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British Association of Urological Surgeons (BAUS) consensus document for the management of male genital emergencies – penile fracture

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Male genital emergencies relating to the penis and scrotum are rare and require prompt investigation and surgical intervention. Clinicians are often unfamiliar with the management of these conditions and may not work in a specialist centre with on-site expertise in genitourethral surgery. The aim of these consensus statements is to provide best practice guidance for urological surgeons based in the UK which are developed by an expert consensus. Penile fracture is a rare emergency and in most cases requires prompt exploration and repair to prevent erectile dysfunction and penile curvature.

Keywords

penile fracture, urethral injury, surgical exploration, haematuria, erectile, dysfunction

Introduction

Male genital emergencies relating to the penis and scrotum are rare and require prompt investigation and surgical intervention. Clinicians are often unfamiliar with the management of these conditions, and may not work in a specialist centre with on-site expertise in genitourethral surgery readily available. As a consequence of a previous consultation relating to the management of urological injuries following pelvic trauma, the BAUS Section of Andrology and Genitourethral Surgery (AGUS) decided to develop a series of consensus statements for genital emergencies that would provide a resource for clinicians to help manage these emergencies in an appropriate and safe manner, and within the framework of the UK healthcare system.

Methods

The BAUS AGUS Executive Committee is an elected group of experts in the field of andrology. The committee formatted a series of consensus statements relating to genital emergencies that were to be used by clinicians within the UK. As the conditions are rare and unsuitable for randomised trials, a meta-analysis was not deemed to be suitable and the recommendations were therefore developed by an expert consensus, existing guidelines from the European Association of Urology (EAU) and American Urological Association (AUA), UK best practice, and data from large case series (Level 4 Evidence, Oxford Centre for Evidence-Based Medicine)

A meeting was convened in January 2017 whereby urological surgeons based in urology units allied to UK trauma centres, as well as those offering a specialist andrology service, were invited to a joint meeting with the BAUS AGUS Executive Committee to discuss the proposed consensus statements, which were then modified to reflect urological practice in specialist and non-specialist centres.

The final statements were then sent to all the members of BAUS Council, comprising 36 members, for final approval. The final consensus statements were then modified based on the feedback followed by a final BAUS AGUS approval.

The consensus statements provide guidance for the management of four conditions: priapism, penile fracture,

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penile amputation, and testicular trauma. Each one will be published separately.

Background

Penile fracture is a genitourethral emergency secondary to rupture of the tunica albuginea during an erection. It can be associated with a urethral injury in approximately 25% of cases.

Presentation

Penile fracture needs to be distinguished from other similar injuries including:

- Superficial vein rupture/superficial haematoma.
- Suspensory ligament rupture.

The usual mechanism of penile fracture is buckling during vigorous sexual intercourse, when the penis slips out and impacts against the pubic bone or perineum. Blunt trauma to the flaccid penis does not usually result in tunical rupture.

It can also occur following:

- Masturbation.
- Self-inflicted, as a result of bending the erect penis to produce immediate detumescence.

Assessment

The patient history specifically detailing the mechanism of injury usually confirms the diagnosis of a penile fracture.

The classic presentation for a penile fracture includes:

- Sudden severe penile pain.
- A simultaneous 'cracking' or 'popping' sound.
- Immediate detumescence and the inability to carry on with sexual intercourse.
- Gross swelling and haematoma of the penis ('Aubergine sign' or 'Eggplant sign').
- However, not all of these features need to be present in order to make a diagnosis of penile fracture.

Examination

- The penis is swollen often with severe bruising.
- The bruising is limited to the penis if Buck's fascia is intact. It may extend to the scrotum, perineum and lower abdominal wall if Buck's fascia is breached.
- A tender, palpable defect may be felt over the ruptured area of the tunica albuginea.
- The commonest site of injury is ventro-lateral, as this is where the tunica albuginea is thinnest.
- There may be blood at the urethral meatus, haematuria, pain on voiding, or urinary retention if the urethra is also injured.

BAUS Recommendation

The history and clinical examination should confirm the diagnosis and exclude other similar presentations.

Investigation

Ultrasonography of the penis (without an artificial erection) may help identify both the location and extent of the tunical rupture.

It is important to ask the radiologist to mark the site if it can be identified. This can help with planning the surgical approach.

Where there is a diagnostic doubt, penile MRI may aid the clinical diagnosis.

BAUS Recommendation

Ultrasonography can confirm the diagnosis and locate the tunical tear, which aids planning the surgical approach.

Management of Penile Fracture

Once the diagnosis has been made, urgent exploration and repair of the tunica albuginea is required to prevent later penile curvature and erectile dysfunction. This can still be performed in delayed presentations for up to 1 week after the injury or even later if there is an associated urethral injury. Repairs should be performed within 24 h provided there is no concomitant urethral injury, in which case it should be performed as soon as possible.

If the site of the fracture has been identified in the region of the base of the penis, a midline penoscrotal incision can be used that avoids the need for penile de-gloving and circumcision.

Tunical ruptures on the distal penile shaft can be managed by degloving the penis or using an incision directly over the site of the penile fracture.

Surgical repair (as compared to conservative management) of penile fracture reduces the incidence of fibrosis and penile curvature from 35 to 5%, and erectile dysfunction from 62 to 5%.

BAUS Recommendation

Urgent surgical exploration and repair of the tunica albuginea rupture and urethral injury should be performed within 24 h or sooner if there is an associated urethral injury.

Technical Points for Surgical Management

- Broad spectrum antibiotics should be given preoperatively.

- The preferred incision is penoscrotal unless the site of the defect is unknown or suspected to be in the distal penile shaft, in which case a de-gloving incision may be required. Once exposed, the site of the tunical injury will typically be identifiable by the presence of an overlying haematoma.
- The haematoma is evacuated and the extent of the fracture clearly identified, which occasionally can extend under the urethra.
- The defect should then be repaired using interrupted 0 or 2/0 polydioxanone (PDS) sutures with the knots buried. A pair of stay sutures applied to the lateral margins can help with the repair.
- If a urethral injury is suspected then an on-table urethrogram should be performed, or diluted methylene blue inserted into the urethra once the urethra is exposed.
- If there is no urethral injury, a Foley catheter can be inserted.
- If a urethral injury is identified, the urethral edges should be exposed and repaired in two layers where possible using 5/0 polyglactin sutures. A Foley catheter should be left *in situ* for 14 days and a peri-catheter urethrogram performed before removing the catheter.

Postoperative Follow-up

- Patients should be followed-up after 2 weeks and refrain from sexual intercourse for 6 weeks.
- Development of postoperative penile curvature should be managed using the same management pathway as for Peyronie's disease.
- Postoperative erectile dysfunction can be treated with oral pharmacotherapies, followed by intracavernosal/intraurethral prostaglandin, and finally a penile prosthesis for those with end-stage erectile dysfunction.

Indications for Referral to Specialist Units

- Most penile fractures can be treated in local urology departments.
- Fractures with severe urethral disruption should be referred to specialist centres.
- Postoperative penile curvature and end-stage erectile dysfunction should be referred to a specialist unit for further management.

Conflict of Interest

None.

Appendix 1

Consensus Committee: BAUS Section of Andrology and Genitourethral Surgery Executive Committee. Additional members: Alvaro Bazo – Nottingham University Hospitals NHS Trust. Suzanne Biers – Cambridge University Hospitals NHS Foundation Trust. Roland Donat – Western General Hospital. Ahsanul Haq – Lancashire Teaching Hospital NHS Foundation Trust. Oliver Kayes – Leeds Teaching Hospitals NHS Trust. Raj Nigam – Royal Surrey County Hospital. Raj Persad – University Hospitals Bristol NHS Foundation Trust. David Ralph – University College London Hospital NHS Trust.

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Abbreviation: AGUS, Andrology and Genitourethral Surgery.