Traumatic Rupture Of Corpus Cavernosum (Fracture Of Penis): Diagnosis Based Upon Ultrasonography - A Case Report

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Abstract

Traumatic rupture of corpus callosum (“fracture” of penis): Diagnosis based upon ultrasonography – a case report
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ABSTRACT:
“Background”
Traumatic rupture of the corpus cavernosum (“fracture” of the penis) is a relatively rare event. Fracture of the penis may quite often be diagnosed based upon history and clinical examination but it is not always easy to confirm diagnosis of fracture of the penis based upon history and examination alone.

“Aim”: To report a case of penile fracture using sonographic aid to the diagnosis

“Case Report”
A 38-years-old man was admitted via the accident and emergency department with a history of a painful penile swelling. He was of the opinion that he either injured the penis whilst trying to stop his erection whilst half asleep or he might have bent his penis whilst asleep. He woke up and noticed he had swollen painful penis of sudden onset. He was asymptomatic otherwise. His general examination was unremarkable. A swelling with bruising was noticed mainly confined to the proximal/mid shaft of the penis on the dorsal aspect. Careful palpation of the penis did not reveal any step, rolling sign or localized tenderness in the area of the bruised shaft of penis. Ultrasound scan of the penis revealed a definite tear in the tunica albuginea and haematoma surrounding the tear and evidence of injury to the proximal corpus cavernosum on the ventral aspect of the proximal shaft of the penis. There was no flow in the corpora on Doppler scan. The urethra and corpus spongiosum were intact. The findings were diagnostic of fracture of the penis. A sub-coronal circumferential incision was used degloving the penis and a .1.5 cms tear was noticed in the tunica with surrounding hematoma on the ventral side. The hematoma was evacuated and the defect stitched with 3/0 prolene. The wound was stitched with vicryl. He made a good post-operative recovery and was discharged home the next day. Six weeks post-operatively he complained of pain/discomfort in the penis in what he felt was a scar deep in his penis.

Conclusion: Ultrasound scan is a useful diagnostic tool which can be used to confirm the diagnosis of fracture of the penis by revealing tunica tear, surrounding haematoma, injury to the corpus cavernosum; it also localizes the site of the tunica tear; and would then make it possible for the surgeon to confidently use a small non-degloving incision localised over the fracture site in order to avoid an extensive degloving incision.

Key Words: Penile fracture; Tunica albuginea tear; hematoma; ultrasound; sub-coronal incision; degloving;
the bruised shaft of penis. In view of this an ultrasound scan of penis was performed and this revealed: normal corpora cavernosa and normal corpus spongiosum in the distal penile shaft (see illustration 1 [figure 1]): a definite defect in the tunica albuginea in the ventral aspect of the right corpus cavernosum with evidence of injury to the right corpus cavernosum with haematoma within the right corpus cavernosum as well as haematoma surrounding the corpora; no evidence of any flow of blood in the corpora cavernosa (see illustration 2 [figure 2]). The ultrasound scan findings were considered to be diagnostic of “fracture” of the penis involving the proximal part (traumatic rupture of the corpus cavernosum).

By the time he was taken to theatre on the same day the bruising and the swelling of the penis had become circumferential involving the proximal / mid-shaft of the penis up to the top of the scrotum. Through a circumferential sub-coronal incision after catheterisation the patient’s penile shaft was degloved and a >1.5 cm defect was found in the corpus cavernosum on the right side on the ventral aspect and the urethra was intact. The defect was closed with 3/0 prolene. Artificial erection was done to confirm that the closure was watertight. Subcutaneous tissue was closed over the repaired site and the foreskin was stitched with 3/0 vicryl. His post-operative recovery was unremarkable and he was discharged home on the first post-operative day. Six weeks post-operatively even though his wound had healed he was complaining of pain/discomfort in his penis within what he felt was a scarred area deep inside his penis.

Discussion

“Fracture” of the penis is a misnomer which has been coined to describe traumatic rupture of the corpus cavernosum even though it is not a fracture.

It has been suggested that the diagnosis of “fracture” of the penis (rupture of tunica albuginea) can be made clinically on the basis of (a) the patient’s characteristic history of trauma followed by hearing a “crack” and feeling a popping sensation in the penis, accompanied by severe pain resulting in detumescence and rapid swelling and discoloration of the penis and upon (b) the findings on clinical examination [1] [2]. Thus the role of a radiologist may be generally limited to assessing the damage and localizing the tear in the tunica albuginea.

It has been stated that careful clinical examination (rolling sign) is used to accurately identify the fracture site in fractured penis [3]. It has also been suggested that careful clinical examination: consistently reveals a smooth, fixed, rounded, tender, palpable lump at the fracture site; and that it is more easily appreciated by rolling the swollen tissue and skin over it; it is invariably more tender than the surrounding areas; this is obviously quicker and less complicated than corpus cavernosography or ultrasound, which has been used to identify the fracture site [4] [5] [6] [7]. However, the diagnosis of fracture of the penis is not always clear cut using clinical signs. Before the advent of ultrasonography, voiding cystourethrography and corpus cavernosography were used to assess urethral and tunica albugineal tears respectively [1] [4] [7] [8] [9].

In 1983, Dierks and Hawkins [10] described the use of sonography for the preoperative demonstration of a penile hematoma caused by fracture of a corporeal body. They recommended that four areas should be examined: (1) the tunica albuginea, to look for tears; (2) the corpora cavernosa, for evidence of trauma; (3) the urethra and corpus spongiosum, to detect damage, and (4) the hematoma to determine its size.

The treatment of corpus cavernosal rupture (penile “fracture”) may be medical or surgical. Majority of urologists are of the opinion that primary surgical exploration, evacuation of hematoma and sutured repair of the torn tunica albuginea results in lessened short- and long-term morbidity, such as angulation of the penis or deformity [2] [11].

Numerous studies recommend early repair of a fractured penis. A number of surgeons use a circumferential incision degloving the penis to locate and repair the fracture [12].

In a large reported series Asgari and associates [13] made a circular subcoronal incision in all 68 patients and always found the tear in the proximal third of the corpus cavernosum. Because the tear is usually small and proximal, Naraynsingh and associates [3] are of the opinion that it is unnecessary to carry out the extensive dissection required by this distal subcoronal incision with the degloving technique if the rent can be approached directly. Naraynsingh and associates [3] argued that a circumferential sub-coronal incision must injure more blood vessels and nerves, traumatize more tissue, take longer to perform, and require more anaesthetic and sutures than a small incision directly over the fracture site. They therefore recommended simple direct approach to the fracture site via a small 2 cm incision under local anaesthesia.

In our case the history was suggestive of the
possibility of fracture of the penis but not accurate enough for a firm diagnosis of fracture of the penis. The clinical examination did not reveal a definite step or rolling sign. Ultrasound scan confirmed (a) a tear in the tunica albuginea, (b) injury to the corpus cavernosum, (c) presence of a haematoma (d) no Doppler flow in both corpora cavernosa (e) the exact location of the tear in the tunica tear, (f) the size of the hematoma, (g) absence of injury to the corpus spongiosum, (h) absence of injury to the urethra. In retrospect, it would be argued that perhaps if the ultrasound scan finding was taken into consideration and a local incision was used for the operation centred over the site of tear in the tunica, the post operative penile pain/discomfort would have been minimised.

Conclusion

Ultrasound scan of the penis is a useful diagnostic tool to confirm penile “fracture “, the site and size of the tear in the tunica as well as to confirm presence or absence of injury to the corpus spongiosum and urethra. The use of Doppler scan can also confirm or negate flow of blood in the corpora. Confirmation of the site of tunica tear would enable the radiologist mark out on the penile skin the exact position of the tear so that a surgeon who wants to use a simple direct approach to the fracture site via a small incision may know where to make his or her direct incision.

Authors contribution(s)

Dr N Desai established the diagnosis by means of ultrasound scan, A K-G Venyo wrote up the case after reviewing the ultrasound scan with Dr Desai. Both Authors agreed with the contents of the manuscript.

References

Illustrations

Illustration 1

Illustration 1: Ultrasound of distal part of penis showing intact tunica albuginea on right corpus carvenosum and on the left corpus cavernosum. The Corpus spongiosum is also intact

Illustration 2

Illustration 2: Ultrasound scan of proximal part of penis showing (a) a tear in the Tunica Albuginea on ventral aspect of the right corpus cavernosum with hematoma within and surrounding the right corpus cavernosum; (b) and hematoma surrounding right corpus cavernosum on dorsal aspect with intact tunica demonstrated as white line and normal intact tunica albuginea around the left corpus cavernosum with no tear.
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