CASE REPORT

# *The unsuspected nonpalpable testicular mass detected by ultrasound: a management problem*

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*Ultrasound is recognized as a valuable method of detecting testicular masses. Rarely, ultrasound will detect a testicular mass that was not clinically suspected. We present the case of a 43-year old man who presented with an unsuspected testicular mass detected by ultrasound. He underwent inguinal orchiectomy. The pathology showed a Leydig Cell tumor with cytological atypia. A review of the literature suggests that most incidentally discovered testicular masses are tumors, but there is disagreement as to whether they are usually benign or malignant. In view of the fact that many of these lesions are benign, if tumor markers are not elevated, inguinal exploration and excision of the lesion with frozen section examination is an acceptable management approach.*

**Key Words:** testis tumor, ultrasound

## Introduction

Ultrasound has a near 100% sensitivity for detecting testicular tumors, most of which are hypoechoic lesions.[1] Most testicular tumors are suspected based on symptoms, and/or detection of a testicular mass on physical examination. Impalpable testis tumors may also be suspected based on non specific symptoms such as gynecomastia, or the detection of metastatic tumors with or without elevated testicular tumor markers. Most testicular masses discovered in patients with metastatic disease will represent primary testicular tumors.[2] There is disagreement however on the significance and management of testicular masses discovered by ultrasound examination in patients in whom the possibility of a mass was not suspected.[2,3] We report a patient in whom an unsuspected testicular mass was detected by ultrasound, and review the literature on similar patients.

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### *Case report*

A 43-year-old father of four boys presented to his family physician with left scrotal discomfort. There was a possible history of minor trauma a few weeks previously. Physical examination was unremarkable. An ultrasound examination of the scrotum was scheduled on an elective basis. In the interval between

initial presentation and the ultrasound examination, the symptoms resolved completely. Ultrasound examination revealed a normal left testis, but demonstrated a solid, 6 mm hypoechoic mass in the upper pole of the right testis. He was referred for urological evaluation. On examination there was no gynecomastia. Secondary sexual characteristics were normal. Careful scrotal examination revealed no abnormality of either testicle.

Further evaluation consisted of a chest X-ray, abdominal and pelvic CT scan, and serum B-HCG, alpha-feto protein and LDH. All of these tests were normal. An ultrasound examination of the scrotum was repeated Figure 1 confirming the presence of a testicular mass.

Right inguinal orchiectomy was performed. The pathology showed a Leydig cell tumor with a high mitotic rate, and mild to moderate cytological atypia. There was no necrosis or vascular invasion.

The post-operative course was uneventful. Long-term follow-up is planned.

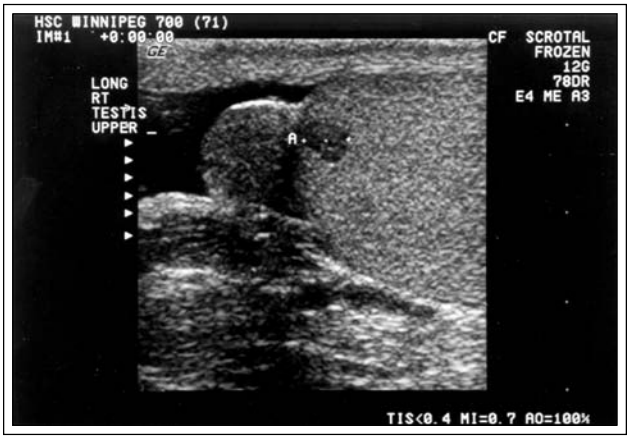


**Figure 1.** Ultrasound image of a 6 mm mass in the upper pole of the right testis.

## Discussion

Leydig (interstitial) cell tumors are the most common gonadal stromal tumors, comprising between 1% and 3% of testis tumors.[1] Ultrasound usually shows a small, well defined hypoechoic lesion that is sonographically indistinguishable from a malignant germ cell tumor. Most are benign, but up to 10% are malignant. The only true indicator of malignancy is the presence of metastases, which may present many years after orchiectomy. In the presence of a normal contralateral testicle, the recommended initial management is inguinal orchiectomy.

There are few reports on incidentally detected testicular tumors. Corrie et al reported on five patients with incidentally discovered testicular masses on ultrasound.[4] Two of these patients presented with gynecomastia, two had testicular or epididymal discomfort of recent origin, and one patient had a history of recent testicular trauma. Of the patients presenting with gynecomastia, in one patient inguinal orchiectomy revealed a Leydig cell tumor, and in the other Leydig cell hyperplasia. Inguinal orchiectomy revealed diffuse orchitis in a third patient. Two patients had follow-up ultrasound examinations showing partial or complete resolution of the ultrasonically detected testicular mass, and were not therefore subjected to orchiectomy. Based on their experience, they recommend follow-up ultrasound examinations, and inguinal exploration with frozen section evaluation of persistent masses.

In another review, de la Rosette et al reported on six patients with unexpected hypoechoic testicular masses which were not considered to be cysts.[5] Of the six patients, three had malignant germ-cell tumors, one had a Leydig cell tumor, and in two patients no tumor was identified. Frozen section was performed in three of their patients with testicular tumors, and missed the tumor in two patients (one with seminoma, and one with Leydig cell tumor). In their small series, they felt that frozen section was of minimal value.

Horstman et al reported on nine patients with testicular masses discovered incidentally by ultrasound. Inguinal orchiectomy revealed benign lesions in seven (78%) (Leydig cell tumors in four, Sertoli cell tumors in two, and interstitial fibrosis in one), and malignant tumors in two (22%), (seminoma in one and teratocarcinoma in one).[3] They concluded that incidentally discovered testicular masses are likely to be benign, and recommend inguinal exploration, and intraoperative frozen section with a view to sparing the testicle if the lesion is benign.

In a more recent review, Comiter et al reported that six of eight patients (75%) with incidentally discovered testicular masses on ultrasound had viable testicular cancer.[2] These findings suggest that a histological diagnosis is mandatory in patients with incidentally discovered testicular masses.

In the four studies reviewed above 11 of 28 patients (39%) had malignant testicular tumors. In none of the papers were data regarding tumor markers in patients with malignant testicular tumors provided. In a patient with an incidentally discovered mass by ultrasound, the detection of elevated tumor markers would make the diagnosis of a malignant testicular tumor more likely.

Although lesions disappeared with follow-up ultrasound examinations in the series reported by Corrie,[4] a policy of observation and follow-up ultrasound examinations is not supported in other papers. We are unaware of any other studies evaluating the safety of following ultrasonically detected testicular masses by ultrasound. As stated above, our review suggests that there is a 39% possibility that a patient has a malignant testicular tumor, for which a policy of observation would not be appropriate.

Although sonographic features of testis tumors cannot always be differentiated from benign conditions such as infarction, hematoma, or inflammatory conditions,[1] the limited reports in the literature suggest that the majority of testicular masses detected incidentally by ultrasound, are in fact testicular tumors, either benign or malignant. Transscrotal ultrasound guided needle biopsy of nonpalpable Leydig cell tumors has been reported.[6] There are two concerns with this approach. The first is that the site of aspiration may not represent the abnormality identified on ultrasound, and the second is the possibility of seeding of the scrotal wall if the lesion is a germ cell tumor.

Although de la Rosette et al reported disappointing results with inguinal exploration and frozen section examination,[5] there have been several reports of successful management of patients with malignant testicular tumors treated with an organ sparing approach.[7-9] This is of particular value in patients with either tumors in a solitary testicle, or bilateral testicular tumors. In view of the fact that most incidental sonographically discovered testicular masses are benign lesions, it appears reasonable to apply the approach of inguinal exploration and frozen section of such lesions to these patients. In patients with normal tumor markers, and a history suggesting a possible benign explanation for the ultrasound findings, follow-up with serial ultrasound examinations may be appropriate. □

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