

# Long-standing hemospermia in a patient with megacava associated to a circumaortic renal vein

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## Abstract

Hemospermia may have a broad range of functional and organic causes. It is defined as the presence of blood in seminal fluid and usually tends to resolve spontaneously within a few weeks. We present the case of a patient with a 10-year history of hemospermia associated with megacava and circumaortic renal vein. The diagnosis, treatment, and evolution of the condition are reported. Vascular anomalies are rare causes of chronic hemospermia, and the one described in our patient may constitute the first case reported in the literature.

**Key Words:** Circumaortic renal vein, hemospermia, iliac vein, megacava, pelvic varicosities

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## INTRODUCTION

Hemospermia may have a broad range of causes. It is defined as the presence of blood in seminal fluid and usually tends to resolve spontaneously within a few weeks.<sup>[1]</sup> Many cases are idiopathic, and a series of complementary tests are required in those cases with last-longing manifestations.<sup>[2,3]</sup> Though vascular anomalies are rare causes of chronic hemospermia, they should be taken into account in establishing a differential diagnosis.

## CASE REPORT

We present the case of a 44-year-old male with a fluctuating 10-year history of hemospermia. No lower urinary tract symptoms or sexual problems were reported. The genital

examination and rectal digital exploration findings were normal. The patient reported no family history of collagen diseases and had no cardiac or vascular disorders. The blood pressure was within the normal range, and body weight was 75 kg with a height of 172 cm.

A fractionated culture of the ejaculate was performed, together with urine cytology, urine cultures for fungi, parasites and bacteria (including tuberculosis), biochemical testing, blood count, coagulation, and prostate-specific antigen (PSA) levels. All the parameters were within normal limits. The urine and semen cultures were negative.

Transrectal ultrasound (TUS) revealed a homogeneous prostate gland with a volume of 23 cm<sup>3</sup>. The seminal vesicles were normal in size and had no contents.

In view of the persistent symptoms, a pelvic magnetic resonance imaging (MRI) study was requested. The seminal vesicles were slightly distended, though the signal intensity was normal. On the other hand, dilatation of the venous plexuses was noted, resulting in a congestive appearance of the lesser pelvis, with significant dilatation of the iliac veins and inferior vena cava over its retroperitoneal abdominal trajectory. Considering the MRI

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findings, we decided to perform a computed tomography (CT) scan extending to the abdomen [Figures 1-3].

The CT scan confirmed dilatation of the venous plexuses in the lesser pelvis, with nonpathological contrast uptake in the prostate and seminal vesicles. In addition, we observed symmetrical dilatation of the inferior cava vein, common, internal and external iliac veins, with no sacular venous aneurysms or associated obstructive disease, and the presence of varicosities in the pelvic venous plexuses. On the other hand, at renal sinus level, we observed a preaortic orthotopic left renal vein, with another vein in a retroaortic and prelumbar location, as a variant of normality [Figure 4].

Based on the above findings, we referred the patient to the Unit of Vascular Surgery, where treatment with venoactive drugs (diosmin) and lifestyle adaptation measures were recommended reducing pelvic venous pressure by means of

avoiding increase intraabdominal pressure (weight lifting) or prolonged standing time at work. The possibility of endovascular embolization/sclerosis in the case of worsening of the symptoms was considered.

Occasional hemospermia without anemia persists with no other associated symptoms.

## DISCUSSION

Hemospermia has a broad range of possible causes. The known causes include infections, neoplastic diseases of the male genital tract, benign prostatic hyperplasia, prostate calculi, traumatismos such as those produced by brachytherapy, or generalized disorders such as amyloidosis, arterial hypertension, or coagulation alterations.<sup>[2,3]</sup>



**Figure 1:** Coronal T1-weighted pelvic magnetic resonance imaging scan showing dilatation of the venous plexuses in the lesser pelvis, along with dilatation of the external iliac veins



**Figure 2:** Coronal arterial phase contrast computed tomography scan showing the inferior vena cava with a cross-sectional diameter of 39.5 mm before the bifurcation of the iliac veins. Note the right common iliac artery crossing the vena cava anteriorly. Varicose vein dilatation in the lesser pelvis



**Figure 3:** Cross-sectional venous phase computed tomography scan showing the inferior vena cava before the bifurcation of the iliac veins



**Figure 4:** Abdominal computed tomography scan with contrast injection showing the renal vein emerging inferiorly and with an aberrant trajectory between the aorta and lumbar vertebra, exhibiting a sinuous morphology

Urine and blood tests, coagulation function, semen and urine culture and urine cytological study, as well as PSA level, should be determined.<sup>[2]</sup>

With negative tests, we should request a TUS. If no anatomical alterations are found then, and hemospermia persists beyond 3-6 months, we could request a CT or MRI.<sup>[2]</sup> The presence of varicose plexuses in the pelvic floor is a cause of varicose vein recurrence in the lower extremities, vulvar and pudendal varicosities, varicocele, hemorrhoids, and in some cases, hematuria and hemospermia.<sup>[3,4]</sup> The most frequent primary cause is left gonadal vein reflux, and the secondary causes include compressive syndromes, arteriovenous fistulas, postthrombotic syndromes of the ilio caval region, and vena cava anomalies. When pelvic varicosities are found, if medical treatments are not improving the symptoms, the option of choice is intravascular embolization and sclerosis.<sup>[5]</sup>

A circum-aortic vein is an anatomical variant characterized by the presence of two veins that form a ring around the aorta and its incidence is between 0.3% and 16%.<sup>[6]</sup> In our case, the patient also presented a nonaneurysmal dilatation of the iliac veins and inferior vena cava diameters. The large size of the latter vessel is what is known as megacava (MC), defined as an inferior vena cava diameter of over 30 mm.<sup>[7]</sup> This finding is less frequent than the renal variant with an incidence of up to 3%, such as the study published by Prince *et al.*

The symptoms produced by a circum-aortic renal vein appear to be mostly urological, particularly hematuria.<sup>[7]</sup> The MC in our patient caused reflux in the pelvic venous plexuses, giving rise to pelvic floor varicosities that could have produced the hemospermia. As deduced from our review of the literature, this is the first case describing hemospermia associated to congenital MC and a circum-aortic renal vein.

A number of imaging techniques have been used to diagnose venous variants and malformations, including Doppler ultrasound, phlebography, MRI, and CT.<sup>[8]</sup>

Venous thromboembolic disease is the main complication of pelvic varicose plexuses.<sup>[9]</sup> The most important consequence of a lack of awareness of the presence of circum-aortic renal vein before surgery is intraoperative bleeding due to underdiagnosis as reported by Karaman *et al.*

Venotonic drugs have proved the beneficial effect on chronic venous insufficiency, relieving symptoms with decrease in capillary permeability, improving the lymphatic drainage and increasing the venous tone. These drugs have been used with good results in other locations as pelvic varicose vein disease

and hemorrhoids.<sup>[10]</sup> In our case, the patient felt improvement of symptoms and worsening related with stopping the treatment.

In case of failure of the conservative measures, despite of lack of data, in this particular case, we think that a selective phlebography of the pelvic veins is mandatory, and if reflux is demonstrated, the endovascular treatment with a selective sclerosant injection like aetoxisclerol 3% with embolization of the main vein at the origin of the reflux.<sup>[6]</sup> There is some evidence in endovascular treatment of varicoceles and hematuria with embolization materials and sclerosants products.<sup>[11,12]</sup>

Vascular anomalies are a rare cause of chronic hemospermia, but should be taken into account in establishing a differential diagnosis if this condition persists besides negative tests and normal TUS. Treatment is not essential, though venotonic drug administration could constitute the first line of treatment in such cases.

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