



Testicular Torsion of Traumatic Origin about Two Cases

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Authors' contributions

This work was carried out in collaboration among all authors. Author AEM managed bibliographical research and writing. Authors NAS, HH, AAM and AMH managed writing and translation. Authors DM, DA and AR managed reading and correction. All authors read and approved the final manuscript.

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Case Report

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ABSTRACT

Testicular torsion is a severe acute urological emergency caused by twisting of the spermatic cord. Unfortunately, its importance is still underestimated in everyday life. It requires prompt diagnosis and treatment. Early-detected testicular torsion can be cured in almost every case, whereas late identification may lead to loss of the testicles. We report two rare cases of post-traumatic testicular torsion and we will discuss the mechanism, diagnosis and the importance of rapid surgical management outcome, based on recently published articles.

In the 1st case, is about an adolescent A.K., 18 years old, without any particular pathological history, victim of a scrotal trauma whose mechanism is a kick on the testicles (brawl) leading to a closed trauma with the appearance of an atrocious pain. The patient was seen 2 hours after the occurrence of the trauma, the clinical examination found a conscious patient with a right testicle ascended to the inguinal ring, ecchymotic scrotum and a very intense pain on palpation. An ultrasound with color Doppler study was carried out in front of the traumatic context which had objectified a twisting spermatic (spiral twist) cord associated with hydrocele of low abundance. Surgical exploration found a reactive hydrocoele and a twisted spermatic cord with a viable testicle.

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An emergency detorsion was performed followed by orchidopexy. In the 2st case, is 16 years old boy, was consulting for a painful post-traumatic right scrotal swelling, that has been evolving for 12 hours. Clinical examination showed a patient conscious, with a right hemi -scrotum increased in volume, ascending, painful on palpation. The ultrasound scan showed a ruptured albuginea with hydrocele. Surgical exploration revealed a hematoma at the expense of the epididymis with the presence of a spiral twist at the level of the spermatic cord and a necrotic right testicle. The procedure consisted of detorsion and resuscitation with normal saline 0.9%. Despite the reanimation, the testicle kept the same aspect. An orchiectomy was performed. The message is that the urological surgeon must keep in mind that scrotal trauma can lead to testicular torsion. So, consciousness and constant vigilance are required in order to avoid a catastrophic delay that can lead to an orchiectomy, which can have serious consequences.

Keywords: Testis; trauma; torsion; orchiectomy.

1. INTRODUCTION

Testicular torsion has been recognized as the most common urological emergency with an incidence of 1:160 by the age of 25 years, while in adults it is initially misdiagnosed as epididymitis in 20% of the cases [1]. Trauma is an infrequently reported precipitant of testicular torsion, usually accounting for only 5 to 6% in most series, mostly affecting teenagers [2].

Intravaginal testicular torsion produces a sudden onset of severe unilateral scrotal pain followed by inguinal and/or scrotal swelling [3]. Pain may lessen as the necrosis becomes more complete. Gradual onset of pain is an uncommon presentation. Although there are no clear precipitating factors, many patients describe a recent history of trauma or strenuous physical activity [4]. Can be related to trauma in 4-8% of cases [5].

Testicular trauma is rare, the diagnosis is usually made by the clinical context and ultrasound data. Surgical exploration is not systematic; it indicated in cases of large burst, hematocele and rupture of the albuginea while spermatic cord twisting is a frequent surgical emergency requiring urgent surgical exploration with a functional prognosis of the testis. Few studies on this subject are described in the literature. We report two rare cases of post-traumatic testicular torsion and discuss the diagnostic, therapeutic and prognostic profile with a review of the literature.

2. CASE PRESENTATION

2.1 Case

This is about an adolescent A.K., 18 years old, without any particular pathological history, victim of a scrotal trauma whose mechanism is a kick on the testicles (brawl) leading to a closed

trauma with the appearance of an atrocious pain which has motivated him to consult us for treatment. The patient was seen 2 hours after the occurrence of the trauma, the clinical examination found a conscious patient with a right testicle ascended to the inguinal ring (Image A), ecchymotic scrotum and a very intense pain on palpation. An ultrasound with color Doppler study was carried out in front of the traumatic context which had objectified a twisting spermaic (spiral twist) cord associated with hydrocele of low abundance (Image B). The patient was taken directly to the operating room after signing the consent for a risk of orchiectomy in case of a non-viable testicle. Surgical exploration found a reactive hydrocoele and a twisted spermatic cord with a viable testicle (Image C). An emergency detorsion was performed followed by orchidopexy. The postoperative following was simple.

2.2 Case

A 16 years old boy, without any particular pathological history, was consulting for a painful post-traumatic right scrotal swelling (after being kicked during a brawl) that has been evolving for 12 hours. No other associated signs. Clinical examination showed a patient conscious, with a right hemi -scrotum increased in volume, ascending, painful on palpation (Image 1). The right testicle is not palpable. The contralateral testis without any peculiarities. The ultrasound scan showed a ruptured albuginea with hydrocele (Image 2). The patient was taken directly to the operating room after signing the consent for a risk of orchiectomy in case of a non-viable testicle. Surgical exploration revealed a hematoma at the expense of the epididymis with the presence of a spiral twist at the level of the spermatic cord and a necrotic right testicle (Image 3). The procedure

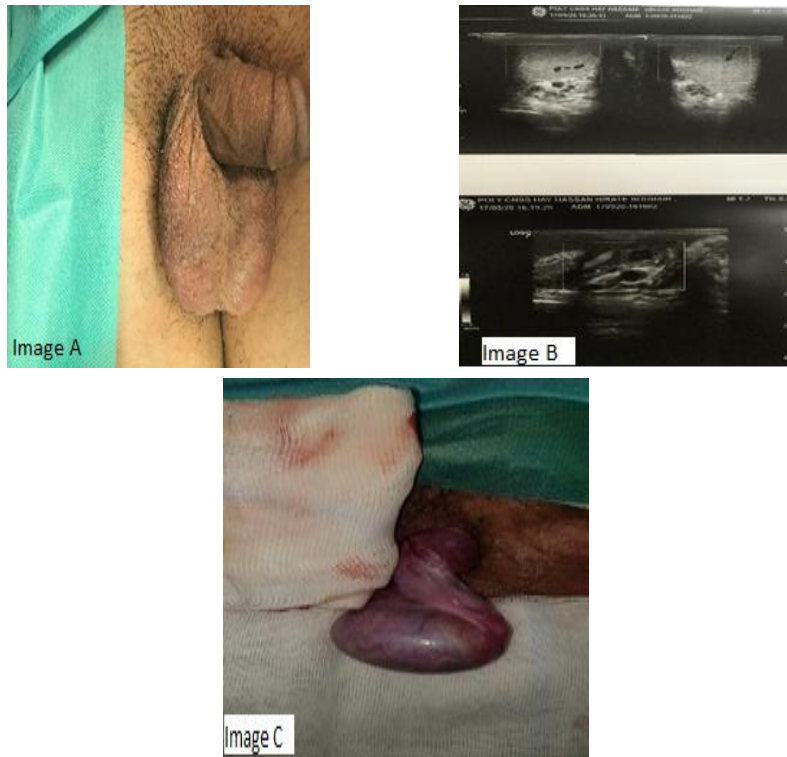


Image A. Swollen right hemi- scrotum with ascended testicle
Image B. Ultrasound with color Doppler study showing spiral twist of the spermatic cord.
Image C. A spiral twist of the spermatic cord with a viable testicle for surgical exploration

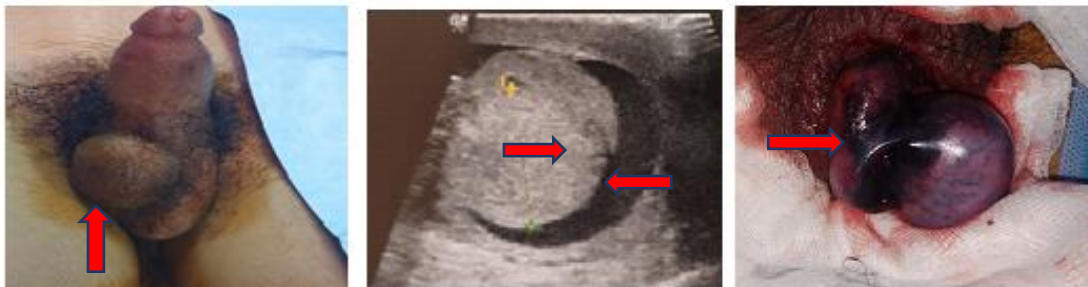


Image 1 **Image 2** **Image 3**

Image 1. Right hemi -scrotum increased in volume, ascending
Image 2. Ultrasound scan showed a ruptured albuginea with hydrocele
Image 3. Surgical exploration revealed a hematoma at the expense of the epididymis and a necrotic right testicle

consisted of detorsion and resuscitation with normal saline 0.9%. Despite the reanimation, the testicle kept the same aspect. An orchiectomy was performed.

3. DISCUSSION

Torsion is a twisting of the spermatic cord and its contents and is a surgical emergency, with an annual incidence of 3.8 per 100,000 males

younger than 18 years [6]. Spermatic cord torsion is the most common surgical emergency in urology and results in an orchiectomy rate of 42% in boys undergoing surgery for testicular torsion [7,8].

The age distribution of testicular torsion is bimodal, with one peak in the neonatal period and the second peak around puberty [9].

The symptoms and physical signs of torsion can be easily misunderstood and attributed to scrotal trauma if there is a prior traumatic context that distorts the diagnostic orientation towards spermatic cord torsion [2]. The most reported mechanism in the occurrence of torsion is spasm of the cremasterial muscle with vaginal involvement [10]. Although a few cases of extravaginal traumatic torsion have been reported, posttraumatic torsion is usually described as intravaginal in nature [11,12].

The bell-clapper deformity, in which there is abnormal fixation of the tunica vaginalis to the testicle, results in increased mobility of the testicle within the tunica vaginalis [13]. Twisting of the spermatic cord initially increases venous pressure and congestion, with subsequent decrease in arterial blood flow and ischemia [14]. However, where physical examination is equivocal, colour Doppler ultrasonography may be helpful in establishing the diagnosis if there is a history of trauma [15]. The immediate testicular survival rate and the subsequent testicular atrophy are directly related to the duration and the degree of the torsion [16]. Only 4% of testis are found to be non-viable in acute torsion of less than 12 hours duration compared with a 75% infarction rate if the history was greater than 12 hours [17]. Time therefore is of the greatest essence if the testis is to be saved. Recent reports suggest that most delays to testicular exploration occur because of late presentation to the hospital. In our case, there was not only a delay in presentation but the patient was also then discharged when the diagnosis of traumatic scrotal haematoma at the clinical examination was assumed and because of the history of trauma.

Diagnosis is usually made on clinical findings alone. There are many diseases which can mimic the symptoms. Testicular torsion is found in 10%–54% of the cases that present with an acute scrotum (Scrotal trauma) [18,19].

Testicular torsion, or twisting of the spermatic cord, implies first venous and later arterial flow obstruction. The extent of testicular ischemia will depend on the degree of twisting (180°–720°) and the duration of the torsion. ultrasonography may show a distinctive appearance with an initial homogenous decrease in the echogenicity of the testis associated with a normal epididymis. In later stages, heterogeneous echogenicity is seen, with anechoic and cystic areas representing hemorrhagic infarction and focal

tissue necrosis, respectively [20]. Unfortunately, grey-scale sonography cannot establish a 100% correct diagnosis either [21]. The reviewed literature indicates that if any uncertain finding is detected by an imaging technique, the patient must be converted to urgent surgical exploration [22].

Testicular salvage in torsion depends on timely presentation, diagnosis, and surgical intervention [23]. However, an unsalvageable and necrotic testis must be removed surgically.

Orchiectomy is the final option in the management of TT, but it is then a real exigency. Unfortunately, many patients are observed with late symptoms, presumably with little or no possibility of therapy [18]. In recent studies, orchiectomy was performed in 31.9%–41.9% of the cases of surgically treated testicular torsion [6]. In the 2nd case the procedure consisted of detorsion and resuscitation with normal saline 0.9%. Despite the reanimation, the testicle kept the same aspect. An orchiectomy was performed.

4. CONCLUSION

Post-traumatic testicular torsion is a described but little-known entity. The picture may be misleading but it should be mentioned in the face of any post-traumatic clinical suspicion. The preservation of the testicle depends on the duration of presentation and the rapidity of treatment.

The message is that the urological surgeon must keep in mind that scrotal trauma can lead to testicular torsion. So, consciousness and constant vigilance are required in order to avoid a catastrophic delay that can lead to an orchiectomy, which can have serious consequences.

CONSENT

As per university standard guideline, participant consent and preserved by the authors.

ETHICAL APPROVAL

Ethical approval have been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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