

Transarterial embolization of severe hematuria caused by actinic cystitis.

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Section: Interventional radiology

Area of Interest: Interventional vascular Vascular

Procedure: Embolisation

Imaging Technique: Catheter arteriography

Special Focus: Haemorrhage Case Type: Clinical Cases

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Patient: 83 years, male

Clinical History:

A 83-year-old male presented to the Emergency Room with a history of progressive, intermittent hematuria, which had recently become more severe. The patient had a history of prostate adenocarcinoma managed with transurethral resection of the prostate and radiation therapy.

Imaging Findings:

Several blood clots were seen on the bladder ultrasound that were removed by endoscopic evacuation. Due to the persistence of hematuria and progressive anemization, it was decided to perform an arteriography and eventual embolization.

Selective arteriography of hypogastric arteries is performed by right femoral approach (fig 1,2), then the bladder arterial branches are catheterized supraselectively. Angiographic findings revealed marked increase of the vascularization in the bladder area (fig 3). superselective and distal embolization of bilateral vesical arteries was performed (fig 4,5).

Post-embolization pelvic angiogram showed occlusion of the branches of bladder arteries with a marked reduction of the hypervascular areas and obliteration of the embolized vessels.

Discussion:

Intractable hematuria due to bladder hemorrhage is a medical condition that is difficult to manage and sometimes can compromise the patient's life. There are many pathologies that can cause it, some of them include bladder cancer, radiation induced cystitis or actinic cystitis, severe infection, prostate cancer, cystitis induced by cyclophosphamide, transurethral prostate resection, traumatic or iatrogenic arteriovesical fistula, etc. [1, 2]. Actinic cystitis is a complication secondary to radiation therapy in malignant disease of pelvic organs [2]. Diffuse bleeding of the bladder mucosa can vary from mild hematuria to severe hemorrhages that compromise the patient's life. The effects of the radiation therapy are characterized by histopathological changes as edema, tissue damage due to induced hypoxia and neoformation of fragile vessels prone to bleeding [3]. The majority of these cases occur in elderly patients with multiple pathologies or in palliative treatment of pelvic oncological pathologies, in which aggressive surgical management is difficult with significant morbidity and mortality, in these cases the best choice is conservative management with minimally invasive therapies. Endovascular embolization of bladder arteries are occasionally indicated in these patients when all other treatments have failed. In our patient we performed the embolization of bilateral vesical arteries with 500-700 microns calibrated microspheres through a 2,4fr.

microcatheter with complete disappearance of hematuria after embolization. Superselective embolization of bladder arteries is a safe, effective and useful technique in the management of incoercible hematuria, especially in patients without surgical option, with good results and without complications [4].

Written informed patient consent for publication has been obtained.

Differential Diagnosis List: Endovascular embolization of a severe hematuria caused by radiation cystitis., Active bleeding due to malignancy of the bladder, ureter or kidney., Arteriovenous malformation of the urinary bladder., Drug-induced hemorrhagic cystitis.

Final Diagnosis: Endovascular embolization of a severe hematuria caused by radiation cystitis.

References:

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Figure 1

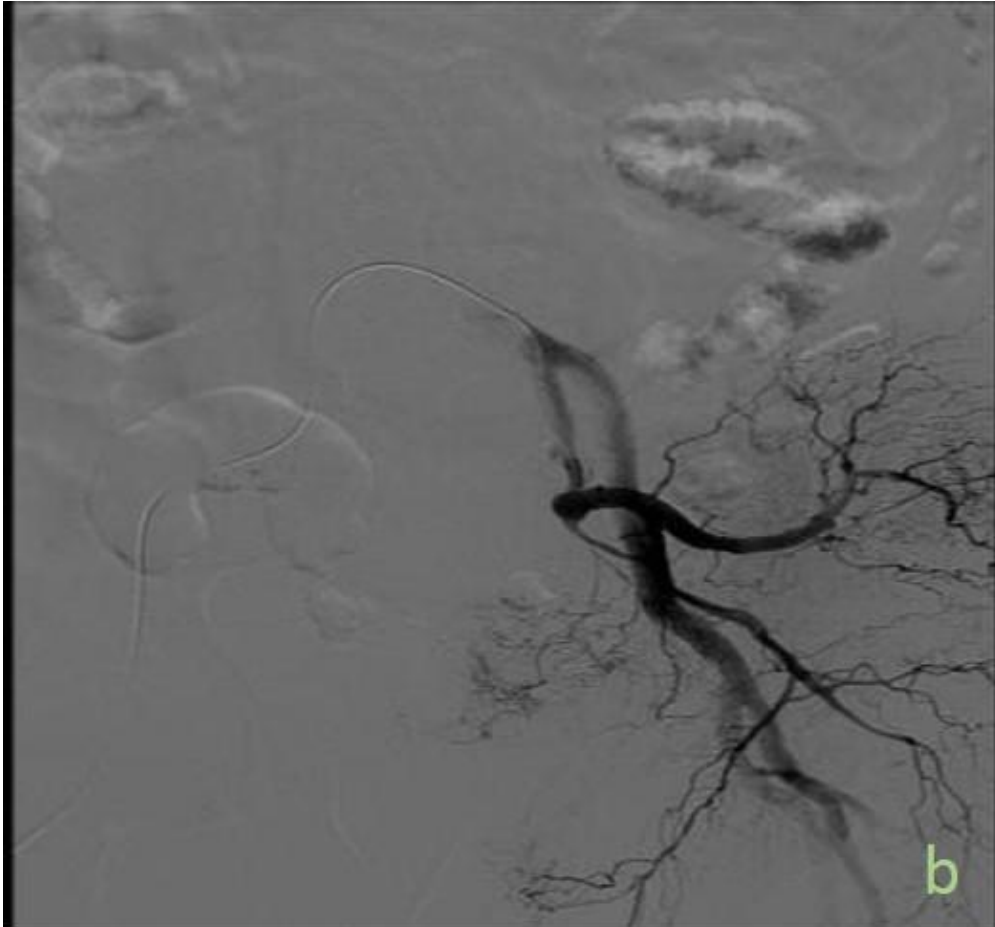
a



Description: Angiography showing arterial catheterization of right (a) and left (b) hypogastric arteries with a standard catheter. **Origin:** Leyva M, Department of Radiology, Hospital Universitario Clínico San Carlos. Madrid, Spain

Figure 2

a



Description: Angiography showing arterial catheterization of right (a) and left (b) hypogastric arteries with a standard catheter. **Origin:** Leyva M, Department of Radiology, Hospital Universitario Clínico San Carlos. Madrid, Spain

Figure 3

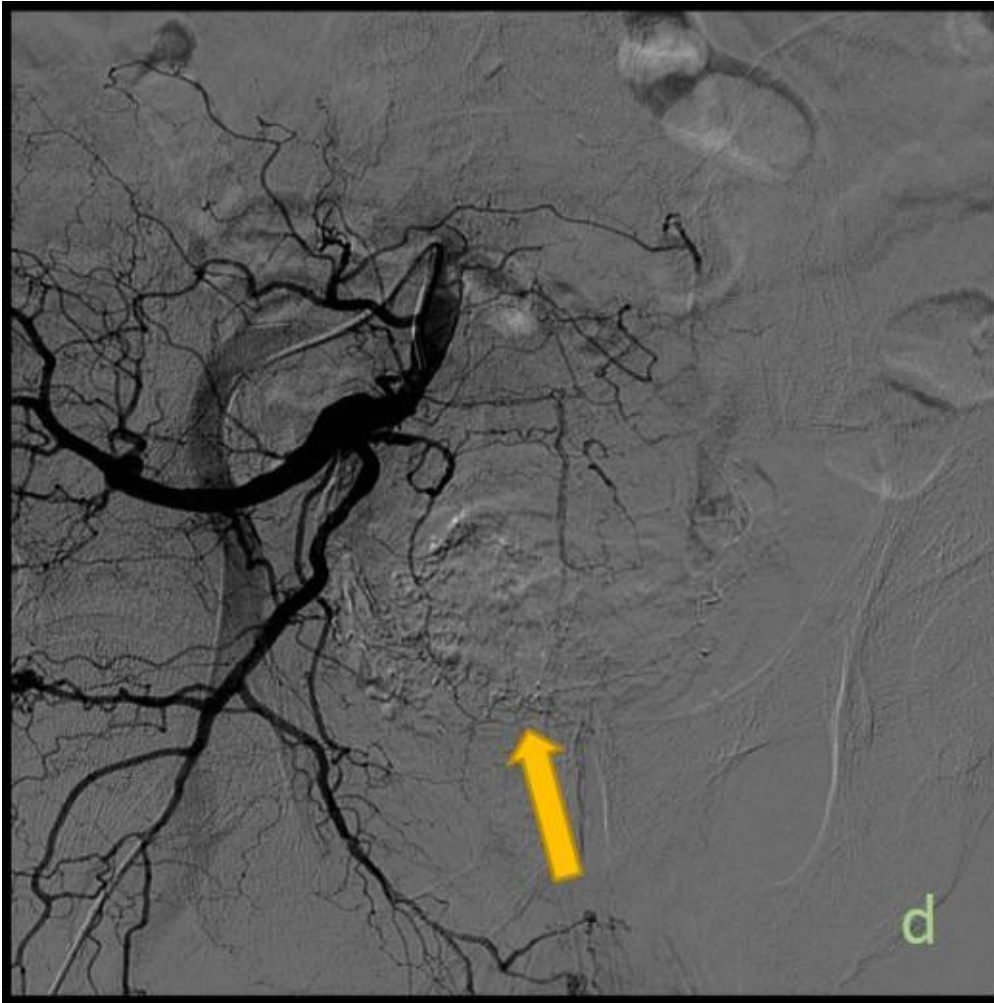
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Description: Superselective catheterization of bladder arterial branches with a microcatheter. Pre-embolization angiogram showing increased vascularity in the pelvic area and in the terminal regions of the vessels, and retrograde filling of the contralateral system (red arrow). **Origin:** Leyva M, Department of Radiology, Hospital Universitario Clínico San Carlos. Madrid, Spain.

Figure 4

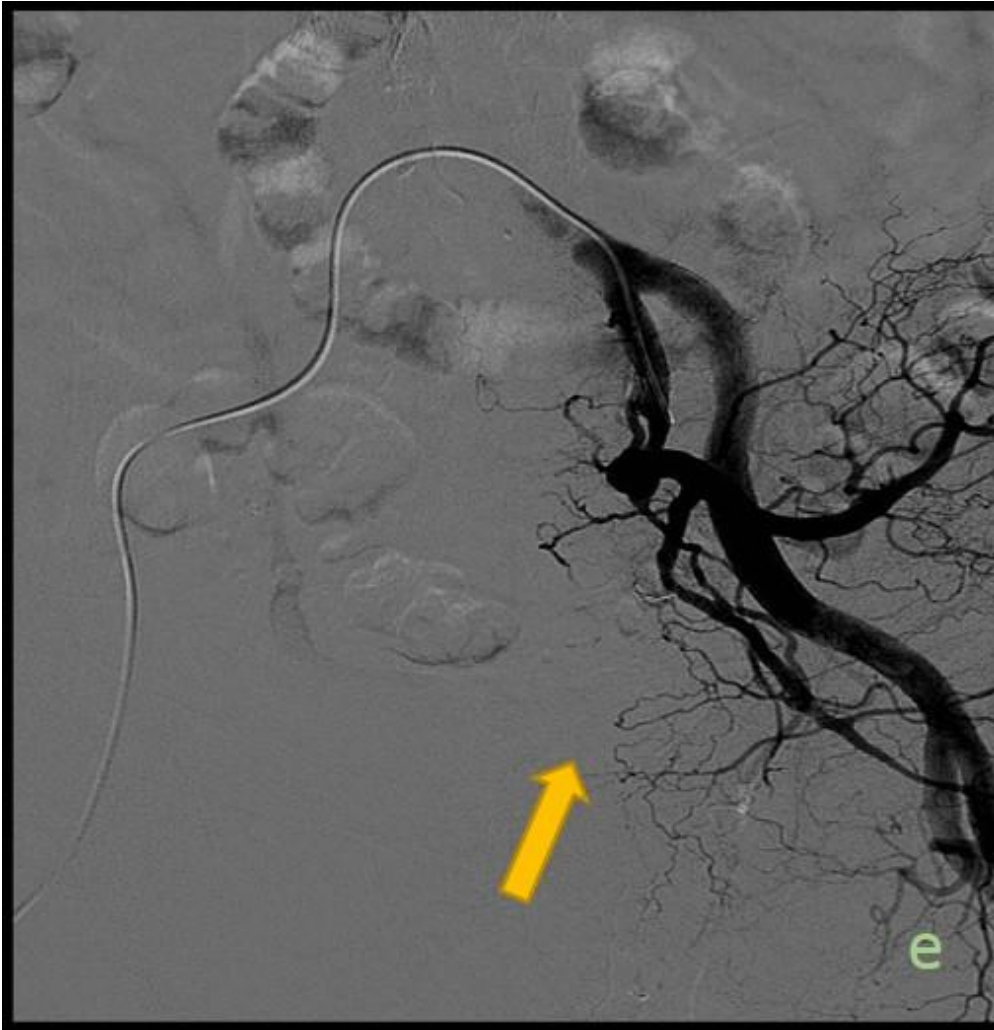
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Description: Post-embolization pelvic angiogram showing occlusion of the branches of bladder arteries (c,d) with a marked reduction of the hypervascular areas and obliteration of the dilated and tortuous terminal regions of the vessels (yellow arrow). **Origin:** Leyva M, Department of Radiology, Hospital Universitario Clínico San Carlos. Madrid, Spain.

Figure 5

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Description: Post-embolization pelvic angiogram showing occlusion of the branches of bladder arteries (c,d) with a marked reduction of the hypervascular areas and obliteration of the dilated and tortuous terminal regions of the vessels (yellow arrow). **Origin:** Leyva M, Department of Radiology, Hospital Universitario Clínico San Carlos. Madrid, Spain.