

Case Report

Pelvic Arteriovenous Malformation (AVM) in Male Patient Presented as Perineal Pain: A Case Report and Review of Literature

Fang-Yu Ku, MD¹; Chun-Yu Lin, MD²; Hsiao-Yu Lin, MD^{1*}

¹Department of Urology, Taipei Medical University Hospital, Taipei 11031, Taiwan

²Department of Medical imaging, Taipei Medical University Hospital, Taipei 11031, Taiwan

*Corresponding author

Hsiao-Yu Lin, MD

Department of Urology, Taipei Medical University Hospital, No. 252, Wu-Hsing St., Taipei 11031, Taiwan; Tel. 02-27372181 ext. 8265

E-mail: b101095099@tmu.edu.tw

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ABSTRACT

Pelvic arteriovenous malformations (AVM) of the pelvis are rare diseases and difficult to treat due to complex pelvic anatomy and extensive feeding vessel. Diagnosis of pelvic AVM relies on transrectal ultrasound (TRUS) and digital rectal examination as initial survey and computed tomography (CT) as secondary evaluation. Treatment options include surgical resection and embolization. We reported as 41-year-old male patient with congenital pelvic AVM that presented as perineal pain. TRUS revealed hypoechoic lesion with turbulent blood flow. CT demonstrated engorged vessel and angiography suggested high flow AVM with feeding artery from the right internal pudendal artery. Congenital pelvic AVM was diagnosed, but the patient refused treatment and requested clinical follow-up.

Keywords

Pelvic; Arteriovenous malformations (AVMs); Pelvis; Transrectal ultrasound (TRUS); Perineal pain.

Abbreviations

AVMs: Arteriovenous Malformations; TRUS: Transrectal Ultrasound; CT: Computed tomography.

INTRODUCTION

Arteriovenous malformations (AVMs) are abnormal shunting between arteries and veins. It occurs mostly in head, neck, and lung. On the other hand, pelvic AVM is relatively rare, especially in male patients. The symptom of pelvic AVM in man varied among patients, and there is no sufficient evidence to guide the diagnosis and treatment. Transrectal ultrasonography is used in the routine evaluation of prostate enlargement and could also be utilized to rule out the disease. The usefulness of computed tomography (CT) and angiography for in-depth evaluation of AVM has been recognized.¹ Treatment choices include surgical resection and selective embolization. However, there is no evidence to support the superiority of one over another. We presented a male patient with

congenital pelvic AVM who complaint about perineal pain. We also discuss the use of image studies to evaluate the disease and the selection of different treatment choices.

CASE REPORT

A 41-year-old male patient came to our office complaining about intermittent dull pain on perineum for six months. He denied any lower urinary tract symptoms, trauma, urological history or systemic disease. Physical examination and laboratory studies were unremarkable. Digital rectal examination revealed elastic prostate without the sign of inflammation. The serum prostate-specific antigen level was 1.4 ng/ml. Transrectal ultrasound (TRUS) showed prostate size 31.87 ml with two hypoechoic lesions were identi-

fied adjacent to the prostate. Colour Doppler ultrasound suggested turbulent flow within the lesion (Figure 1). We suspect the lesions were dilated vessels and arranged a pelvic CT.

CT revealed a large aneurysm located on right side of the pelvis with connections from the right internal pudendal artery. The nidus size was 4.5 cm in long axis. (Figures 2 and 3). Selective pelvic angiography later revealed a high flow AVM with feeding artery from the right internal pudendal artery and multiple engorged drainage veins. The final diagnosis was congenital pelvic AVM. At the patient's demand, we monitored his symptom without further treatment.

DISCUSSION

AVM is an abnormal connection between arteries and veins without interconnecting capillary beds. The cause of AVM can be divided into acquired and congenital. The acquired AVMs are often caused by trauma or surgical complications, and congenital AVMs are the result of embryonic vascular malformation.² AVM occurred most frequently in brain, neck, and lung. Pelvic AVMs are

relatively scarce in male patients.

There are no particular symptom or signs that are indicative of pelvic AVM in the male. The symptom could vary from asymptomatic to life threatening one, such as painless gross hematuria,³ hematospermia,⁴ difficult voiding,^{1,3} urinary retention⁵ and massive bleeding during transurethral resection of the prostate.⁶ In our case, the patient presented with perineal pain and prostatitis was suspected initially. The AVM than was discovered in the routine TRUS. It is likely the cause of his symptoms considering that the AVM is located next to the prostate.

Contrast-enhanced CT of the pelvis is a valuable tool for evaluation of pelvic AVMs. It is non-invasive, with limited exposure to radiation and can exclude other causes of patient's symptom. With three-dimensional reconstruction, the anatomy of AVMs and adjacent organs can be easily recognized which facilitates surgical planning and clinical monitoring. Selective angiography of AVM is, on the other hand, invasive but more information could be obtained, including extension, multiplicity, and flow velocity of feeders. Moreover, embolization could be performed simultaneously.

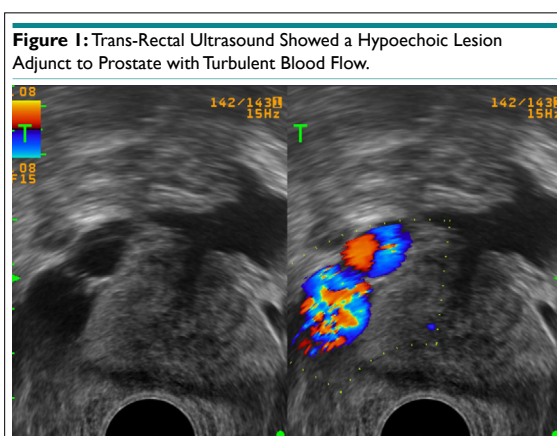


Figure 2: Computed Tomography (CT) Suggested Arteriovenous Malformation (AVM) Originated from Right Internal Pudendal Artery (Arrow Head) with Nidus 4.5 cm and Presenting as a Sponge-like Lesion under CT. (Thick Arrow) Dilated and Tortuous Drainage Vein could be seen Connected to the AVM (Thin Arrow).

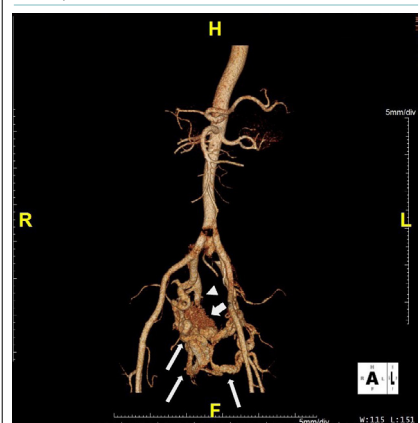
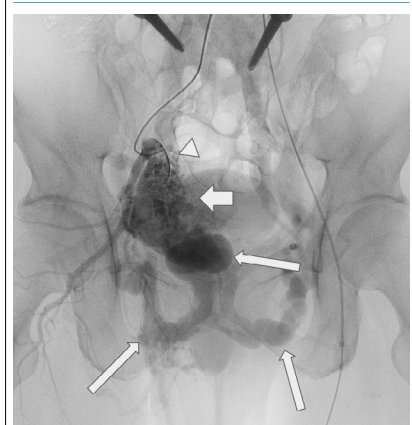


Figure 3: Angiography of Pelvic Arteriovenous Malformation (AVM) Demonstrated an Area with Sponge-like Enhancement (Thick Arrow). Feeding Artery from Right Internal Iliac Artery Suggested being Pudendal Artery (Arrow Head). Multiple Drainage Veins were also Visualized (Thin Arrow).



However, these examinations might be too expensive as the initial evaluation. TRUS is perhaps the most cost-effective tool for initial diagnosis of a pelvic AVM.

There is no sufficient evidence to guide the choice of treatment, and it has been proposed that asymptomatic or mildly symptomatic patients should not be treated.² On the other hand, it is a clinical dilemma to make the best treatment choices from surgery or embolization for symptomatic patients. In the past, surgical ligation of inflow artery and excision of nidus was the mainstay of treatment, yet due to the complexity of pelvic anatomy, complete resection of nidus is difficult, and new collaterals developed promptly.² After transcatheter arterial embolization being introduced, many cases received embolization as primary treatment. Intra-arterial embolization with the metal coil, N-butyl-2-cyanoacrylate or ethanol⁷ is widely accepted. Despite the fact that embolization is efficient in providing symptomatic relief, it is not without recurrence.² Multiple therapeutic interventions might be required, and thus the risk of radiation-induced injuries should be noticed. To overcome the disadvantage of surgery and embolization, Houbballah et al⁸ proposed using preoperative intravenous embolization. No recurrence was identified from seven patients receiving the treatment with a mean follow-up of 7 years, but it still requires more evidence to support this therapy.

CONCLUSION

In conclusion, pelvic AVMs are relatively rare, and symptom varies widely. TRUS and digital rectal examination are valuable tools as initial survey if an AVM is suspected. Once AVM is diagnosed, the patient and clinicians should make treatment decision together.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

CONSENT

The authors have received written informed consent from the patient.

REFERENCES

1. Suzuki K, Tanaka N, Ebine T, Momma T. Pelvic congenital arteriovenous malformation diagnosed by transrectal ultrasonography: A case report. *Can Urol Assoc J.* 2012; 6(2): E61-E63. doi: [10.5489/cuaj.10190](https://doi.org/10.5489/cuaj.10190)
2. Game X, Berlizot P, Hassan T, et al. Congenital pelvic arteriovenous malformation in male patients: A rare cause of urological symptoms and role of embolization. *Eur Urol.* 2002; 42(4): 407-412. doi: [10.1016/S0302-2838\(02\)00355-X](https://doi.org/10.1016/S0302-2838(02)00355-X)
3. Manabe Y, Uegaki M, Asazuma A, Aoyama T, Hashimura T. Two cases of congenital pelvic arteriovenous malformation in male. *Hinyokika Kyo.* 2011; 57(1): 25-28.
4. Suzuki K, Nishimi D, Morioka H, Takanami M. Hematospermia associated with congenital arteriovenous malformation of internal iliac vessels. *Int J Urol.* 2007; 14(4): 370-372. doi: [10.1111/j.1442-2042.2007.01576.x](https://doi.org/10.1111/j.1442-2042.2007.01576.x)
5. Hammad FT, Shawish F, Kazim E. Congenital pelvic arteriovenous malformation presenting with urinary retention: A case report. *Med Princ Pract.* 2011; 20(3): 294-296. doi: [10.1159/000323837](https://doi.org/10.1159/000323837)
6. Touyama H, Hatano T, Ogawa Y. Massive prostatic bleeding after transurethral resection of the prostate in a patient with a congenital pelvic arteriovenous malformation. *J Urol.* 1998; 160(5): 1803. doi: [10.1016/S0022-5347\(01\)62417-0](https://doi.org/10.1016/S0022-5347(01)62417-0)
7. Bae S, Do YS, Shin SW, et al. Ethanol embolotherapy of pelvic arteriovenous malformations: An initial experience. *Korean J Radiol.* 2008; 9(2): 148-154. doi: [10.3348/kjr.2008.9.2.148](https://doi.org/10.3348/kjr.2008.9.2.148)
8. Houbballah R, Mallios A, Poussier B, et al. A new therapeutic approach to congenital pelvic arteriovenous malformations. *Ann Vasc Surg.* 2010; 24(8): 1102-1109. doi: [10.1016/j.avsg.2010.02.053](https://doi.org/10.1016/j.avsg.2010.02.053)