be subjected to exploration even if the Doppler flow is good, according to Ahmed SJ et al. (20). Two studies indicated that salvageability largely depended on the duration of pain at presentation and the degree of the testis torsed (21, 22). Inverse correlation was found between salvageability and presentation time and rotation. The indication for surgery should be based on clinical signs and CDUS results to avoid unnecessary explorations. Surgery should be performed regardless of CDUS results in patients with a combination of the above-mentioned symptoms and a short duration of pain. Exploration is mandatory when CDUS does not show perfusion. Another study revealed that the parenchymal echo texture and blood flow is related with the testicular viability significantly (18). Testicular ischemia-reperfusion injury after testicular torsion-detorsion or an autoimmune process that occurred after the rupture of the hematotesticular barrier leading to formation of antisperm antibodies were possible causes of late atrophy of the affected

testis and infertility (23, 24).

Several studies had proved that hormonal testicular function can be compromised after testicular torsion (23, 25) and many experimental studies on the protective effect of pharmacologic agents after TT have been carried out (26, 27), which might be useful and helpful in reducing the ischemia-reperfusion injury for TT patients in the future.

Conclusion

Overlap usually exists between TT and other causes of acute scrotum. Testicular salvage in torsion depends on the interval between onset of pain and surgical intervention. Ultrasound is definitely a useful modality for the clinical assessment of patients with TT. However, sonographic interpretation must be in conjunction with the clinical manifestations. We strongly encourage immediate surgical exploration with suspected TT. Since our study is a case series with limited number of patients, we advocate that more studies must be conducted in the future.

Abbreviations

TT: Testicular Torsion

CDUS: Color Duplex Ultrasonography

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