Oncology

Giant testicular tumour with major choriocarcinoma component

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A B S T R A C T

Giant testicular tumour, with volume greater than 10 times a normal testicle, is a rare presentation of testicular cancer. This is of particular note in nations where public health campaigns and high literacy rates generally lead to early detection and cure. We present a 22 year old male, with 14 month history of increasing scrotal swelling. Orchidectomy revealed a mixed germ cell tumour (choriocarcinoma 40%, teratoma 30%, and yolk sac 30%), 250 x 150 x 150mm in size. This case details the largest testicular tumour recorded in Australia, and one of the largest mixed germ cell tumours globally.

Introduction

Whilst rare over one’s lifetime, for many nations, testicular cancers are the most commonly diagnosed cancer of men aged 15–35 years old. 1 Despite this demographic prevalence, yearly mortality rates from testicular cancer are indeed low, with countries such as Australia demonstrating five-year survival near 98%. 2

Favourable outcomes for men with testicular malignancy are secondary to several factors: 1) modern day public health campaigns and success of early detection initiatives, 2) local control of non-metastatic tumours, and 3) effectiveness of modern chemotherapy regimens for metastatic disease.

Giant testicular tumours (>10 x the size/volume of a normal testicle) are a significantly rarer occurrence, associated with advanced stage disease in literature. 3, 4 We present a case which is likely to be the largest testicular tumour ever reported in Australia, and one of the largest mixed germ cell tumours in current medical literature.

Case presentation

A 22-year-old male presented to emergency with a grossly enlarged scrotum. This was his index presentation, reporting he first noticed painless swelling approximately 14 months prior. He had not sought medical advice before this presentation due to anxiety about his diagnosis and treatment. There was no history of preceding trauma, nor constitutional or respiratory symptoms. The past medical history was otherwise unremarkable.

On examination, the scrotum was grossly enlarged with erythematous and ulcerated skin at the inferior border. The left hemiscrotum contained a massive, heterogenous mass, exhibiting areas of solid tissue and multiple pockets of fluctuance. The left testicle was not palpable within this mass. The right testicle was normal to palpation at the right lateral border of the mass. The penis was unremarkable.

Ultrasound demonstrated a solid 4200 cc mass, thought to reflect a left testicular tumour. Laboratory investigations demonstrated human chorionic gonadotropin (HCG) levels of 115,211 IU/L, alpha-fetoprotein (AFP) of 7,229 IU/mL, and lactate dehydrogenase (LDH) of 551 IU/L. Haemoglobin was 108g/L, and white cell count 12.9 x 10^9/L.

The patient underwent emergency left radical orchidectomy. Skin was incised from the left mid-inguinal region to the apex of the mass, and extended onto the scrotum with care to avoid scrotal violation. The tumour was excised whole from the majority of scrotal skin. A portion of the inferior scrotal skin densely adherent to the mass was excised en bloc with the tumour (Fig. 1).

Histopathology demonstrated a pT4, 250 x 150 x 150mm, mixed germ cell tumour (choriocarcinoma 40%, teratoma 30%, and yolk sac 30%) (Fig. 2). Lymphovascular invasion and rete teste invasion was demonstrated. Tumour was present within the dermis of the island of involved scrotal skin, and scrotal margins were negative. The spermatic cord was not involved.

Staging computed tomography (CT) of chest, abdomen and pelvis demonstrated more than 20 lung metastases involving all lung segments (Fig. 3). Multiple metastases were >45 mm in diameter, with the largest demonstrated at 55 mm. Non-target lymph nodes were noted within the
Greatest diameter of metastases at initial presentation of 55mm. CT brain showed no metastases.

Stage 3 disease was diagnosed. Post orchidectomy tumour marker nadirs were HCG of 947 IU/L, AFP of 82 IU/mL, and LDH of 415 IU/L. The patient began 4 cycles of bleomycin, etoposide and cisplatin (BEP). CT at 4 months demonstrated reduction in number and size of lung metastases. Retroperitoneal lymphadenopathy was no longer demonstrated. However, HCG and LDH tumour markers have risen from subsequent chemotherapy nadirs, suggesting only partial response.

Discussion

Giant testicular mixed germ cell tumour is an extremely rare presentation of testicular cancer. This is of particular note, in nations such as Australia where public health campaigns and high health literacy rates generally lead to early detection and high cure rates.  

To our knowledge there has been no previous documentation of giant testicular tumour within Australia. This case is the largest of any primary testicular cancer demonstrated. The presentation eclipses previous sizes recorded from the United Kingdom. Globally, for mixed tumours, its size appears second only to a tumour reported by Kin et al., in 1999.

Tumour characteristics are additionally notable due to a large histological component of choriocarcinoma – 40% of the tumour bulk. Choriocarcinoma as part of giant testicular tumours have not been demonstrated in prior literature. We suggest that this is explained by several factors: 1) the rare occurrence of giant testicular tumours; 2) only 7–8% of testicular tumours contain a choriocarcinoma component; and, 3) the traditionally aggressive nature of choriocarcinoma - rapid metastasis, chemotherapy resistance and comparatively low survival.

Whilst giant mixed germ cell tumours have responded well to BEP therapy in past literature, the choriocarcinoma and/or teratoma components in this case are likely contributing to persistent disease. Reports of choriocarcinoma response do exist in the literature, however, prognosis is unquestionably guarded for the patient.

While certainly rare and remarkable in modern times, it appears regrettably common in such cases that anxiety and social stigma drive late presentation. Despite acknowledging long evidence of occurrence and potentially serious consequences of the mass, the patient did not present until prompted by previously unwitting family. This suggests that even in Australia, improvement of public health awareness regarding the curability of such disease is an ongoing necessity.

Conclusion

Giant testicular tumours are a rare occurrence in the developed world where public education and health literacy rates are high. This case demonstrates the largest giant testicular tumour recorded in Australia, and one of the largest mixed germ cell tumours in the world. Ongoing efforts are required to increase awareness of self-examination, and the favourable cure rates for both localised and advanced testicular cancer. This message should be headed both in Australia and globally by public health officials.

Credit author statement

- Stuart R Jackson – Conceptualization; Writing – original draft, review
- Jakob Koestenbauer – Writing – review and editing
- Spinder Samra – Data curation; formal analysis
- Balasubramaniam Indrajit – Supervision; Writing – review and editing.

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