

# SUPER SELECTIVE EMBOLIZATION FOR TREATMENT OF POST-TRAUMATIC HIGH FLOW PRIAPISM IN A CHILD: A CASE REPORT

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## Brief description of the case:

This is an uncommon case of arterio-cavernosal fistula post-falling astride in a 6-year-old child leading to priapism. It was successfully treated with super-selective embolization after failure of conservative treatment. At follow-up, the Patient was free of any episodes of priapism with no symptoms of erectile dysfunction or any complications.

## INTRODUCTION

High flow priapism is relatively uncommon. It can occur after perineal trauma leading to an arterio-cavernosal fistula. Patients usually present with persistent erection of the penis with mild pain.<sup>1</sup> Diagnosis of high flow priapism needs obtaining an accurate history from the patient focusing on genitoperineal trauma. Physical examination usually shows a partially erect penis, mild or no pain, and possible bruising and tenderness at the site of trauma. In addition, analysis of corporeal blood gas and color doppler ultrasonography (CDUS) are recommended to differentiate between high-flow and low-flow priapism.<sup>2</sup> Management of high-flow priapism consists of conservative treatment, including ice compression, and NSAIDs. When conservative treatments fail, options include both surgery and endovascular embolization. The aim of management is to achieve detumescence while preserving erection.<sup>3</sup>

## CASE PRESENTATION

A 9-year-old boy presented with painless persistent penile erection for 5 days post falling astride. Physical examination revealed fully erected penis with mild discomfort. He reported no history of urethral bleeding and examination of testicles, scrotum and

perineal areas was normal. Laboratory tests including peripheral blood smear, complete blood count, urine analysis, coagulation profile, renal and liver function tests were normal. Erection persisted despite being on conservative treatment in the form of compression and ice packs. CDUS was uneventful so, he underwent Magnetic resonance angiography (MRA) of pelvic and penile vessels which revealed hypointense focus at the right cavernosal tissue at T2 weighted image which exhibited intense post arterial enhancement suggesting right arterial internal pudendal-cavernosal fistula (Figure 1). The decision was taken by urology and interventional radiology team to proceed for embolization. Selective catheterization of the right internal pudendal artery and diagnostic angiography was done and revealed right arterial internal pudendal-cavernosal fistula. Super-selective catheterization and embolization of the feeding artery was carried out using microcoils. Diagnostic angiography following embolization showed no filling of previously mentioned fistula (Figure 2).

The following day, erection was almost resolved, the patient reported no symptoms. No re-intervention was needed. After one week, examination showed normal penis, no pain or any other symptoms were reported. CDUS was done and showed normal cavernosal artery perfusion with normal flow velocities. Peak systolic velocity (PSV) was 33.5 cm/s and end diastolic velocity (EDV) was 1.66 cm/s after injection Prostaglandin E1 (PGE1) (Figure 3).

After six years, the patient was followed up at outpatient clinic and reported no recurrence of episodes with good erectile function.

## SUPER SELECTIVE EMBOLIZATION OF HIGH FLOW PRIAPISM

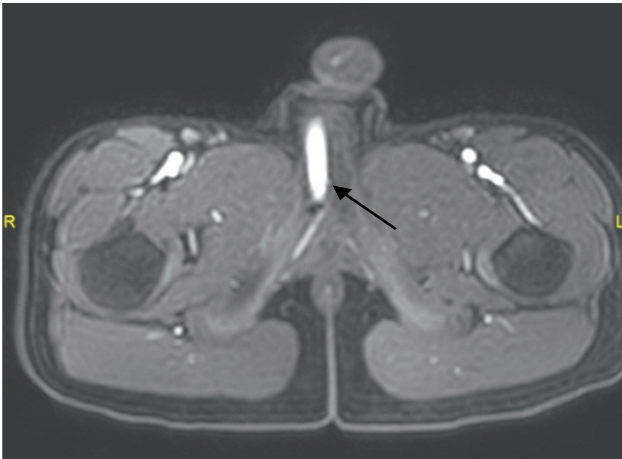


Figure 1A: Right arterial internal pudendal-cavernosal fistula.

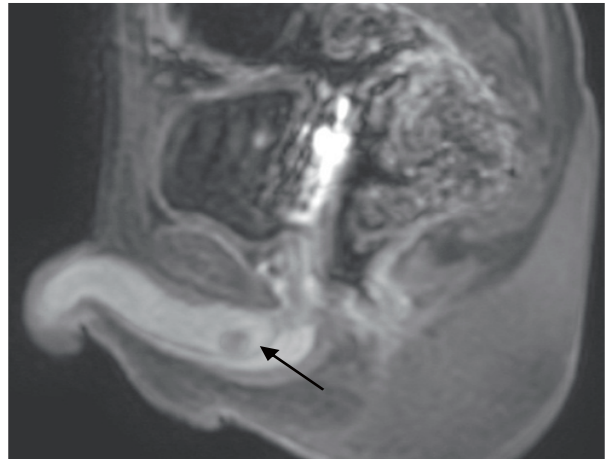


Figure 1B: Hypointense focus at the right cavernosal tissue

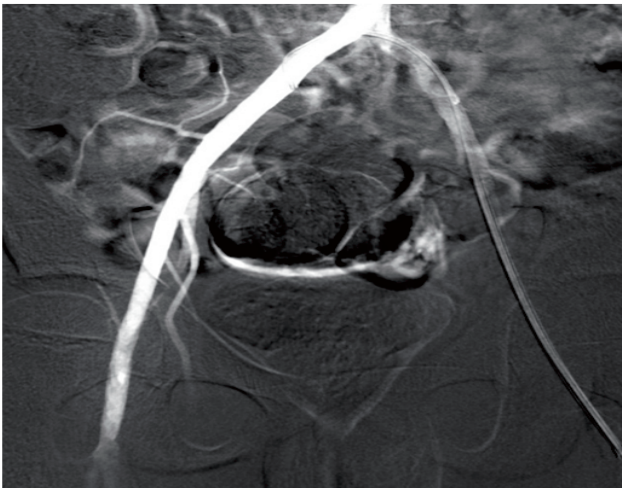


Figure 2A: Left femoral catheterization.

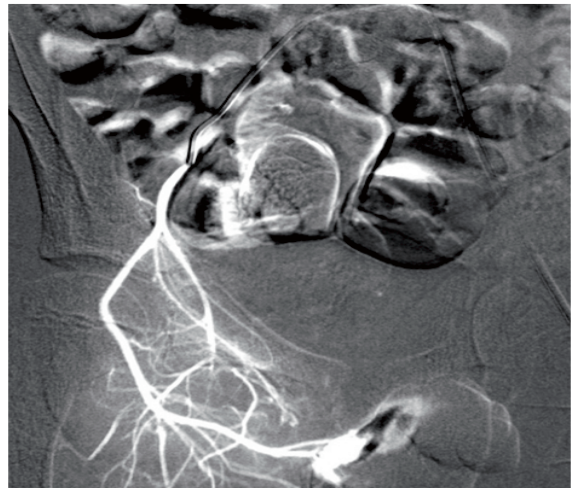


Figure 2B: Super-selective catheterization of feeding artery revealing fistula.

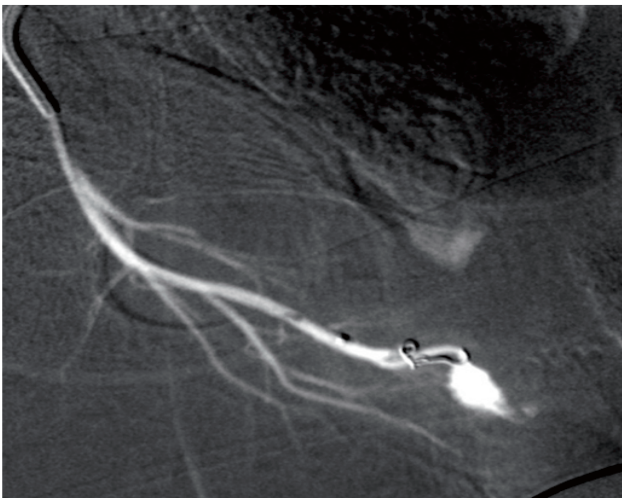


Figure 2C: Embolization of the feeding artery was carried out using microcoils.

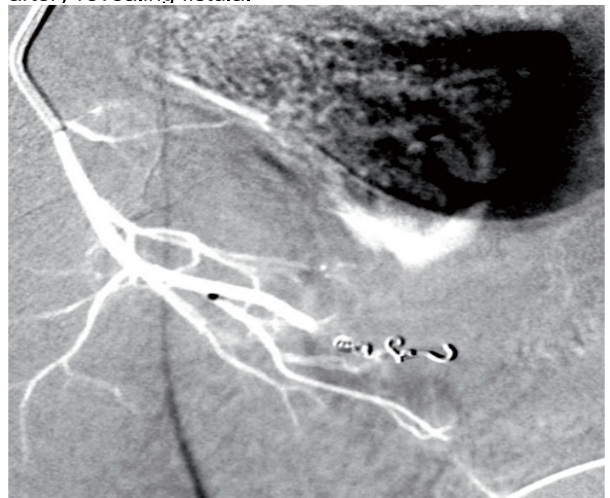


Figure 2D: Diagnostic angiography following embolization revealing no filling fistula.

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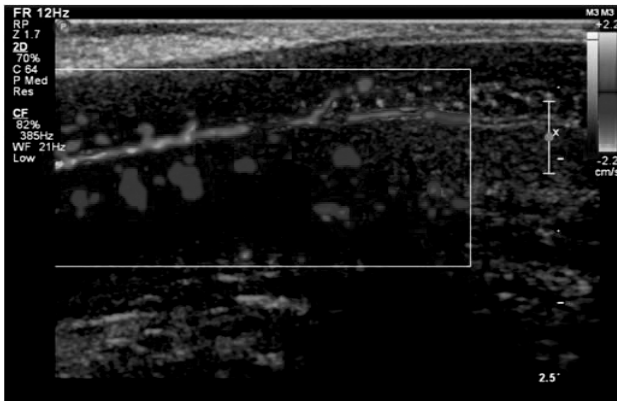


Figure 3A: Normal cavernosal artery perfusion with normal flow velocities.

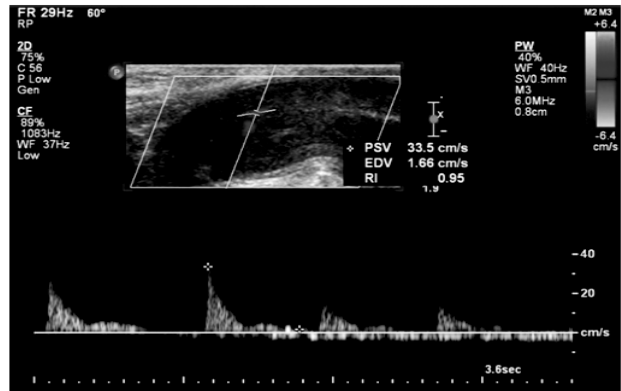


Figure 3B: Normal ranges of PSV and EDV of cavernosal artery after injection of PGE1.

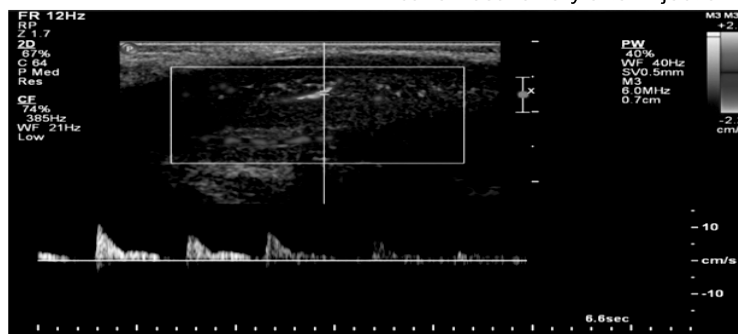


Figure 3C: Normal velocity ranges and waveforms at the flaccid state.

## DISCUSSION

Blunt perineal or penile trauma leading to laceration and abnormal arterio-cavernosal communication is the main cause of high-flow priapism. Internal pudendal artery or its branches are the site of 99% of all fistulas.<sup>4</sup> Diagnosis usually depends on history, examination, and color doppler ultrasonography. Although CDUS can show flow patterns of priapism accurately, MRA can better delineate tissue and show the presence of arterio-cavernosal fistula.<sup>5</sup> In our case, CDUS was not able to detect the fistula and MRA was mandatory.

High flow priapism has been resolved spontaneously in many cases,<sup>6</sup> and conservative treatment in the form of observation, compression or anti-inflammatory drugs is usually the first line for management.<sup>7</sup> If priapism persists for more than 24 hours, both surgery and endovascular embolization are feasible, but outcomes can differ. Surgically treated patients by ligation of internal pudendal artery or its branches can be successful for treatment but with less potency rates than super-selective embolization.<sup>8</sup>

Super-selective embolization is a minimally invasive approach with reported detumescence of near 100% of patients and recurrence rate of 6.3%.<sup>9</sup> It can be successfully used in the embolization of fistula with the advantage of preserving erectile function in the majority of patients.<sup>10</sup>

In our case, conservative treatment was not successful, and a selective arterial embolization was done leading to resolution of erection with satisfactory outcomes.

## CONCLUSION

High flow priapism is not a urological emergency and conservative treatment must be the first option for management. In those who fail to improve, selective arterial embolization is recommended due to high success rate with preservation of erection in most cases.

## CONSENT

We obtained consent from the patient for publication. It is available upon request.

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