Emergent treatment of active and delayed massive bleeding in a male with penetrating urethral trauma

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ABSTRACT

We have a case with penetrating urethral trauma which presented with emergent and delayed uncontrolled urethral massive hemorrhage. On angiography, pseudo aneurysm arising from right bulbourethral artery with active urethral extravasation that was managed with coil embolization. Also this report explains a new method implemented on the case to control massive urethral bleeding due to perineal trauma, which hasn’t got complete response to standard management. According to the safety and efficiency of this method in controlling bleeding in this patient, it seems this new technique should be considered in cases with unresponsive massive hemorrhage to routine management.

Introduction

Compression of the bleeding site is known as the commonly used method to control bleeding. For urethral bleeding applying continuous pressure on the perineum and penile urethral compression are recommended, however, the location of posterior urethra in the perineum makes it difficult to have effective pressure on it.

Uncontrolled urethral hemorrhage is a rare complication which can present either as immediate or delayed. Such injuries can be managed conservatively in most patient. The novel management of uncontrolled traumatic posterior urethral bleeding is to insert an indwelling catheter in to hemorrhagic space; however, this way is for emergent control and it may require interventional management for final treatment. Such patients usually have underlying pseudo aneurysm or arteriovenous fistula.

Case report

A 20-year-old male referred to the emergency of Sina hospital, following penetrating perineal trauma due to falling (Fig. 1), with acute and active bleeding of the external urethral meatus. Urethral catheterization was failed due to complete urethral disruption and urinary diversion was established by suprapubic cystostomy under USG guidance. The external penetrated perineal injuries was managed in surgical consult and primary bleeding was difficultly controlled with pressure on the perineum and cold packing on the perineum and intermittent penile urethral compression.

Emergency dynamic retrograde urethrography was performed which present Complete disruption of posterior urethra with extravasation. (Fig. 2).

The patient was advised to have routine follow up for delayed repair according EAU Guideline’s recommendation.

2 weeks later, the patient presented in the emergency with history of intermittent and extensive bleeding per urethra. Doppler USG show no pseudo aneurysm. Initially, the patient was managed conservatively with manual compression. Bleeding could not be controlled and patient continued to have urethral bleeding and manual pressure on the perineum and penile compression were not effective in controlling condition. so we insert a urethral 14 Fr catheter in to ruptured space of urethra and inflate the balloon up to 8mL and bleeding stopped. Closed monitoring for prevention of ischemia was performed. The glans of the penis was examined every 15 minutes for the 6 hours and then every 1hour till angiography, and no ischemia occurred.

Then angiography was planned to identify the bleeding source. Selective DSA of internal pudendal artery was performed which show a pseudo aneurysm from left bulbourethral artery with active contrast extravasations into the anterior urethra (Fig. 3a). The bulbourethral artery was super selectively accessed with micro catheter, and coil embolization was performed (Fig. 3b) which resulted in control of urethral bleeding. Patient was observed for any recurrent bleeding for 7 days and was discharged thereafter. The patient is planned for an end-to-end anastomotic urethroplasty by for proximal

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bulbomembranous urethral injury after 2 months.

Discussion

Urethral injuries result from multiple mechanisms including blunt and penetrating perineal trauma or iatrogenic injury due to instrumentation.

Although hematuria following urethral injury is a common presentation, uncontrolled urethral hemorrhage is very rare. The development of pseudo aneurysm from pelvic vessels following trauma is a rare complication. For rare cases that bleeding is uncontrolled trans arterial embolization can be attempted. This management in refractory hematuria is not much described in literatures, because that most of cases can be managed conservatively either by manual compression or by electrofulguration. Our patient also presented with uncontrolled bleeding per urethra, and imaging showed pseudoaneurysm from bulbourethral artery with active extravasation into the anterior urethra that was successfully embolized with micro coil. And he responded to embolization without any ischemic complication due to rich collateral circulation through contralateral pudendal artery and super selective embolization.

Trans arterial embolization is a viable treatment option in case of intermittent bleeding due to urethral trauma where conservative treatment is unresponsive. Also inserting a urethral catheter in to traumatic space and inflating the balloon for reach to enough compressing and bleeding control could be an effective emergent management.

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