

Case Report

Testicular teratoma in scrotal trauma: a case report

Sergio A. Anguiano-Garcia^{1*}, Andrea Ledesma-Blanhir²

¹Department of General Surgery, Hospital Regional Salamanca, Petroleos Mexicanos, Salamanca, Guanajuato, México

²Department of Healthcare, Hospital Christus Muguerza, Monterrey, Nuevo Leon, México

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*Correspondence:

Dr. Sergio A. Anguiano-Garcia,

E-mail: sarturo-anguiano@hotmail.com

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ABSTRACT

Testicular teratoma as first described by Virchow in 1863 may be one of the oldest known tumours. Patients usually course asymptomatic, early signs consist of testicular enlargement. We present a case of a male patient in his fourth decade of life with no prior documentation of testicular enlargement, he suffers from scrotal trauma presenting, pain, dysuria, scrotal swelling and nausea. Tumoral markers were normal and ultrasound revealed right testicle with cystic degeneration and malignant aspect. Radical orchiectomy was performed revealing a pure testicular teratoma. This disease may change its presentation, and there's no prior report of diagnose after trauma, so understanding the disease, symptoms, signs and tools for diagnose may help to provide an appropriate management.

Keywords: Testicular cancer, Testicular trauma, Cancer, Teratoma, Acute scrotum, Pure teratoma

INTRODUCTION

Testicular teratomas are a specific entity of the group of germ-cell tumors, which traditionally are divided into two major subgroups based on histology: seminomas and non-seminomas. World health organization classification from 2022 includes teratoma and teratocarcinoma within the germ cell tumours (GCT) derived from germ-cell neoplasia in situ.¹ First described as "Teratoma" by Rudolf Virchow in 1863 from the Greek root "Teras" meaning marvel, wonder, or monster.^{1,2} Teratomas may be one of the oldest known tumors, referenced first in a Babylonian document from four thousand years ago.³ The American Cancer Society estimates for testicular cancer in the United States for 2023 are about 9,190 new cases of testicular cancer diagnosed and 470 deaths from testicular cancer.⁴ These tumors show high histological diversity and consist of a variety of elements of all three embryonic germ layers (ectoderm, endoderm and mesoderm). They are divided into two groups: Prepubertal teratoma, a childhood tumor that usually does not metastasize and post-puberal teratomas which are defined by WHO as part of mixed germ cell tumors and rarely pure neoplasms, usually malignant with the

tendency to metastasize. First-line therapy for localized disease consists of surgical resection.⁵ The case reported in this paper is a rare post-puberal teratoma with a rapid enlargement secondary to trauma.

CASE REPORT

A 32-year-old male with no prior medical history, comorbidities, allergies, or previous surgeries. Arrives at the emergency room after a testicular trauma. While working at a warehouse loading boxes, suddenly a heavy box fell on his scrotum. The patient presented progressive swelling and pain on the right testicle; he denied any abnormal findings before the trauma. At the emergency room, the patient was suffering severe scrotum pain, swelling, nausea, and dysuria. The physical examination revealed an important enlargement of the right testicle of 15×7×8 cm and negative Prehn's sign. Biochemically tumoral markers showed normal findings. Lactate dehydrogenase (LDH) 187 U/L, alpha fetoprotein (AFP) 8.7 ng/ml, human chorionic gonadotropin (hCG) < de 1.2 mIU/ml. Ultrasound reported a heterogeneous right testicle (Figure 1) with multiple cysts and reinforcement at the Doppler vascular signal, compatible with testicular

tumor, suggestive of cystic degeneration (Figure 2). The patient was admitted to urology service and prepared for radical orchiectomy which findings were: right testicle of 20 x 10 cm, rough dissection of gubernaculum testis with complete resection of the piece (Figure 3). The histological diagnosis was "mature pure cystic teratoma" without malignant germ cell components and free margins. Reported as a tumor of 800 gr. 16x8x8 cm. epidermoid cysts (Figure 4) aspect with areas of hemorrhagic. Multiple zones with immature epithelium, segments of cartilage and digestive vessels (Figure 5), suggestive of testicular teratoma. The patient was discharged on the second post-surgical day with no pain and was referred to a tertiary care unit for oncology evaluation, management, and follow-up.

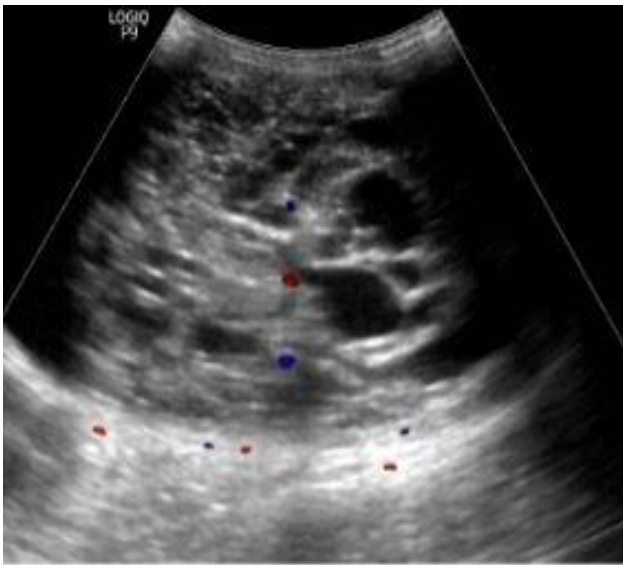


Figure 1: Right testicle with heterogenous and multicyst aspect.

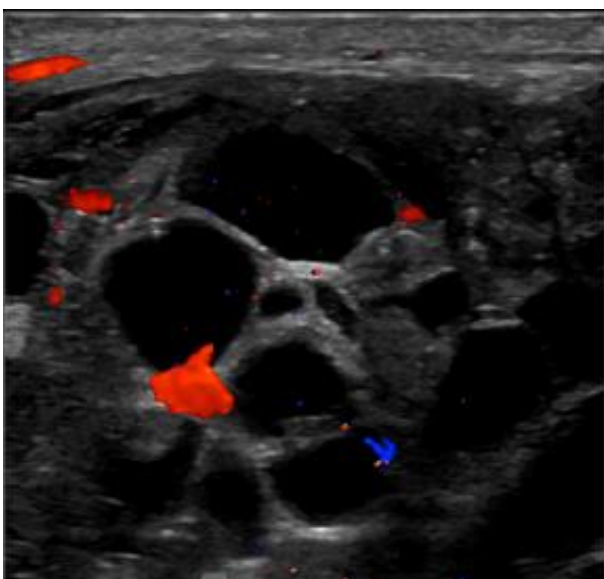


Figure 2: Right testicle with doppler signal reinforcement (high vascularity).

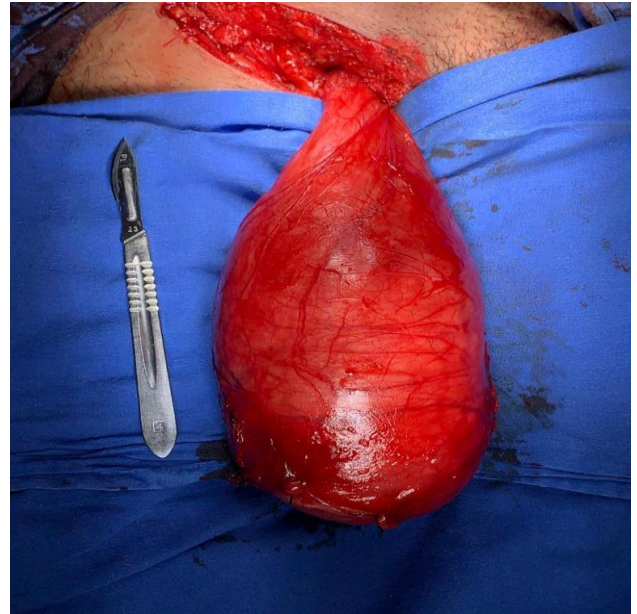


Figure 3: Surgical piece, orchiectomy.

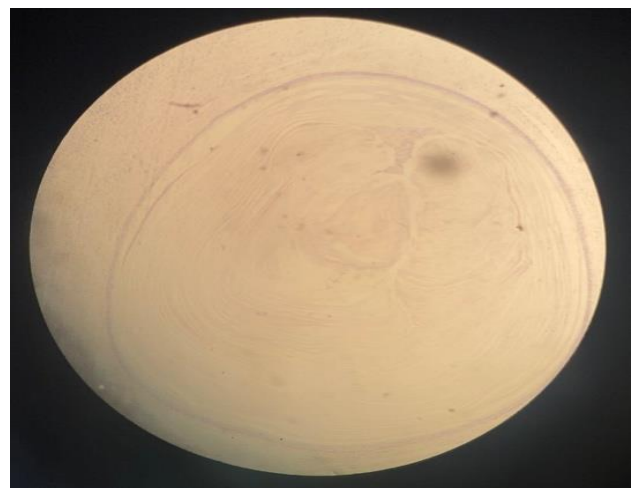


Figure 4: Epidermoid cyst classical aspect.

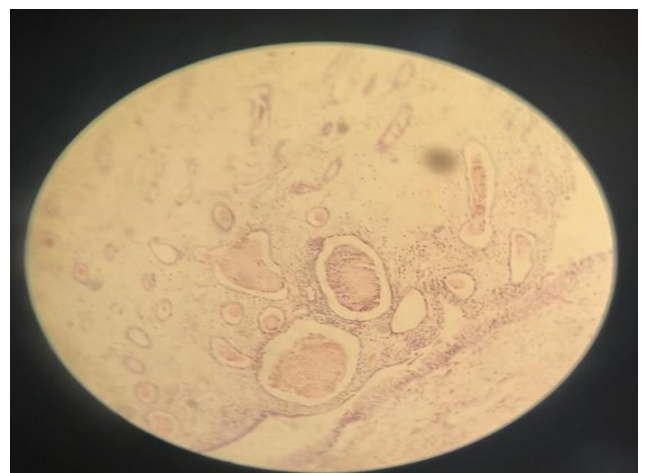


Figure 5: Immature epithelium, segments of cartilage and digestive vessels.

DISCUSSION

Testicular cancer represents approximately 1% of all neoplasias in adults and is about 5% of all urological tumors. Global incidence is about 3-10 new cases per 100,000 people annually with a rise in industrialized countries.^{1,4} More than 90% of testicular tumors are from germ cell tumors, with a typical presentation at 15-35 years old. The most common histological type being the non-seminomatous tumor.⁵ Risk factors for the development of testicular cancer includes any condition that may interfere with normal development of testis as cryptorchidism and Klinefelter syndrome; Having a first line relative with history of testicular cancer, prior testicular cancer and abnormalities in sperm and infertility may increase the risk of suffering from any type of testicular cancer.⁶ In 2022 WHO states testicular teratomas according to histopathological classification which are: Germ cell tumours derived from germ cell neoplasia in situ (Postpubertal-type teratoma and teratoma with somatic-type malignancy) and germ cell tumours unrelated to germ cell neoplasia in situ (Prepubertal-type teratoma and Mixed teratoma and yolk sac tumor, prepubertal type).⁵ As previously described, teratomas are foreign to the anatomical region in which they are found, often containing germinal tissue or any kind of another epithelium, or as said, somatic cells derived from two or more germ layers.¹ Early stage of the disease usually presents as a benign and asymptomatic course, as tumor grows the patient may present symptoms related to obstruction or compression from tumor to related structures. Physical examination may reveal nodules, cysts, and a partly solid mass, while immature teratomas may appear with hemorrhagic or necrotic presentation.^{2,4} International guidelines establish the need to obtain tumoral markers such as alpha-fetoprotein (AFP), Human chorionic gonadotropin (hCG) and Lactate dehydrogenase (LDH) before and after surgery because these parameters may help establish the disease's stage and prognosis.⁵ Testicular ultrasound is the first line study in patients with suspicious findings at the physical examination. Contrast-enhanced computed tomography (CECT) of thorax, abdomen and pelvis must be performed to rule-out any possible metastasis. Patients with bad prognosis or high levels of hCG may benefit from performing magnetic resonance imaging (MRI) from the brain.⁵ Radical Inguinal Orchiectomy is the standard of treatment in any testicular cancer, scrotal approach must be avoided because it may change stage disease and increase the local recidivism. Testis-sparing surgery, which implies partially removing the testicle leaving free disease margins is a therapeutic modality that reduces the risk of developing secondary hypogonadism or infertility, nevertheless, the indications to be performed are cases of bilateral synchronic testicular tumors or tumors in solitary testis.^{5,7} Testicular prosthesis are an option to all patients receiving orchiectomy and these can be inserted at the time of surgery or subsequently without adverse consequences. Medical treatment consists in chemotherapy being adjuvant or

neoadjuvant, radiotherapy must be reserved only for highly selected patients not suitable for surveillance with contraindication for chemotherapy.⁵ Depending on histological type some tumors may develop retroperitoneal metastases, so these patients may benefit from complete surgical resection and retroperitoneal lymph resection along with chemotherapy scheme.^{5,8,9}

CONCLUSION

Pure testicular teratoma is a not so common entity in the specter of the testicular tumors. It remains as a challenge for the specialists for some aspects as the diagnosis approach, histopathological study, treatment, and surveillance. Actual guidelines establish the management of this, so consensus of the pathology is crucial to provide good treatment to the patients. Even though the management of scrotal trauma may be different from the actual management of this case. We decided to perform an inguinal orchiectomy based on the rare presentation of enlargement of the right testicle after the trauma, with no previous history of scrotal mass, patient's age, and ultrasound images suspicious of a malignant tumor. Aware campaigns that promote self-examination are crucial point in the prevention of the disease. However, when there's suspicions of a malignant disease, early diagnose and management have a direct impact on the patient prognosis.

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