

# EPIDERMOID CYST OF THE TESTIS: A SURGICAL APPROACH FOR TESTICULAR PRESERVATION

BURTON A. SCHLECKER, ANDREW SIEGEL, JEFFREY WEISS AND ALAN J. WEIN

*From the Division of Urology, University of Pennsylvania, Philadelphia, Pennsylvania*

## ABSTRACT

We report on 6 patients with epidermoid cysts of the testis. Simple excision and testicular salvage are advocated when frozen section reveals the presence of an unequivocally benign lesion.

Benign testis tumors are rare and account for 1 to 3.5 per cent of all testicular tumors. The majority of these lesions are epidermoid inclusion cysts.<sup>1,2</sup> Benign tumors of the testis often cannot be distinguished from malignant lesions by palpation.

Because of the uncommon occurrence of epidermoid inclusion cysts, the reported potential adverse consequences of in situ biopsy and the difficulty in interpreting frozen section, orchietomy has been advocated as the treatment of choice.<sup>3-5</sup> However, this approach is controversial.<sup>7,8</sup> In a review of the literature 80 cases of epidermoid inclusion cysts were reported, 85 per cent of which were treated by orchietomy.<sup>9</sup>

We report on 6 patients with epidermoid inclusion cysts, 3 of whom underwent frozen section diagnosis, and were treated with simple excision and testicular sparing. The remainder required orchietomy, since carcinoma could not be ruled out.

## RESULTS

From 1971 to 1983, 142 inguinal explorations were performed for testicular masses. Of these testicles 126 (89 per cent) had malignant disease (nonseminoma in 56, seminoma in 50, metastatic disease in 12, gonadal stromal tumor in 5 and Leydig cell tumor in 3) and 16 (11 per cent) had benign lesions either in the orchietomy specimen or in the testicular biopsy (epidermoid inclusion cyst in 6, benign cysts in 4, leiomyoma in 2, adenomatoid tumor in 1, fibrous pseudotumor in 1, neurofibroma in 1 and calcified fibroma in 1). Of all 142 tumors 6 (4 per cent) proved to be epidermoid inclusion cysts, which represents 37.5 per cent of all benign lesions (see figure).

Among the 6 patients with epidermoid inclusion cysts we were able to achieve a 50 per cent testicular salvage rate (see table). Followup has ranged from 14 to 46 months (median 38 months), with no evidence of recurrent local or metastatic disease.

## DISCUSSION

An epidermoid inclusion cyst of the testicle has been a well recognized entity since it was reported first by Dockerty and Priestly in 1942.<sup>10</sup> Central to the issue of testicular preservation are clinical criteria for selection of patients in whom testicular biopsy should be performed when confronted with a testicular mass. The loss of a testicle may cause psychological sequelae that can be obviated by a conservative approach. This method is advantageous for patients with a solitary testis. Epidermoid inclusion cysts characteristically are firm, smooth, nontender masses compared to malignant testicular neoplasms, which tend to be rock hard and irregular.

Preservation of the testis containing such a tumor requires clear histological criteria of benignity on frozen section. According to Price: 1) the cyst must be intratesticular in location, 2) the cyst wall must contain fibrous or squamous epithelial elements, 3) there must be no teratomatous elements present and 4) the lumen should contain keratinous or amorphous ma-



Histological section shows squamous epithelial linear cyst containing amorphous keratinous material as well as surrounding normal testicular parenchyma.

*Patients with epidermoid inclusion cysts treated by testicular biopsy or radical orchietomy*

Pt.—Age	Tumor Markers*	Frozen Section	Procedure
BF—23	Neg.	Epidermoid inclusion cyst	Excisional biopsy
FM—42	Neg.	Sebaceous cyst cannot rule out mature teratoma	Radical orchietomy
RC—30	Neg.	Normal squamous epithelium cannot rule out well differentiated teratoma.	Radical orchietomy
JB—19	Neg.	Epidermoid inclusion cyst	Excisional biopsy
CS—34	Neg.	Nondiagnostic	Radical orchietomy
GC—21	Neg.	Epidermoid inclusion cyst	Excisional biopsy

Final pathological diagnosis in all patients was epidermoid inclusion cyst.  
\*  $\alpha$ -Fetoprotein and  $\beta$ -human chorionic gonadotropin.

terial.<sup>11</sup> The histogenesis of epidermoid inclusion cysts is unknown but probably represents a monolayer teratoma.

Ultrasound of the testis has been useful in distinguishing cystic versus solid masses of the testicle and in establishing whether a mass is intratesticular or extratesticular.<sup>12,13</sup> Ultrasound has been used to help distinguish nonseminomatous germ cell tumors from seminoma or lymphomas.<sup>14</sup> Except in the rare case of a simple cyst,<sup>15</sup> ultrasound cannot distinguish adequately benign from malignant testicular masses.

Our surgical approach involves a standard inguinal incision with several modifications. The spermatic cord is occluded with a noncrushing vascular clamp. The suspect testis is delivered into the wound and then draped free of the surrounding tissues. Total isolation of the testicle will facilitate radical orchietomy or testicular biopsy with no contamination. In the case of an epidermoid inclusion cyst it is advisable to remove a portion of the surrounding parenchyma so that it can be examined for

any teratomatous elements. The testis is spared only if an unequivocal diagnosis of epidermoid inclusion cyst or other benign lesion can be made by frozen section. Otherwise, standard radical orchiectomy is performed. If frozen section is positive for malignant tumor then different instruments should be used for the radical orchiectomy.<sup>16</sup> We inject the spermatic cord routinely with bupivacaine hydrochloride before the external oblique aponeurosis is closed when orchiectomy is not done.

Our over-all incidence is 11 per cent for benign testicular tumors and 4 per cent for epidermoid inclusion cysts. These findings are significantly greater than seen in the urological literature, which lends credence to the use of exploration and frozen section to decrease the incidence of orchiectomy for benign disease.

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