



Case report

Macroscopic hematuria as an initial symptom of testicular cancer, an unusual presentation and initial management. A case report

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ABSTRACT

Introduction: The most common causes of hematuria are lower urinary tract infections, especially of the bladder, urolithiasis, urogenital tumors or benign prostatic hyperplasia; consequently, this condition presents the greatest clinical challenge due to its broad clinical spectrum, hematuria is an atypical form of presentation of testicular tumors, with very few cases reported in the literature, reaffirming the importance of a complete examination when approaching hematuria in the emergency department.

Case presentation: We present a case of a 31-year-old patient who presented to the emergency department with macroscopic hematuria of 5 weeks of evolution, showing on examination a mass in the left testicle. Imaging studies showed bilateral pulmonary metastatic lesions and retroperitoneal lymph node activity with a retrocaval conglomerate infiltrating the left ureter, for which a radical left orchiectomy and multiple procedures were performed to resolve the hematuria.

Discussion: Macroscopic hematuria in adolescents or young adults is an infrequent cause of admission to the Emergency Department with a large list of differential diagnoses both benign and malignant so it is necessary to perform exhaustive studies in its approach, when young patients present with a painless testicular mass, it is important to keep testicular cancer within the differential diagnoses, metastatic disease is a rare form of presentation in this type of tumors. The relevance of this clinical case lies in the fact that hematuria was the main symptom that brought the patient to the emergency department, so we must not forget that macroscopic hematuria should be extensively studied.

Conclusion: When approaching a patient with macroscopic hematuria, the clinical history and physical examination is extremely important to provide the best possible care and focus the treatment properly.

1. Introduction

The most common causes of hematuria are lower urinary tract infections, especially of the bladder, urolithiasis, urogenital tumors or benign prostatic hyperplasia; being a condition that presents a clinical challenge due to its broad spectrum, there is a lack of consensus at present on the necessary diagnostic investigation for hematuria [1]. Its management in routine clinical practice differs from recommended guidelines [2], several studies have shown that a thorough diagnostic workup should be performed to adequately confirm or exclude significant diagnoses that should be treated [1,3].

In view of the above risk factors, patients with macroscopic hematuria should always be investigated unless there is an obvious benign

cause and even in these situations, the presence of malignant disease should not be definitively ruled out, so further testing should be performed if hematuria persists [3].

Hematuria is an atypical form of presentation of testicular tumors, with very few cases reported in the literature, reaffirming the importance of a thorough examination when approaching hematuria in the emergency department [4].

Testicular cancer represents 1 % of adult neoplasms and 5 % of urological tumors, its incidence in Western countries is 3–10 new cases per 100,000 males/year, 1–2 % being bilateral at the time of diagnosis and the predominant histological type is germ cell (90–95 % of cases); the most frequent age of presentation is the third decade of life for non-seminomatous tumors and mixed germ cell tumors, and the fourth

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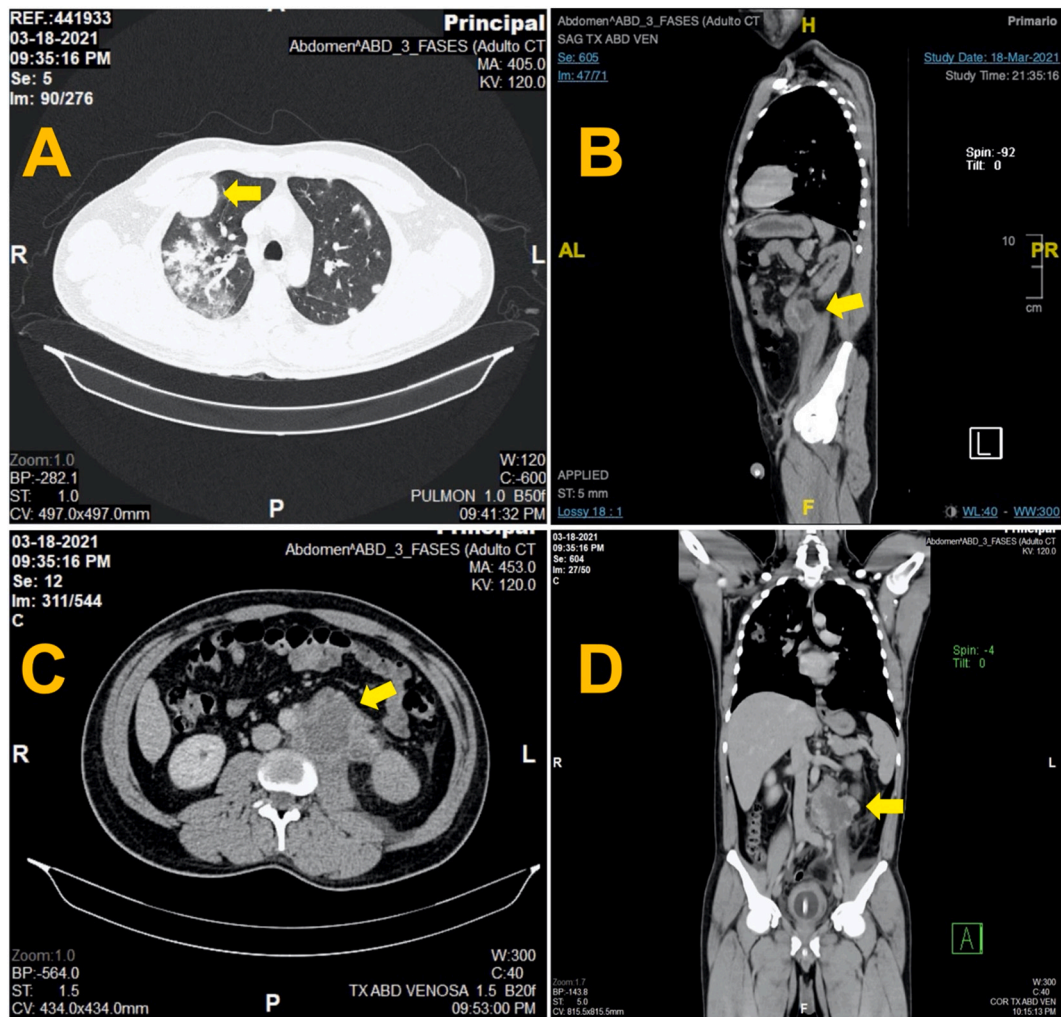


Fig. 1. Contrast-enhanced CT scan. (A) Showing pulmonary metastases. (B) Sagittal section showing lymph node activity with a retrocaval conglomerate which infiltrates the left ureter (arrow). (C) Axial section showing a retrocaval conglomerate (arrow). (D) Coronal section showing lymph node activity with a retrocaval conglomerate which infiltrates the left ureter (arrow).

decade for pure seminomas [5]. The clinical presentation of testicular cancer is usually a painless unilateral scrotal testicular mass that is detected by the patient or as an incidental finding on ultrasonography. Pain may be referred to the scrotal or dorsal-flank region in 27 % and 11 % of patients, respectively [6,7]. If testicular cancer is suspected, the physical examination should include an abdominal, thoracic, and supraclavicular examination [5]. This case has been reported in line with the SCARE 2020 criteria [8].

2. Presentation of case

This is the case of a 31-year-old male, with no pharmacological history, denies family history of cancer, no history of smoking, military occupation, admitted to the emergency department for the presence of clot-forming macroscopic hematuria of four weeks of evolution, had come five weeks earlier to the emergency department for presenting an event of asymptomatic gross hematuria, being managed as a urinary tract infection.

He went to the emergency department for the second time for presenting hypovolemic shock accompanied by macroscopic hematuria, so an evaluation by the Urology Department was requested, finding in the physical examination: tachycardia, diaphoresis, respiratory sounds with rales, without palpable abdominal masses or evidence of peritoneal irritation. Genital examination revealed a penis with permeable central

meatus, descended testicles, and an indurated and painless mass in the left scrotal sac without temperature increase.

Laboratory tests reported a white blood cell count of 7560 μ L, hemoglobin 11.5 g/dL, platelets 204,000, prothrombin time 16 s, thromboplastin time 33.2 s, INR 1.3, glucose 116 mg/dL, urea 30 mg/dL, blood urea nitrogen 14 mg/dL, creatinine 1.3 mg/dL, sodium 134 mmol/L, potassium 3.5 mmol/L, chlorine 102 mmol/L, due to the finding of testicular mass tumor markers are also sent with beta-hCG of 483,100 mIU/mL, alpha-fetoprotein 1.05 ng/mL and lactate dehydrogenase 386 IU/L.

Hypovolemic shock was stabilized, then as part of the initial approach, a contrasted computed tomography (CT) scan of the chest, abdomen and pelvis was performed, revealing bilateral pulmonary metastatic lesions, left hydronephrosis and an image suggestive of a clot inside the left ureter, retroperitoneal lymph node activity with a 5 cm retrocaval conglomerate infiltrating the left ureter, solid mass in the left testicle suspicious of neoplasia (Fig. 1).

A 3-way foley catheter was placed performing clot evacuation with continuous irrigation and subsequently the patient was taken for a left radical orchiectomy. However, 24 h after his admission to the hospitalization area, he persisted with clot-forming hematuria, so a cystoscopy was performed for its evacuation, continuing with decreased hemoglobin, so he underwent selective embolization by the interventional radiology service, which found bleeding from the left lower

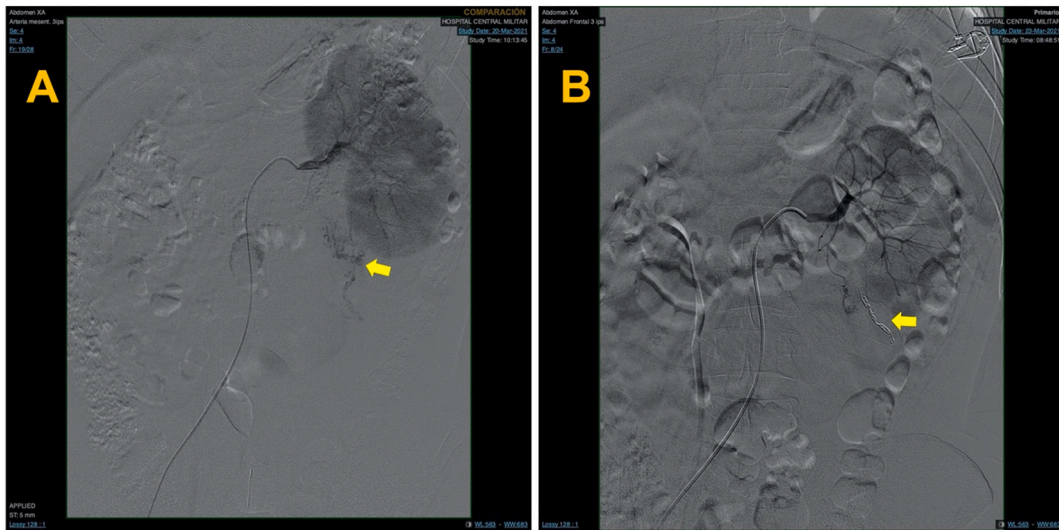


Fig. 2. Renal angiography. (A) Anteroposterior angiographic view with contrast medium escape (arrow). (B) Anteroposterior angiographic view showing selective embolization with coil (arrow).

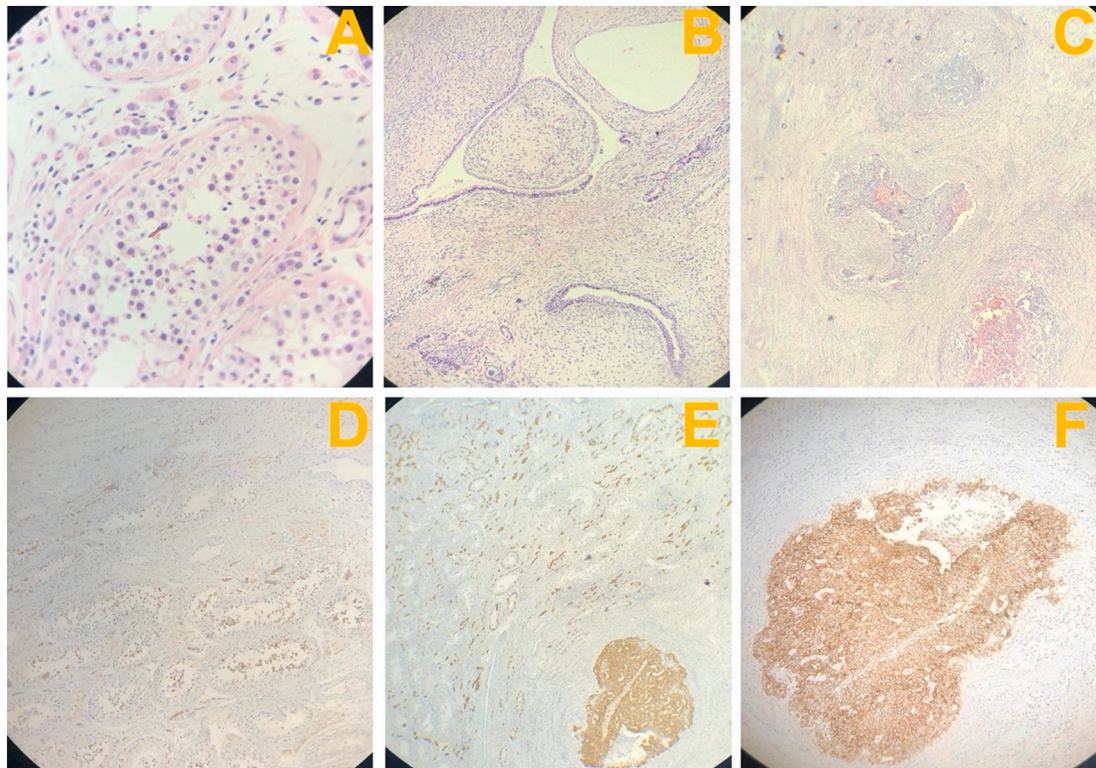


Fig. 3. Histopathologic sections of the mixed germinal testicular tumor. (A) Seminoma component with H&E. (B) Teratoma component. (C) Embryonal carcinoma component. (D) CD 117 positive in seminoma. (E) Oct 3/4+. (F) Ve 30 positive in embryonal carcinoma.

segmental artery of the abdominal aorta, and performed coil embolization (Fig. 2).

Histopathological study of the left testicular mass reported a mixed germ cell tumor with a 70 % teratoma component, 20 % embryonal carcinoma and 10 % seminoma, OCT ¾ immunohistochemistry, SALL-4 GERMINAL, cytokeratin 7: positive for embryonal carcinoma and seminoma. The spermatic cord resection margin was negative but there was lymphovascular invasion (Fig. 3).

Due to tumor infiltration in the left ureter and ipsilateral hydro-nephrosis a left nephrostomy was performed. The patient was

discharged on postoperative day 8 and presented at a multidisciplinary meeting 4 weeks later, with control tumor markers to define his follow-up.

3. Outcome and follow-up

The patient was classified as left testicular tumor pT2N3M1a S3 EC IIIB, after radical orchiectomy and stabilization of hematuria, sperm cryopreservation was performed and chemotherapy with Bleomycin (30 IU IV weekly on days 1, 8 and 15) was started, Etoposide (100 mg/m² IV

on days 1–5) and Cisplatin (20 mg/m² IV on days 1–5) administered 4 cycles every 21 days, according to the clinical guidelines for Testicular Cancer of the National Comprehensive Cancer Network, concluding the cycle with adequate tolerance, the patient continues to live independently at home.

4. Discussion

Macroscopic hematuria in adolescents or young adults is an infrequent cause of admission to the Emergency Department with a long list of differential diagnoses both benign and malignant, in most cases, the diagnosis is simple with a clinical history, physical examination findings and laboratory results, however, in rare cases, an exhaustive study may be necessary [9].

Macroscopic hematuria has a high diagnostic frequency for urologic malignancy [4,9], being a presenting feature in 66 % of patients with confirmed urologic malignancy, with a sensitivity for bladder carcinoma 0.83, ureteral carcinoma 0.66 and renal carcinoma 0.48 [10].

Emergency departments are the first line of evaluation, so it is important that these patients are identified and assessed in a comprehensive manner, since inappropriate referral or discharge decisions can lead to a delay in the diagnosis and treatment of patients [9].

When men, especially young adults, present with a painless testicular mass, it is important to keep testicular cancer within the differential diagnosis, although it is much more common for these tumors to be found incidentally and painlessly, disease confined to the testis occurs in 75–80 % of patients with seminoma and in 55–64 % of non-seminomatous patients [7]. Seminomas are usually slow-growing localized tumors and rarely (less than 5 %) extend beyond the retroperitoneal lymph nodes. Distant metastases, as in our case, are more frequent in nonseminomas. Treatment depends on staging, which may include a combination of active surveillance, retroperitoneal lymph node dissection and chemotherapy [5].

Metastatic disease is a rare form of presentation that is accompanied by complications arising from its location, such as hemoptysis in the lower respiratory tract and hematuria in the urinary tract being an extremely rare clinical presentation of testicular cancer. The relevance of this clinical case is that hematuria was the main symptom that brought the patient to the emergency department, due to the primary presentation of a retroperitoneal conglomerate infiltrating the left ureter and it is important to emphasize that every case of macroscopic hematuria should be thoroughly investigated to be treated appropriately.

5. Conclusion

When evaluating a patient with macroscopic hematuria, a complete anamnesis and physical examination should be performed, as these are the fundamental elements for a correct diagnosis. Hematuria should always be studied, since its importance does not depend on its intensity but on the cause, testicular tumors are usually found incidentally as a solid and painless testicular mass in the scrotum, hematuria is not a common presentation of a testicular tumor however due to the lack of high quality scientific evidence for the management of hematuria, in all patients an anamnesis, clinical and laboratory tests, and renal and bladder ultrasound should be performed when indicated.

Consent for publication

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Availability of supporting data

The datasets used and/or analysed during the current study are

available from the corresponding author on reasonable request.

Provenance and peer review

Not commissioned, externally peer-reviewed.

Ethical approval

No ethical approval was needed as we didn't use any experimental drug or new surgical techniques to treat the patient. We combined multiple classical methods of treatment to achieve the best outcome and prevent further recurrence as long as possible.

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Guarantor

Orión Erenhú Rodríguez González accepts full responsibility for the work and approves the whole process from designing the study to publication.

Research registration number

Not applicable for case report.

CrediT authorship contribution statement

O. E. Rodríguez González: wrote the abstract, introduction, discussion, conclusion, reviewed the literature and designed all the figs.

E. I. Bravo Castro: wrote the presentation of the case, participated in the surgical treatment and collecting the patient's data.

J. G. Campos Salcedo: participated in the surgical treatment and supervised the scientific and academic aspects of the manuscript preparation and submission.

Competing interest

The authors declare that they have no competing interests.

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