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An Unusual Case of Unilateral Malignant Leydig Cell Tumour of the Testis

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Key Words

Leydig cell tumour · Malignancy · Mitotic activity · Nuclear atypia · Testis · Tumour size

Abstract

Leydig cell tumour is a benign testicular non-germ cell tumour, and malignant transformation is rare. We report a case of a 35-year-old man who came to our hospital with a painless left testicular mass measuring 1.2 × 1 cm. Histological evaluation of the tumour showed features of a malignant Leydig cell tumour but no infiltration beyond the capsule or metastasis. The small size of the tumour was remarkable.

Introduction

Leydig cell tumours are rare stromal tumours of the testis accounting for 1–3% of testicular neoplasms. About 10% of them are malignant. They exhibit a peak incidence in the preadolescent as well as in the older (>50 years) age groups [1–4]. The diagnosis of a malignant Leydig cell tumour is not always easy since no definite histological criteria for malignancy exist.

Case Report

A 35-year-old man presented to our hospital with a 3-month history of a painless left testicular mass. He had no gynecomastia. Blood concentrations of chorionic gonadotrophin, fetoprotein and human placental lactogen were within the reference range. Physical examination and ultrasonography revealed a testicular mass measuring 1.2 × 1 cm. A left radical orchidectomy was performed and the specimen submitted for histopathological examination. On microscopic examination, a malignant Leydig cell tumour was found. The cells displayed acidophilic cytoplasm, intranuclear inclusions and increased

mitotic activity ($>3/10$ HPF). Many cells with large atypical pleomorphic nuclei could also be observed ([fig. 1](#), [fig. 2](#)). There was no angiolymphatic invasion, foci of necrosis or extension beyond the capsule of the testis. The immunohistochemical study showed that the tumour cells were positive for vimentin, melan A and inhibin, and negative for CKAE₁, CKAE₃, S_{100p}, P63, CEA, AFP and actin. Ki67 was expressed in 10% of the malignant cells ([fig. 3](#)).

Retroperitoneal lymph node dissection was suggested, but the patient declined further surgery. One year later, he showed no evidence of metastasis.

Discussion

Leydig cell tumours are rare and only about 3% of them are bilateral. About 15–20% of the patients already present with metastatic disease, particularly in the lymph nodes, lung and liver [5]. These tumours may be hormonally active, and gynaecomastia is seen in 30% of the cases [2, 3, 6].

Leydig cell tumours in an undescended testis may exhibit only manifestation of endocrinological disorders such as gynaecomastia, impotence and loss of libido. However, among the 480 cases of Leydig cell tumours reported in the literature, only 20 cases were associated with cryptorchidism, and there is no evidence that undescended testes are more prone to develop Leydig cell tumours [2, 5, 7]. Features associated with malignancy include a large tumour size (5.7 cm), nuclear atypia, a mitotic count of $>3/10$ HPF, foci of necrosis, angiolymphatic invasion, infiltrative margins, DNA aneuploidy and an increased expression of Ki67/MIB-1 and p53 [2, 3, 8–10].

Our patient was young and did not fit into either of the known age incidence peaks. Microscopic features such as the severe nuclear atypia and increased mitotic activity ($>3/10$ HPF) favoured the diagnosis of malignancy. However, there was no angiolymphatic invasion or extension beyond the capsule of the testis. Also, the small size of the tumour was remarkable. One year after surgery, the patient was well with no evidence of metastasis.

Fig. 1. Malignant cell tumour. Nuclear and cellular polymorphism and abnormal mitoses. $\times 400$.

Fig. 2. Malignant Leydig cell tumour. $\times 200$.

Fig. 3. Immunohistochemical staining for inhibin A. $\times 400$.

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