



Bilateral internal pudendal artery-urethral fistula formation by pseudoaneurysm

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Posttraumatic fistula between the internal pudendal artery and urethra is rarely reported in the literature. We report a case of bilateral internal pudendal artery-urethral fistula formation by pseudoaneurysm, following a blunt pelvic trauma in which superselective angiography revealed the site of bleeding. The fistula was treated with superselective arterial embolization.

Keywords: Fistula; internal pudendal artery; pseudoaneurysm; trauma; urethra.

Posttraumatic fistula of the internal pudendal artery-urethra is rarely reported in the literature. They often accompany pubic fractures or symphysis pubis diastasis.^[1,2] Diagnosis is often delayed because patients are frequently misdiagnosed initially.

We report a case of bilateral internal pudendal artery-urethral fistula formation by pseudoaneurysm, following blunt pelvic trauma.

Case report

A 49-year-old male suffered an accident in which his hip was compressed by an electric car. Following this trauma, massive bleeding was intermittently observed from his urethra. Initial evaluation at the time of injury revealed tenderness in the lower abdomen, the symphysis pubis, and the left hip. Pelvic X-ray examination showed fractures of the right superior ramus and inferior ramus of the pubis, as well as the left femoral intertrochanter. The patient was suspected of suffering a posterior ure-

thral injury and underwent a paracentetic suprapubic cystostomy. Although gross hemorrhaging subsided following the cystostomy, there was continued bleeding that required transfusion of 10 units of blood. After 2 days, the patient was transferred to our hospital for further treatment.

A contrast-enhanced computed tomography (CT) scan was performed to further evaluate these findings. CT imaging showed active extravasation of contrast material into a hematoma-like lesion in the posterior urethra and to the left of the bladder (Figure 1). Emergent angiography was performed via a right femoral arterial approach. Bilateral internal pudendal arteriography revealed clear extravasation of contrast material. Selective arteriography confirmed the CT findings and showed a pseudoaneurysm originating from 2 terminal branches of the bilateral internal pudendal artery. No definite extravasation of blood into the urethra was observed at this time. Superselective catheterizations of the bilateral internal pudendal arteries and embolizations were later

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Submitted: August 17, 2013 **Accepted:** May 4, 2014

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Available online at
www.aott.org.tr
doi: 10.3944/AOTT.2015.13.0037
QR (Quick Response) Code





Fig. 1. Contrast-enhanced CT shows contrast medium into a hematoma-like lesion in the posterior urethra (arrow).

performed by deploying metallic microcoils (Figures 2a–d, 3). Extravasation disappeared on subsequent angiography. The urethral hemorrhage did not recur following embolization.

After 15 days of embolization, the patient was examined with cystoscope to visualize posterior urethral injury, at which time the urethra appeared to be normal and non-gaping. The patient then showed normal urinary function. He did not report erectile dysfunction. At 2 years follow-up from his initial injury, the patient reported firm, normal erections and normal urination.

Discussion

Arterial hemorrhage is one of the most serious problems associated with pelvic fracture. Multidetector-row CT provides diagnostic information regarding the presence of minor pelvic fractures. In addition, the presence of contrast material extravasation is an indicator of injury to a specific artery passing through the region of the pelvis.^[3]

We conducted an extensive search in MEDLINE of articles using the keywords “internal pudendal artery”

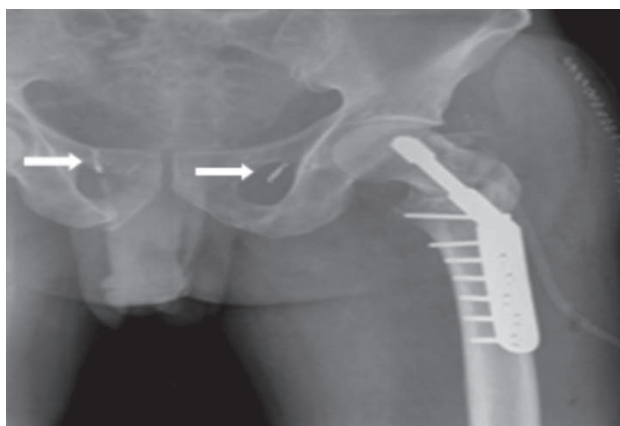


Fig. 3. Bilateral internal pudendal arteries were embolized with metallic microcoils (8 days postembolization, arrows) after the patient had already undergone internal fixation for the left intertrochanter fracture.

and “urethral fistula.” We only found 6 case reports from 1995–2012.

Data regarding the patients’ age, sex, side of injury, cause of injury, treatment, and outcome were extracted.^[1,2,4–7] The patient group consisted of 5 male and 1 female patient with an age range from 7–74 years (mean age: 31 years). The fistula of the internal pudendal artery-urethra was on the right side in 3 cases and on the left side in 3. This is the first bilateral internal pudendal artery-urethral fistula to be reported in the literature. We postulated that such damage might be related to bilateral violence after crush injury. The cause was related to trauma, except in 1 case that was due to longstanding ureteral stenting. All patients were treated with arterial embolization, to which they responded well.

The unusual feature of the internal pudendal arterial urethral fistula was the delayed presentation, causing bleeding through the urethra 25 days postinjury. In 2007,

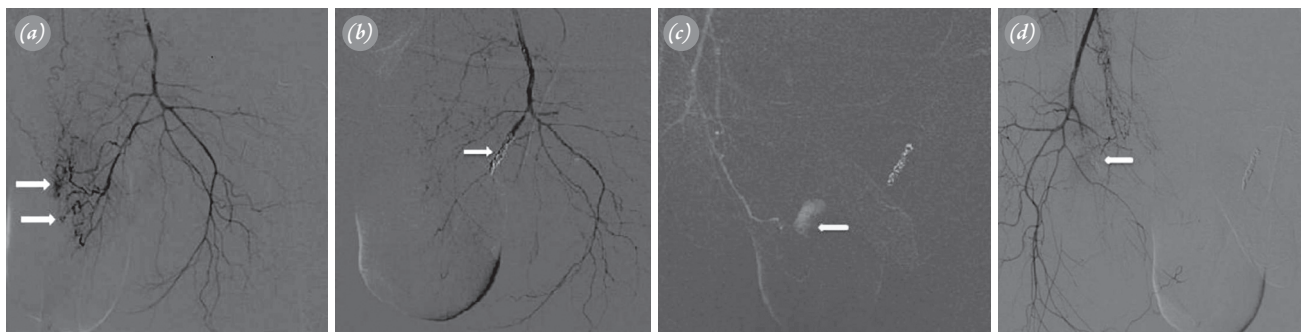


Fig. 2. Polytrauma patient with injury of distal branches of the bilateral internal pudendal arteries. **(a)** Arteriogram reveals extravasation of contrast material from the distal branches of the left internal pudendal artery (arrows); **(b)** Left internal pudendal arteriogram after embolization shows no further extravasation of contrast material (arrow); **(c)** Arteriogram reveals extravasation of contrast material from the distal branches of the right internal pudendal artery (arrow); **(d)** Right internal pudendal arteriogram after embolization shows no further extravasation of contrast material (arrow).

Kondo et al. reported a patient with high-flow priapism due to urethral trauma caused by a misplaced Foley catheter. [1,4,8] Treatment consisted of superselective arterial embolization of the bilateral internal pudendal arteries using metallic microcoils, which resulted in the subsequent detumescence of the penis with no complications.

In conclusion, internal pudendal artery-urethral fistula is a rare condition. However, superselective arterial embolization is an effective treatment.

Conflicts of Interest: No conflicts declared.

References

1. Mitropoulos D, Pappas P, Banias C, Leonardou P, Alamanis C, Giannopoulos A. Delayed presentation of posttraumatic internal pudendal artery-urethral fistula treated by selective embolization. *J Trauma* 2007;63:1388–90.
2. Monga M, Puyau FA, Hellstrom WJ. Posttraumatic high flow internal pudendal artery-urethral fistula. *J Urol* 1995;153(3 Pt 1):734–6.
3. Pinto A, Niola R, Tortora G, Ponticiello G, Russo G, Di Nuzzo L, et al. Role of multidetector-row CT in assessing the source of arterial haemorrhage in patients with pelvic vascular trauma. Comparison with angiography. *Radiol Med* 2010;115:648–67.
4. Borgaonkar SS, Dux A. Delayed presentation of post-traumatic internal pudendal arterial-urethral fistula, with successful embolization as therapy. *Br J Urol* 1997;79:486–7.
5. Bapuraj JR, Sridhar S, Sharma SK, Suri S. Endovascular treatment of a distal urethral-internal pudendal artery fistula complicating internal optical urethrotomy of a post-traumatic urethral stricture. *BJU Int* 1999;83:353–4.
6. Yekeler E, Ziylan O, Erol B, Numan F, Ander H. Pseudoaneurysm of the bulbourethral branch of the internal pudendal artery presenting as a urethral pseudodiverticulum in a child. *Pediatr Radiol* 2004;34:435–7.
7. Yuki H, Takayama Y, Takuma M, Takahashi M, Ando T, Sumino Y, et al. Uretero-internal pudendal artery fistula with longterm indwelling of ureteral stent: a case report. *Case Rep Med* 2012;2012:817942.
8. Kondo H, Yamada T, Kanematsu M, Kako N, Goshima S, Yamamoto N. Embolization for massive urethral hemorrhage. *Abdom Imaging* 2007;32:262–3.