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Original Paper

Endovascular Treatment of Male Congenital Pelvic Arteriovenous Malformation in Macao: A Case Report

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Abstract

Pelvic arteriovenous malformation is a rare vascular malformation. If it is not treated in time, it can cause serious complications. This paper reports a 73-year-old man who complained of discomfort in the lower abdomen with dysuria for 1 years. An arteriovenous malformation was found in the right internal iliac artery by pelvic CT examination. The patient was subsequently admitted to the hospital, and the whole arteriovenous malformation was embolized with a metal coil in the right internal iliac artery. There were no major complications after the operation, discharge from hospital with good recovery. Literature review shows that pelvic arteriovenous malformation is rare, but the form is varied. Interventional therapy is an effective and minimally invasive method for the treatment of pelvic arteriovenous malformation.

Keyword

arteriovenous malformation, pelvic, male, endovascular treatment

1. Introduction

Congenital pelvic arteriovenous malformation is a rare congenital vascular malformation, especially in men. In October 2017, 1 case of congenital pelvic arteriovenous malformation was treated in our hospital and was treated with angiography and arterial embolization. The case is reported as follows.

2. Case Report

This is a 73-year-old man with hypertension, hyperlipidemia and varicose veins of both lower extremities. He presented with abdominal discomfort with dysuria for 1 year. Physical examination showed moderate varicose veins of the both lower limbs, no other obvious findings. Abdominal

ultrasound was performed and showed no obvious abnormalities. CTA examination of both lower limbs showed 1) An aneurysm in a branch of the right internal artery with thrombosis evoked; 2) Multiple dilated and tortuous vessels along the regions of bilateral internal iliac vessels, AVM? further assessment is recommended (see Figure 1). After the patient was admitted to the hospital, pelvic arteriography was performed. A large AVM vascular bundle with aneurysmal dilation is noted in the right aspect of the pelvic feeding by right internal iliac artery (See Figure 2). A micro-catheter was introduced into the major afferent vessel of the AVM. Multiple GDC coils were packed into the visceral branch of the right internal iliac artery for embolization. However, the AVM vascular bundle still actively opacified following angiography, although the size of the AVM nidus became smaller. In order to diminish the feeding volume of the AVM nidus, another several free metallic coils were packed into the parietal branch of the right internal iliac artery. Final angiography confirmed arterial feeding of the pelvic AVM bundle was almost obliterated (See Figure 3). The patient recovered well after operation and was discharged from hospital third days after the operation.

CTA was performed one month after the operation, it showed the abnormal right internal iliac artery with focal aneurysmal dilated branch have been well obliterated. The symptoms of discomfort in the lower abdomen of the patient disappeared.

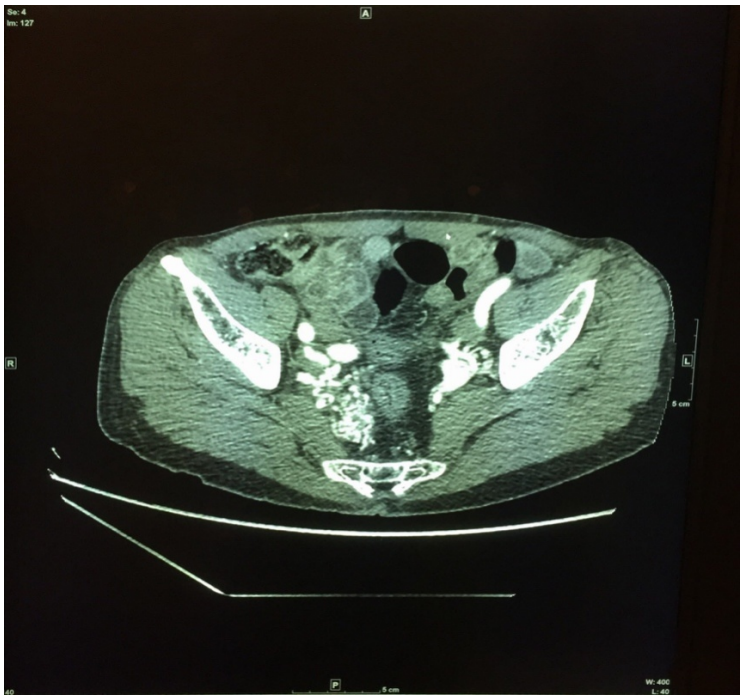

Figure 1. Multiple Dilated and Tortuous Vessels along the Regions of Right Internal Iliac Vessel

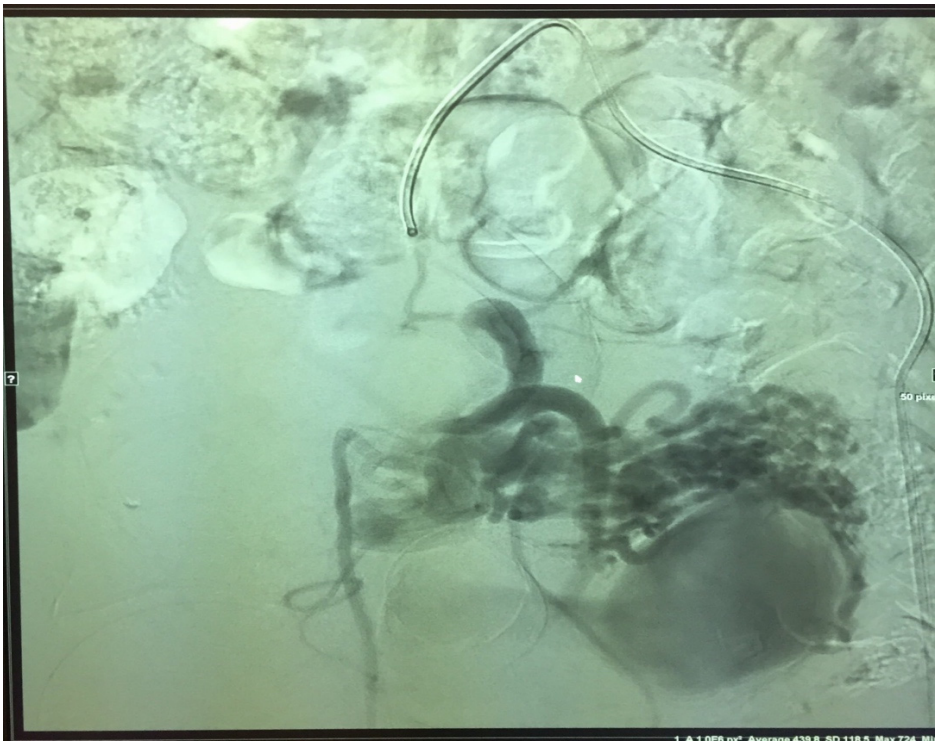

Figure 2. A Large AVM Vascular Bundle with Aneurismal Dilation Is Noted in the Right Aspect of the Pelvic Feeding by Right Internal Iliac Artery

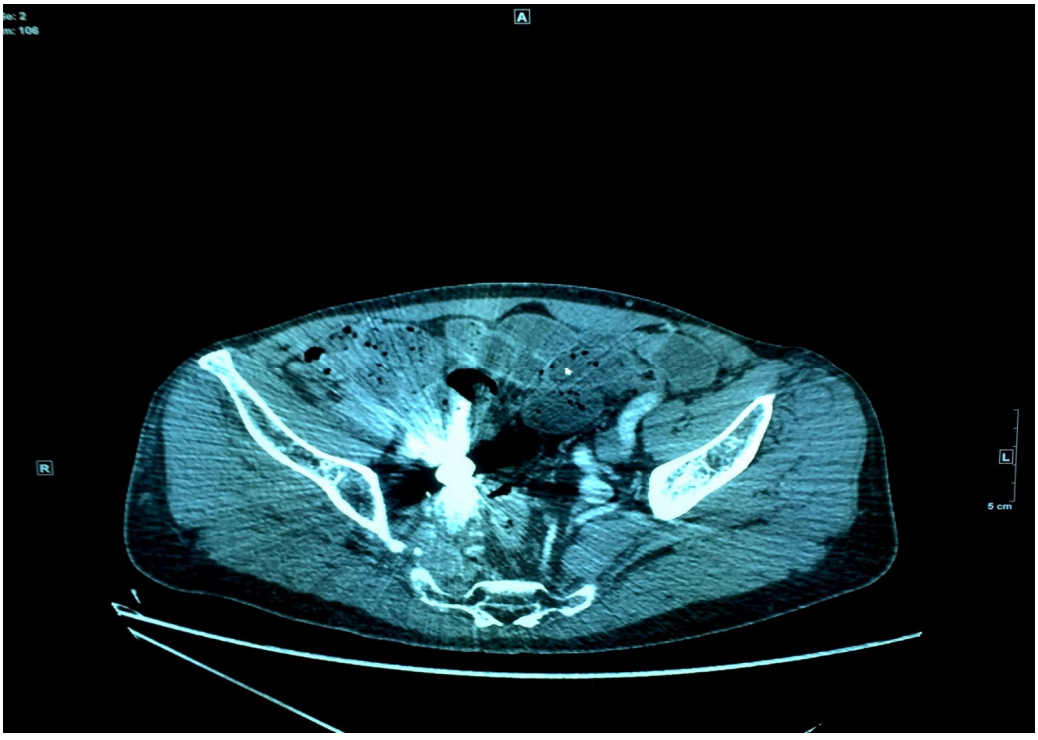

Figure 3. The Abnormal Right Internal Iliac Artery with Focal Aneurismal Dilated Branch Have Been Well Obliterated (Poor Visualization Due to the Artefact)

3. Discussion

The Arteriovenous Malformation (AVM) is formed in the embryonic period of the primitive capillary development disorder. The remnants of the capillary network form a malformed vascular plexus. They form a communication between the arterial system and the venous system. In the end, the blood is diverted into a low resistance vein, resulting in a large amount of venous blood stasis and tissue congestion. The pathological manifestation of arteriovenous malformation: 1) Abnormal vascular plexus and tortuous feeding arteries and draining veins; 2) Shunt between the arteriovenous and vascular plexus. Pelvic arteriovenous malformation is a rare disease, and there are not many cases reported in the literature.

The patient may present with abdominal pain and discomfort, hematuria, blood, impotence, dysuria, orchitis. It also presents with sciatica neuralgia and lower extremity venous pressure. Some patients can be touched with pulsating mass during rectal examination. So, it is difficult for clinical diagnosis because of its non-specificity.

The main manifestations of the AVM cases reported in the literature are as follows: 1) the thickening of the feeding arteries; 2) vascular plexus malformation was tumor like dilation; 3) internal iliac vein obviously dilation. In this case, angiographic manifestations showed a large AVM vascular bundle with aneurysmal dilation is noted in the right aspect of the pelvic feeding by right internal iliac artery. The treatment of pelvic arteriovenous malformations includes surgical operation for ligation of blood supply artery, removal of abnormal vascular masses, embolization of arteriovenous malformations through artery, embolization of arteries, and surgical resection. However, more literature reports that arterial embolization is more effective than surgical treatment. The choice of surgical treatment includes ligating the blood supply artery and removing the lesion. Many authors agree that the simple ligature of different arteries is of no value because the new pathway is rapidly developing when the malformed blood vessels are ligated. Arterial embolization is the first choice for many cases of arterial blood supply, pelvic soft tissue and viscera. It is reported that multiple or fractional embolism can be used and arterial embolization combined with surgical resection. Jacobowitz reported that most of the cases of a pelvic AVM case were treated with 11 times of embolization. The embolic materials include gelatin sponge, PVA particles, NBCA glue, Onyx liquid emboli and metallic coils, etc. A single material or a variety of materials can be used. In this case, metallic coils were used as embolic materials. Although the metallic coil failed to completely embolized the drainage vein. But by reducing the velocity of the blood flow at the site, it finally leads to natural embolism.

The patient was performed the CTA 1 month after the operation. CTA is a noninvasive imaging modality. However, artifacts caused by metal coils may affect the visualization of residual AVM vessels. However, CTA is a better imaging modality for AVM. The disadvantage of CTA is that the patient receives a high dose of radiation. In the case of chronic renal insufficiency, we should pay attention to the effect of the dose of contrast agent on renal function.

In conclusion, pelvic arteriovenous malformation is a rare congenital vascular malformation

accompanied by severe complications and hemodynamic variations. We embolized the pelvis AVM with a metal coil and embolized both the arteries and the veins, and a complete cure was achieved. Therefore, intravascular treatment of pelvic AVM is a kind of low traumatic and effective treatment.

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