CASE REPORT

Embryonal carcinoma presenting as a calcified solitary testicular mass on ultrasound

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SUMMARY

A 24-year-old man presented with a 2-week history of a painless right testicular mass; ultrasound demonstrated a dense, solitary calcified mass. The patient elected observation after further workup showed no evidence of metastasis.

A repeat ultrasound 3 months later showed interval growth and the patient underwent right radical orchiectomy. Pathology was consistent with pure embryonal carcinoma of the testis. Calcified testicular masses are typically benign but do carry a differential of spermatic granuloma, large-cell calcifying Sertoli cell tumour, trauma, tuberculosis, filariasis, calcified Leydig cell tumour and burned-out testicular tumour.

To our knowledge, this is the first case report of pure embryonal carcinoma presenting as a solitary calcified testicular mass.

BACKGROUND

The finding on ultrasound of a densely calcified solitary testicular mass carries a differential diagnosis of primarily benign pathologies. Only a handful of case reports have discussed dysplastic findings of such calcified masses, and in none of those cases was embryonal carcinoma (EC) diagnosed. As such, to our knowledge we report the first case of pure EC presenting with a densely calcified solitary testicular mass on ultrasound.

CASE PRESENTATION

A 24-year-old man presented with a painless firm intratesticular nodule. Physical examination revealed a firm intratesticular mass on the antero-lateral surface of the right testicle, but was otherwise benign.

Figure 1 (A) Ultrasound of the right testicle at presentation demonstrating a solitary calcified mass measuring 1.0×0.6×0.9 cm with no surrounding soft tissue abnormalities. (B) Ultrasound of the right testicle at 3-month follow-up demonstrating interval growth of the previously seen solitary calcified mass, now measuring 1.0×0.8×2.2 cm.

Figure 2 (A–C) Histopathological images of right testicular mass. (A) High nuclear grade with solid and tubular patterns. (B) Histological staining positive for keratin. (C) Histological staining positive for PLAP.

His medical history was notable for trauma to the ipsilateral testicle 8 years prior, yet was otherwise unremarkable.

INVESTIGATIONS

Ultrasound revealed a dense, solitary calcified mass measuring 1.0×0.6×0.9 cm with no surrounding soft tissue abnormalities and no increased blood flow within the lesion (figure 1A). Further workup, including CT and serum tumour markers, was within normal limits. After thorough counselling, the patient elected observation. A repeat ultrasound 3 months later demonstrated interval growth of the mass to 1.0×0.8×2.2 cm (figure 1B).

DIFFERENTIAL DIAGNOSIS

The differential diagnosis of a calcified testicular mass includes spermatic granuloma, large-cell calcifying Sertoli cell tumour, trauma, tuberculosis (TB), filariasis, calcified Leydig cell tumour and burned-out testicular tumour.

TREATMENT

Given the interval growth and suspicion for malignancy, the patient underwent a right radical orchiectomy without complication.

OUTCOME AND FOLLOW-UP

Gross pathology showed a white-tan circumscribed lesion with focal areas of haemorrhage. Histology was consistent with pure EC. Immunohistochemical staining showed positivity for AE1/AE3, CK 8/18, CD30 and PLAP, and negativity for AFP and HCG, all of which further supported the diagnosis of EC (figure 2). The tumour was confined to the testicle and no lymphovascular invasion was present.

DISCUSSION

EC is the second most common histological type of testicular tumour after seminoma, but the EC morphology typically occurs in mixed tumours,

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with pure EC present in only 16% of all tumours containing EC.¹ On ultrasound, calcifications may be present, but commonly follow a heterogeneous pattern and are within a surrounding hypoechoic mass.

The differential diagnosis for a solitary intratesticular calcification on ultrasound includes malignancy and predominantly benign lesions, such as spermatic granuloma, large-cell calcifying Sertoli cell tumours, trauma, TB, filariasis,² burned-out testicular tumour³ and calcified Leydig cell tumour.⁴

To date there have been only a handful of case reports on intratesticular calcified masses on ultrasound. These reports ultimately diagnosed an ossifying interstitial tumour of the testis,⁵ osteoid metaplasia of the testis secondary to radiotherapy,⁶ monodermal teratomatous tumour with secondary heterotopic ossification,⁷ dystrophic intratesticular calcification with no evidence of neoplasia,⁸ a testicular dermoid cyst,⁹ burned-out seminoma³ and calcified Leydig cell tumour.⁴

Learning points

- ▶ Pure embryonal carcinoma can present as a solitary calcified intratesticular mass on ultrasound.
- ▶ Testicular cancer should be strongly considered in the differential diagnosis of a densely calcified solitary mass on ultrasound.
- ▶ Despite the relative unlikelihood of testicular cancer in the case of a densely calcified solitary testicular mass, a full workup including CT imaging and screening for tumour markers should certainly be undertaken in all cases, and very close follow-up or surgical excision is recommended.

To our knowledge, we report the first case of pure EC presenting with a densely calcified solitary testicular mass on ultrasound.

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