# Painless benign epidermoid cyst of the testis

# 無痛的良性睪丸表皮樣囊腫

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Benign intratesticular lesions such as epidermoid cyst are rare, but recognition is important to avoid unnecessary surgical intervention (orchiectomy). The combination of ultrasonographic findings and negative tumour markers can help differentiate benign from malignant intratesticular lesions. At surgery, the lesion can be enucleated and frozen sections obtained to confirm the diagnosis, thus avoiding the need for orchiectomy. (*Hong Kong j.emerg.med.* 2006;13:235-236)

良性的睪丸內病變如表皮樣囊腫是很罕見，但識別這些疾病以避免不必要的外科措施（睪丸切除術）是重要的。結合超聲波造影結果及陰性腫瘤指標可助分辨良性及惡性睪丸內病變。手術時，可摘出病變部份作冰凍切片法確實診斷，因而避免切除睪丸。

**Keywords**: Epidermal cyst, testis, ultrasonography

**關鍵詞：**表皮樣囊腫、睪丸、超聲波造影術

## Case summary

A 25-year-old male presented with an insidious onset of painless enlargement of the right testis in 2004. Physical examination revealed an enlarged right testis without evidence of lymphadenopathy or gynaecomastia. Unfortunately, tumour markers (α-fetoprotein and β-human chorionic gonadotropin) were not performed. Ultrasound examination demonstrated an approximately 3 cm well-marginated mass with concentric rings of hypoechogenicity and hyperechogenicity. The centre of the mass was slightly echogenic (Figure 1). On Doppler study, there was no demonstrable blood flow within. The surrounding parenchyma and the right epididymis were normal.

Histopathology revealed a well-circumscribed cystic structure lined by attenuated keratinizing stratified squamous epithelium. The cyst contained abundant

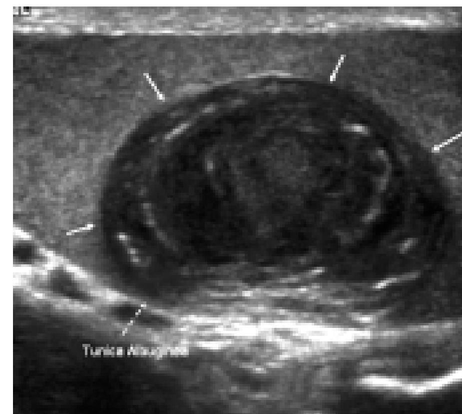


**Figure 1.** Ultrasound of right testis (longitudinal) demonstrating a 3 cm well-marginated mass with concentric rings of hypoechogenicity and hyperechogenicity as well as a centre that is slightly echogenic.

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laminated keratin. The surrounding testicular tissue was unremarkable. There was no evidence of intratubular germ cell neoplasia. The overall features were consistent with a benign epidermoid cyst, which is regarded as a specialized variant of mature teratoma.

## Discussion

Epidermoid cysts (keratocysts) of the testis are uncommon benign tumours of germ cell origin that was first described in 1942 by Dockerty and Priestley.[1] These benign tumours accounts for 1-2% of all testicular lesions. The majority of patients are in the 2nd to 4th decades of life. There is a slightly higher prevalence in the right testis. However, patients with multiple cysts have been associated with Gardner syndrome, Klinefelter syndrome, primary carcinoid tumour in the cyst wall and cryptorchid testes.[2-4]

Patients are often asymptomatic except for an incidental smooth, firm, painless testicular mass on physical examination. Some patients may experience scrotal pain, scrotal enlargement, or vague discomfort. These cysts are often 1-3 cm in size on clinical presentation. The clinical manifestation of epidermoid cysts is often indistinguishable from that of the much more common malignant germ cell tumour.

Ultrasound evaluation is the imaging modality of choice. The epidermoid cyst appearance on ultrasound varies with the maturation, compactness, and quantity of keratin present within. However, typically the cyst is a well-circumscribed, intratesticular lesion with normal surrounding testicular tissue. The cyst may appear as a hypoechogenic concentric ring surrounding an echogenic centre, with or without a hyperechogenic rim ("bull's-eye" or "target" appearance), or it can contain alternating hypoechogenic and hyperechogenic concentric rings (onion ring appearance). These cysts do not show blood flow at Doppler examination. The lack of intracystic vascularity helps to differentiate the epidermoid cyst from neoplasms.

Magnetic resonance imaging has been complementary to diagnosis. The epidemoid cyst appears with a peripheral rim of hypointensity (T1W & T2W) and a circumferential zone of hyperintensity surrounding a low-signal-intensity central zone. There is a lack of contrast enhancement from the cyst.[5]

The management of epidermoid cyst has also been controversial. Previously, orchiectomy was necessary to arrive at a histological diagnosis. Recently, with consistent findings on frozen sections together with two biopsies of the surrounding parenchyma showing absence of testicular intraepithelial neoplasia, the patient may be treated by conservative surgery.

The combination of the typical ultrasound finding of an onion ring configuration, negative tumour marker status, and avascularity allows the pre-operative diagnosis of epidermoid cyst of the testis to be made. At surgery, the lesion can be enucleated and frozen sections obtained to confirm the diagnosis, thus avoiding the need for orchiectomy.[6-8]

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