CASE REPORT

Scrotal cystic mass as a late presentation of neonatal testicular torsion

Jiun-Siang Tan a, Sheng-Hong Tseng b, Tzung-Hsien Lai a, Chia-Chi Weng a, Chun-Yu Kao a, Yun Chen a,c,*

a Department of Surgery, Far Eastern Memorial Hospital, Taipei, Taiwan
b Department of Surgery, National Taiwan University Hospital and National Taiwan University College of Medicine, Taiwan
c Department of Chemical Engineering and Materials Science, Yuan Ze University, Taoyuan, Taiwan

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Summary We present the case of a 1-year-old boy who had had a right scrotal enlargement for 9 months. He experienced a sudden onset of right scrotal enlargement and irritability at 3 months of age. No testis but hydrocele was identified at 5 months by sonography at another hospital. On admission, an elastic mass in the right scrotum measuring 3 cm × 2 cm × 2 cm was noted. Sonography showed a cystic, thick-walled mass, wherein no testis was identified. Magnetic resonance imaging failed to reveal his right testis along the descending route of the right testicle. During the operation, the mass was found to be cystic with a thick wall, and the cyst contained a yellowish clear fluid. The spermatic cord was connected to the mass and the junction between the two was constricted. The pathology of the cyst wall revealed atrophic testicular tissues, including stromal fibrosis and small tubules that were focally filled with small cuboidal cells. The atrophic cystic change in the testis in this case was considered to be due to previous testicular torsion. Late-stage cystic change after testicular torsion must be rare as a late presentation because it has never been reported in the literature.

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1. Introduction

Testicular torsion is a medical emergency, as it can lead to permanent ischemic injury of the testis involved. The age distribution is bimodal, with two peaks: one in the neonatal period and the other at around 13 years of age.
neonates and young infants, testicular torsion can sometimes be difficult to recognize due to obscure clinical manifestations. Testicular torsion will lead to vascular compromise of the testes if blood flow is not restored in time. There is typically a progressive decrease in testicular volume due to atrophic change, and a small scrotum with disappearance of the testis on the affected side. In the literature, there has been no report mentioning cystic degeneration of the testis after testicular torsion. In this article, we present the rare case of a cystic scrotal mass with atrophic testicular tissue in the wall and yellowish clear fluid in the center, occurring 9 months after testicular torsion.

2. Case report

A 1-year-old boy was brought to our outpatient clinic presenting with right scrotal enlargement for 9 months but an absence of the right testis for 7 months.

The boy was born uneventfully at a gestational age of 34-weeks. There was no inguinal hernia, hydrocele or undescended testis at birth. At 3 months of age, he was found to have right scrotal enlargement and irritability with sudden onset, and hydrocele was diagnosed at another hospital. Thereafter the scrotal enlargement persisted, and sonography carried out at 5 months of age revealed absence of the right testis and a hydrocele with an undescended testis. No definite treatment was given during that period.

When he first came to our hospital at 1 year of age, he appeared to be well developed and in good general condition. Physical examination showed an elastic right scrotal mass measuring 3 cm × 2 cm × 2 cm. Sonography revealed a cystic, thick-walled mass in the right scrotum (Fig. 1A), but a normal-sized left testis was found. Magnetic resonance imaging (MRI) was performed to check whether there was an intra-abdominal testis; however, no testis was noted along the descending route of the testicle (Fig. 1B). Serum alphafetoprotein and beta-human chorionic gonadotropin levels were 7.51 ng/ml and <0.1 mIU/ml, respectively, which were within normal limits.

Surgery was performed, and the boy’s right spermatic cord was identified in the inguinal canal. The vas deferens and vessels were less prominent than usual. These structures were directed toward the right scrotal mass. A right scrotal incision was then made, and a cystic mass measuring 3 cm × 2 cm × 2 cm in size was noted (Fig. 2A). The spermatic cord was connected to the mass and the junction between them was constricted. When the cystic mass was opened, some yellowish clear fluid was drained out and the cystic mass collapsed (Fig. 2B). The cyst wall, about 0.6 cm in thickness, was composed of two layers: an outer and an inner. The surface of the inner layer was smooth, containing no residual mass. The mass was left open after biopsy. The patient responded well to the operation and had a smooth postoperative course.

Pathological examination of the mass revealed atrophic testicular tissues, with the outer layer of the wall consisting of stromal fibrosis and the inner layer consisting of a few small tubules that were focally filled with small cuboidal cells (Fig. 2C). At follow-up after 1 year, the patient was in good condition.

Figure 1 A) Sonography of right scrotum showed a 3 cm × 2 cm × 2 cm cystic mass with thick wall. B) Axial section of the T2-weighted magnetic resonance image revealed a normal left testis and a fluid-filled cystic mass in the right scrotum. C) Coronal section of the T2-weighted magnetic resonance image showing no intra-abdominal testis.
3. Discussion

Testicular torsion is a medical and urological emergency as it can lead to permanent ischemic injury of the testis involved. Clinical characteristics of testicular torsion include testicular pain that radiates to the groin and lower abdomen with an absent cremasteric reflex. Correct evaluation is often difficult because the clinical manifestations of newborns and young infants are relatively obscure. If blood flow is not promptly restored, testicular torsion will result in vascular compromise of the testis, causing testicular ischemia, infarction and subsequent atrophy. Late presentations of testicular torsion typically show atrophic testicular vessels ending blindly just proximal to the internal inguinal ring, and a vanishing testis inside the scrotum.

Our patient presented with sudden onset of scrotal enlargement and irritability. Although these symptoms were not usual manifestations of testicular torsion, they were compatible with those of a 3-month-old, since young infants may show obscure clinical features. A cystic testicular lesion is often mistaken for a hydrocele; however, a hydrocele usually has a thin wall and is seldom associated with undescended testis. In our patient, the mass had a thick wall and no testis was identified on sonography and MRI. These findings were not compatible with a hydrocele.

Cystic lesions of the testis in children are rare, and some cystic testicular lesions should be considered including epidermoid cyst, dermoid cyst, cystic dysplasia of the rete testis, juvenile granulosa cell tumor, simple cyst and cystic degeneration in the early stages after torsion. Generally, a differential diagnosis can easily be made by pathological examination. The pathology of the mass in our patient revealed a few small tubules that were focally filled with small cuboidal cells, which were compatible with atrophic testicular tissues. Such pathological findings made the diagnoses of epidermoid cyst, dermoid cyst, cystic dysplasia of the rete testis and juvenile granulosa cell tumor unlikely.

Temporal change of the testis after prenatal testicular torsion has been observed in nine patients, all of whom showed progressive atrophy of the testis with decreased testicular size on the affected side. Histologically, the atrophic testicle, following a prolonged period since presentation, is composed of a necrotic center surrounded by a thickened, fibrotic tunica albuginea. In our patient, the outer layer of the cystic wall was a thickened fibrotic capsule, which was compatible with the long-term changes of the tunica albuginea after torsion. The atrophic

Figure 2  A) Photograph of right scrotal mass measuring 3 cm × 2 cm × 2 cm. B) Photograph of the cystic mass, punched open, containing a yellowish clear fluid. The cyst wall had outer and inner layers. C) Histopathology of the inner layer of the cyst wall showed a few small tubules focally filled with small cuboidal cells (hematoxylin and eosin staining, 200×).
testicular tissue remnants in the inner layer of cyst wall and the central cystic portion represented a cystic change after testicular necrosis. Such a picture of atrophic testis with a thick-walled cyst containing clear fluid has not previously been reported in the literature as a late presentation of testicular torsion. This rare presentation should be kept in mind during the differential diagnosis of a scrotal mass. The pathogenesis of this rare event is unknown and requires further investigation.

Testicular torsion should be considered in a 3-month-old boy presenting with sudden scrotal enlargement and irritability, and sonography will help make an appropriate differential diagnosis from hydrocele. Immediate surgical intervention and derotation may salvage the affected testis. There is currently no definitive evidence of the benefit of continued observation or orchiectomy for delayed presentation of cases. We advocate that health-care practitioners follow the principle of management for perinatal testicular torsion involving derotation of the testis and leaving it in place,8 especially in infants. This is because there is the chance of some tissue surviving after torsion, especially the Leydig cells, just as the histology of the specimen showed in this case.

References