A lesson in the management of testicular cancer in a patient with a solitary testis

E J Sawyer, R T D Oliver, J S Tobias, D F Badenoch

Summary

Five per cent of patients with germ cell tumours of the testis will develop a further tumour in the contralateral testis. Standard treatment in such cases is a second orchidectomy, resulting in infertility, hormone replacement, and psychological morbidity. In this case report we explore the role of testis conservation in these patients and also show that there is a risk of removing a potentially normal testis if a histological diagnosis is not sought prior to orchidectomy.

Keywords: testicular germ cell tumours; carcinoma-in-situ; orchidectomy

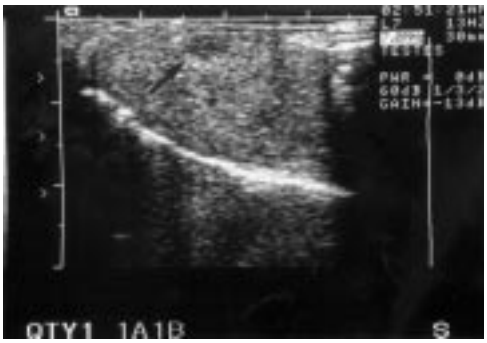

Figure 1 Intra-operative ultrasound revealing a 4-mm hypoechogenic nodule lying immediately on the surface of the exposed testis. The site was marked for excision

With the current preference for orchidectomy in patients with suspicious testicular masses there is the risk of removing a potentially normal testis. Experience of a patient with a suspicious mass in a solitary testis which was subsequently found to have benign histology after testis-conserving surgery, prompted us to report the present case.

Case history

A 39-year-old man presented with a 6-week history of pain in the left groin and suprapubic area with increasing tenderness in the right testis. Fourteen years earlier he had undergone a left orchidectomy and chemotherapy (four cycles of bleomycin, etoposide and cisplatin) for stage 2C teratoma. Since that time he had been well apart from azospermia which had been detected prior to starting chemotherapy.

Examination on this occasion revealed a tender solitary right testis with no palpable nodule. Doppler ultrasound revealed a 4-mm lesion with normal blood flow within the right testis. Serum β-human chorionic gonadotropin (β-hCG) and α-fetoprotein were not raised but on the basis of the ultrasound findings it was felt that the lesion probably represented a tumour and he was advised to undergo an orchidectomy.

He was concerned about having to take long-term testosterone replacement, and although he was aware that the most likely diagnosis was a second malignancy, was keen if possible to pursue testis conservation. He underwent exploration of the right testis through a groin incision. Intra-operative ultrasound using a 7.5 mH ultrasound probe was used to identify the lesion (figure 1), which was excised with a rim of surrounding normal tissue. A separate testicular biopsy was also performed. Despite the clinical prediction of a new primary malignancy, histology of the nodule revealed seminiferous tubules lined only by Sertoli cells and marked proliferation and hyperplasia of Leydig cells. The separate biopsy showed atrophic testis.

Discussion

This case highlights the problems of diagnosis of testicular masses. Ultrasound is the mainstay for imaging of the testis and has a sensitivity of 80–98%.[1] One of its limitations is that non-neoplastic lesions may mimic tumours. Magnetic resonance imaging (MRI) has no proven diagnostic benefit over ultrasound, but provides better localisation when partial orchidectomy is being considered (figure 2).[2] If this surgical approach is followed, then intra-operative ultrasound can be used, as in this case, to delimit the lesion and thus remove as little of the normal testis as possible.

Fine needle aspiration of a suspicious mass is not performed to confirm the diagnosis prior to surgery due to the theoretical risk of tracking at the needle site and scrotal recurrence, although how real this risk is with modern adujvant treatment is unknown. Semen cytology has proved useful but is positive in only 50% of cases.[3]

Radical orchidectomy rather than partial orchidectomy via an inguinal approach is the operation of choice, as 90% of testicular germ cell tumours have associated carcinoma in situ (CIS) which progresses to invasive disease in 50% of cases within 5 years.[3] Partial orchid-

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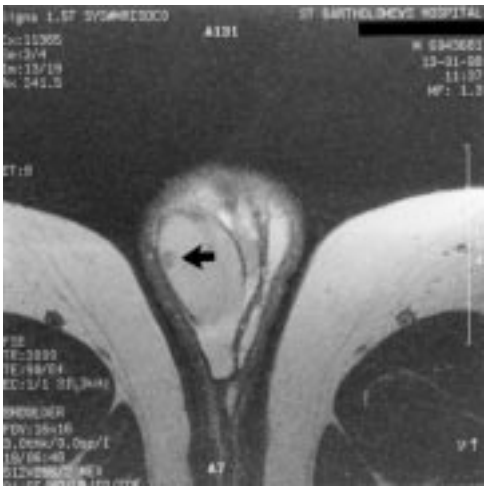

Figure 2 Pre-operative MRI scan showing the position of the nodule near the surface of the testis

Learning points

- a histological diagnosis should be made prior to orchidectomy, especially in patients with a solitary testis
- 90% of testicular germ cell tumours have associated CIS, which progresses to invasive disease in 50% of cases within 5 years
- biopsy of the contralateral testis is often performed at the time of diagnosis to look for CIS as 5% of patients will develop bilateral testicular germ cell tumours
- CIS can be treated with radiotherapy, which leads to infertilty but avoids testosterone replacement. If the patient wishes to preserve fertility, chemotherapy can be used with careful observation
- partial orchidectomy followed by radiotherapy or chemotherapy to treat surrounding CIS, can be used as an alternative to orchidectomy

ectomy has been used in benign testicular tumours and has also been described in patients developing a germ cell tumour in a solitary testis.[4 5]

The issue of disease in a solitary testis is important as 5% of patients with germ cell tumours of the testis will develop a further tumour in the contralateral testis.[6] If radical orchidectomy is the treatment of choice then all patients developing bilateral disease will suffer infertility and be committed to life-long testosterone replacement, as well as suffer the psychological burden of bilateral orchidectomy. At present none of the existing treatment modalities for life-long androgen replacement ensure constant physiological testosterone levels, and patients can suffer from disturbances in their libido and sexual dysfunction.[7]

Due to the risk of malignancy in the contralateral testis it is becoming routine in certain centres to biopsy the contralateral testis in patients who present with germ cell tumours looking for CIS.[6 7] Radiotherapy has been used successfully to eradicate CIS. Doses of 16–20Gy in 8–10 fractions have been given and result in infertility but allow the patient to retain some Leydig cell function, and often avoid testosterone replacement.[7 8] For those patients remaining fertile after unilateral orchidectomy who have contralateral CIS and wish to father a family, chemotherapy may be an option. Chemotherapy has not produced 100% durable suppression of CIS and such patients will require careful observation as the disease may recur in up to 50%.[7]

In patients with a tumour in a solitary testis, the above techniques can be applied following partial orchidectomy, ie, partial orchidectomy is used to remove the tumour and then followed by radiotherapy to the testis or chemotherapy in order to eradicate or control CIS.[8] Another option in these patients is chemotherapy alone. Evidence for this has come from a series of 32 patients who presented with metastatic disease and received chemotherapy without undergoing orchidectomy. Fourteen of these patients had no residual disease in their testis after treatment, while 13 remained relapse-free for a median of 7 years, although there was one relapse at 12 years.[9]

The advantages of using partial orchidectomy are well illustrated in this case as it allows a histological diagnosis to be made and a treatment plan formulated depending on the patient's wishes, particularly when considering issues of fertility and hormone replacement. It is especially important to consider these concerns in patient with a solitary testis but the same principles should be applied to all patients, as there are minor complications and psychological morbidity associated with orchidectomy.

A theoretical disadvantage is that partial orchidectomy and associated postoperative haematoma may distort the anatomy and make follow-up difficult. Although data on this are limited, experience of follow-up in four patients by one of us (RTDO) has not been a problem provided findings from ultrasound and clinical examination are taken together. Three of these patients have also had MRI, which adds little, although it improves the ease of getting a three-dimensional perspective of the testis.

Our patient was found to have Leydig cell hyperplasia, a benign condition requiring no further treatment following excision. It has been reported in patients with testicular tumours secreting high levels of β-hCG. There is a single case report of Leydig cell hyperplasia mimicking a testicular tumour in a patient treated 21 years previously for an extragonadal seminoma.[10] In this case the patient underwent orchidectomy for a benign condition.

In summary, ultrasound is not a foolproof method of diagnosing testicular tumours and if unnecessary orchidectomy for benign disease is to be avoided, an attempt at histological diagnosis must be made. At present this is best done by partial orchidectomy. If malignancy is confirmed then radical orchidectomy is not mandatory and radiotherapy or chemotherapy as discussed above should be considered.

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Extramedullary myeloid cell tumour: presentation as anterior chest wall mass during AML relapse

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Summary
Acute myeloid leukaemia is an uncommon but an important cause of soft tissue swellings. Such extrameningeal, extramedullary leukaemic infiltrates are called extramedullary myeloid cell tumours. Despite their large size they may respond well to chemotherapy and local radiotherapy, as is demonstrated in this case.

Keywords: myeloid cell tumour; acute myeloid leukaemia

Extramedullary myeloid cell tumour (EMT), also known as granulocytic sarcoma, is known to occur in 3–7% of patients with acute myeloid leukemia (AML).[1 2] It can occur at initial presentation or at relapse. We report a case of AML in relapse presenting with a large anterior chest wall mass which was confirmed to be EMT and which responded completely to a combination of chemotherapy and radiotherapy.

Case report

A 49-year-old man was diagnosed as a case of AML-M1 in May 1996. He failed to achieve remission after induction chemotherapy with idarubicin and cytosine arabinoside. Complete remission was achieved after re-induction chemotherapy with daunorubicin and cytarabine given for 3 and 7 days, respectively, in the standard dosages. He subsequently completed consolidation chemotherapy (total of three cycles). The first and third cycle of consolidation therapy were similar to the re-induction chemotherapy regimen. The second cycle consisted of intermediate dose cytosar (1 g/m^2 bid for 5 days). He subsequently received alpha-interferon as part of research protocol to study the efficacy of alpha-interferon during consolidation and maintenance. While on interferon therapy, he presented in November 1997, with a progressively increasing painless lump over the anterior chest wall in the midline, of 3 weeks duration. Examination revealed a performance status of I (ECOG), and a hard mass measuring 10 × 14 cm overlying the anterior chest wall (figure 1). It was fixed, non-tender and non-pulsatile with bluish discolouration of overlying skin. Hepatomegaly (3 cm) below the right costal margin and splenomegaly (4 cm) below the left costal margin were also noted.

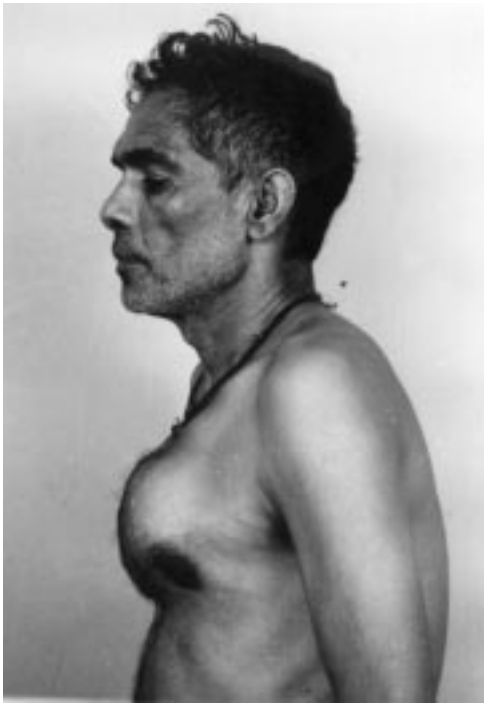

Figure 1 Lateral view showing a large mass over the anterior chest wall (reproduced with the patient's permission)

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