

A Unique Case: Arteriovenous Malformation of the Bladder Wall
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ABSTRACT

Arteriovenous malformation (AVM) of urinary bladder is a very rare condition in which a section of blood vessels lack a capillary vessels resulting in blood from an artery being delivered directly to a vein. We report a rare case of arteriovenous malformation of the bladder wall mimicking a bladder tumor presenting with acute abdomen.

Keywords: Arteriovenous malformation, bladder, child.

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INTRODUCTION

Arteriovenous malformation (AVM) of urinary bladder is a very rare condition in which a section of blood vessels lack a capillary vessels resulting in blood from an artery being delivered directly to a vein. The greatest danger is haemorrhage. Treatment for AVMs can include surgery or focused radiation therapy (1-3). We present a girl who had a mass with atypical localization arising from the bladder wall, diagnosed as arteriovenous malformation pathologically, due to very rare localization of AVM.

CASE REPORT

A six years old girl was admitted to our department with sudden onset of abdominal pain, vomiting, dysuria and constipation. Past history revealed that she had been treated in another hospital due to severe constipation and haemorrhoids and rectal bleeding. Physical examination revealed acute abdomen, rebound tenderness, suprapubic abdominal mass and severe haemorrhoids. Pelvic ultrasound showed a central hypoechoic lesion sized 64x43 mm, surrounded by round hyperechoic area located from suprapubic areas to Douglas, suggesting the existence of appendicular abscess. A suprapubic mass was palpated under the general anesthesia emergency circumstance and midline incision was made inferior abdomen. A 15 cm diameter mass well capsulated arising from anterior bladder wall determined (Fig 1). There were necrosis and haemorrhage in center of the mass. The mass was excised totally from bladder wall and inter muscular area. Bladder inner surface was clean, there was no macroscopically anomaly inner surface of the bladder. The huge arteriovenous malformation had demonstrated central necrosis and inflammatory changes were determined by in pathological examination.

Section of the lesion had dirty yellow color, and hemorrhagic and necrotic places (Fig 2). Oedema, and chronic inflammatory cells from fibroblasts in the stroma of the rich, and luminal endothelial single row of enlarged, and irregular vascular spaces were observed in microscopically (Fig 3).

Postoperative course was uneventful, except intravesical haemorrhage. Hematuria and haemorrhoids was revealed three months later. There was only oedematous bladder mucosa in the cystoscopic examination six month later initial surgery. Her follow-up continue without symptom.

DISCUSSION

Arteriovenous malformations (AVMs) are defects in vascular system. An AVM is a snarled tangle of arteries and veins. They are connected to each other, with no capillaries. That interferes with the blood circulation in an organ. The cause is not known, but they seem to develop during pregnancy or soon after birth (1-3).

AVMs most likely develop during the late somite stage in the fourth to eighth week of embryonic life. Early in the third week of embryonic life, angioblasts begin to differentiate from the mesoderm, forming syncytial islands. These small clumps of syncytial cells develop tiny sprouts that interconnect the cell groups, forming a syncytial plexus that later differentiates into the primordial vascular plexus. These plexus contain afferent, efferent, and capillary portions. AVMs arise from persistent direct connection between the future arterial and venous sides of this primitive vascular plexus without the capillary component (1-4).

AVMs can be either congenital or acquired. AVMs can happen anywhere, but they are more common in the brain or spinal cord. However, an AVM of the bladder is extremely rare. They give different symptoms and signs depend on localization. AVMs occur in females more

frequently than males (3). The index case was six years old girl with the congenital AVM on the bladder.

Therapeutic strategies change according to the size and the location of the AVMs (4-6). The optimal treatment has not been describe, but it is accepted that complete ligation of the afferent vessels and excision of the entire mass are essential for successful surgical treatment. Symptomatic or rapidly enlarging lesions surgical treatment alone for intramedullary AVMs carries greater risks, particularly for lesions within the thoracic and lumbar segments, because proximal ligation of the arterial supply of AVMs can lead to the formation of multiple small collaterals to the AVMs. This makes further embolotherapy more difficult. Moreover, most intramedullary AVMs are inoperable, because the tangle of abnormal vessels fills almost an entire segment of the spinal canal and contains cord tissue within the interstices of the AVMs (5). With improved microsurgical technology, many intramedullary AVMs can be removed by using the same standard techniques used to treat intramedullary tumours.

Since the 1960s, endovascular therapy has been performed as an alternative treatment of AVMs. Preoperative particulate embolization markedly decreases intraoperative bleeding and makes the dissection of the nidus much easier (5). It also diminishes the threat of further haemorrhage and improves the perfusion of the spinal cord by diminishing the steal or venous congestion secondary to the malformation (6).

We used surgical therapy for this patient. The intermingling of the malformation required the surgical removal of lesion by total excision via extravesically. The procedure resulted in remarkable improvement of the patient's symptoms, which had included gait disturbance provoked by pain in the lower extremities and haemorrhoids. The resolution of symptoms perhaps resulted from removal of the mass, which caused pressing of the pelvic

and para rectal vessels, as well as from removal of the AVM, which relieved venous hypertension and congestion of the vessels of the rectum.

In conclusion; AVMs are extremely rare lesions of the urinary bladder. They mostly follow a clinically benign course but, they are commonly misdiagnosed macroscopically as malignant tumour because of that their solid nature and ill-defined looking due to ulceration and necrosis of mass. We recommend careful pathologic assessment for establishing the appropriate diagnosis and either a conservative or aggressive surgical treatment for benign or localized mass of AVMs of the urinary bladder, respectively.

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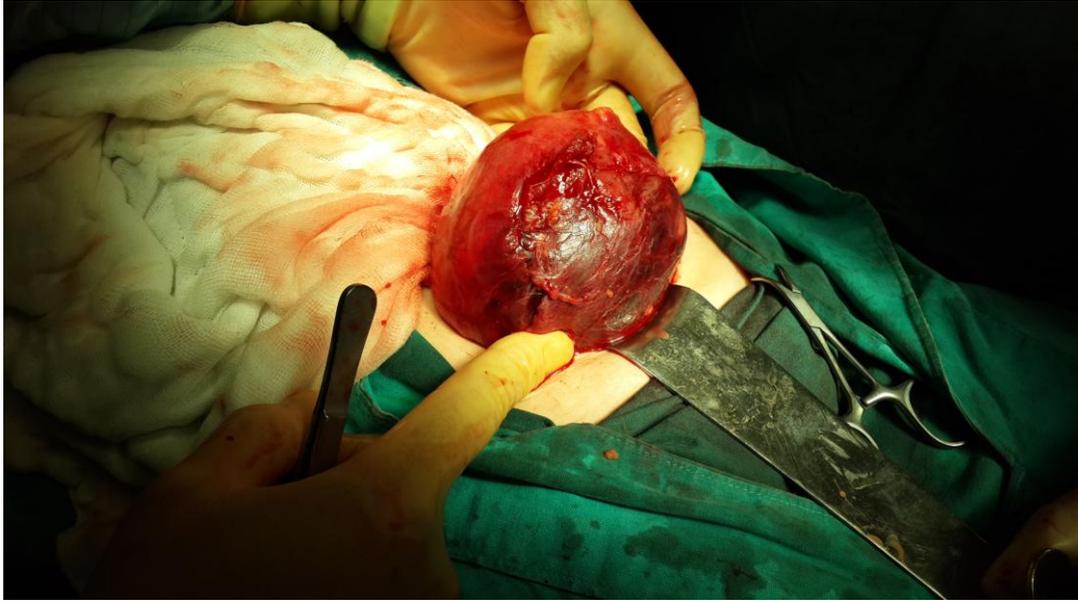


Fig 1: An 15 cm diameter mass capsuled well arising from anterior bladder determined during the laparotomy under the emergency circumstances.



Fig 2: The huge mass had demonstrated central necrosis, and inflammatory changes were determined macroscopically.

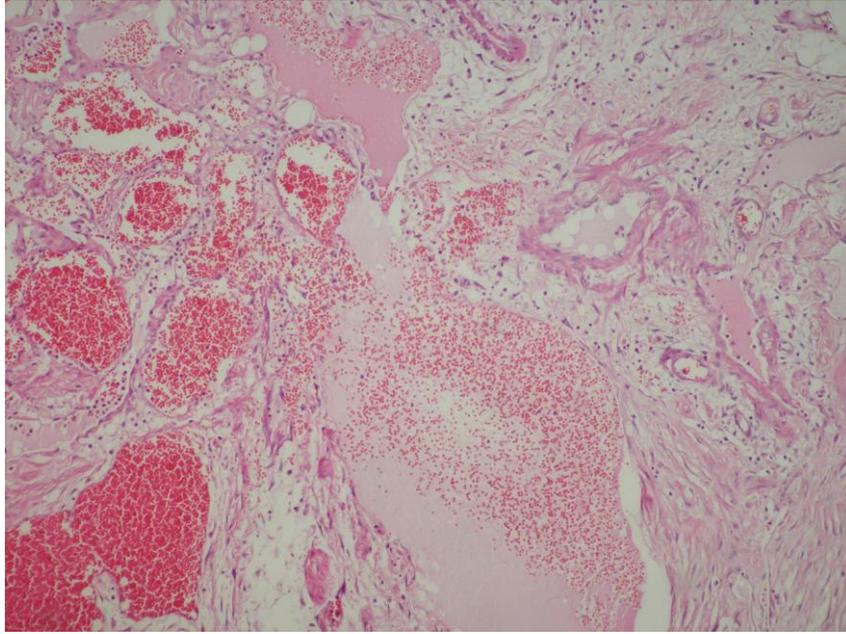


Fig.3: Irregular vascular spaces in oedematous and inflammatory stroma were seen in histopathologically (HEx200).

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