Simple cyst of the testis: a rare and benign cause of testicular swelling in infancy

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We report a five-month-old boy who was referred to the hospital with a presumptive diagnosis of hydrocele of the cord. Ultrasonography revealed a cystic mass within the left testis. A complete removal of the cystic mass was done. Histopathological diagnosis was simple cyst of the testis. This rare lesion should be considered in the differential diagnosis of cystic testicular lesions in infancy. The treatment of choice is simple enucleation of the cyst with sparing of the testis and related structures.

Key words: testis, infancy, simple cyst, immunohistochemistry.

Cystic lesions of the testis, including epidermoid cyst, dermoid cysts, cystic dysplasia of rete testis, juvenile granulosa cell tumor, simple cyst, intratesticular varicocele, and tunica albuginea cyst, have been reported as rare causes of testicular swelling in infants[1,2]. Simple cysts of the testis occur at any age but they are uncommon in infancy, and only 12 children under two years of age have been reported in the English literature[3-5]. We herein report a five-month-old infant with a simple testicular cyst treated with a testis-sparing procedure and we briefly review the reported cases to date.

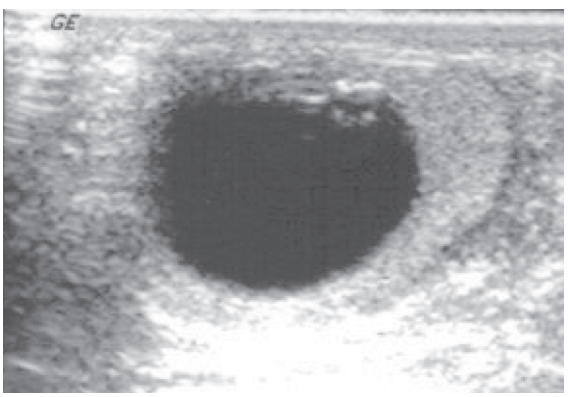

Fig. 1. Ultrasound image shows an anechoic cystic mass in the testis and surrounding thinned but normal testicular parenchyma.

Case Report

A five-month-old boy was admitted to the hospital with left testicular swelling. He was referred from another hospital with a presumptive diagnosis of left hydrocele. The parents noticed a scrotal swelling a day before admission. There was no history of trauma.

Physical examination revealed left testis with diameter of 2x1 cm. It was round and consistent. Ultrasonography (US) revealed a cystic mass of 14x11 mm within the left testis (Fig. 1). Serum luteinizing hormone (LH), follicle stimulating hormone (FSH) and alfa-fetoprotein levels were within normal limits.

The patient was operated through left inguinal incision. After incising the tunica albuginea, the cyst was exposed and dissected through the pericystic area. The cystic mass was completely excised. Grossly, it was shiny, round and filled with a clear serous fluid (Fig. 2). Histopathological examination of the frozen section of the specimen revealed a simple cyst. The incision on the tunica albuginea was closed with absorbable sutures. The diagnosis was subsequently confirmed on paraffin sections (Fig. 3). Immunohistochemistry was performed with vimentin, desmin, AE1-AE-3, 7, 8/18 of

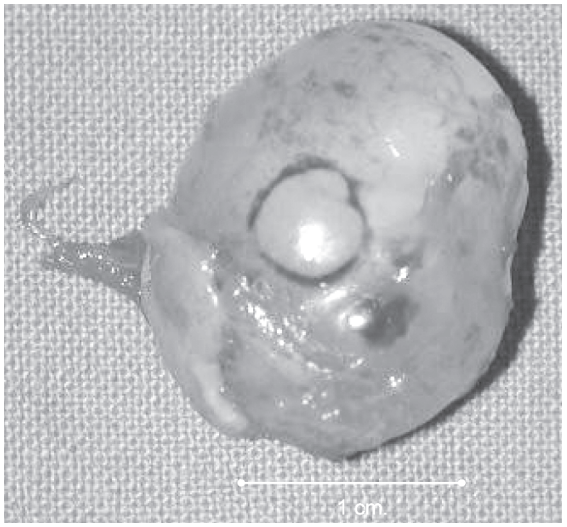

Fig. 2. Gross photo of the cyst with a small piece of testicular parenchyma on the outer surface.

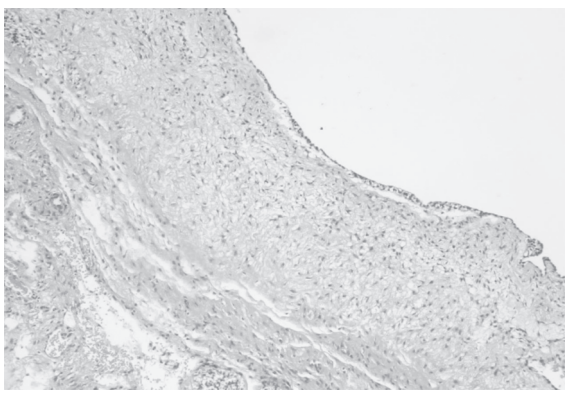

Fig. 3. Microphoto showing the cuboidal or flattened epithelium lining the cyst wall with fibrocollagenous structure (hematoxylin-eosin, HEx100).

cytokeratin antibodies. The lining epithelium of the cyst revealed a positive staining with cytokeratin, but was negative for vimentin and desmin (Fig. 4).

Discussion

Cystic lesions of the testis are uncommon. However, it is of utmost importance to the physician treating such cases to know all potential causes and to choose the best alternative for treatment in each individual. Many of the cases might have undergone an unnecessary orchiectomy instead of testis-sparing surgery.

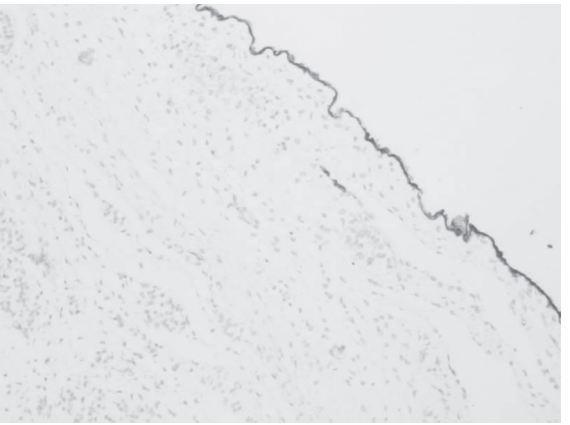

Fig. 4. The cyst epithelium shows a strong staining with cytokeratin 7 antibody.

The differential diagnosis of testicular cystic lesions in infancy includes dermoid and epidermoid cysts, hydrocele, testicular lymphangioma, cystic teratoma, cyst of tunica albuginea, cystic dysplasia of the testis and juvenile granulosa cell tumor[1,2].

A total of 12 cases under two years of age have been reported to date in the English literature after description of the first case by Schmidt et al.[6] in 1966 (Table I). It is interesting that nearly half of the cases presented at the age of five months. As seen in Table I, infants with simple cyst of the testis usually present with nontender, round testicular swelling, and sometimes it cannot be differentiated clinically from cystic paratesticular lesions. US is the diagnostic modality of choice allowing determination of the nature and exact localization of the lesion. US usually shows a round anechoic mass surrounded by a thin testicular parenchyma and sharp anterior and posterior wall sound enhancement. However, rarely, as in our case, a frozen section may be needed during the surgery, and this may allow the surgeon to decide on testis-sparing surgery.

The etiology of simple cyst of the testis is unknown. It has been suggested that it might originate from an ectopic epithelium of wolffian duct, seminiferous tubules or coelomic epithelium retained in the testis during embryogenesis[3,7]. However, no elastin fibers were detected in the present case and immunochemistry revealed positive staining for cytokeratin antibodies and negative stains for desmin and vimentin. These findings suggest an epithelial origin rather than seminiferous tubules.

Table I. Brief Review of Children with Simple Testicular Cysts (Available English Literature to Date)

Reference	Age and side at presentation	Clinical findings	Preoperative diagnosis	Treatment
Schmidt et al. (6), 1966	5 mos., R	Testicular swelling, hard in consistency	Hydrocele	Orchiectomy
Sasaki et al. (from Ref. 3), 1971	5 mos., R	Testicular swelling, hard, nontender	Teratoma	Orchiectomy
Ichikawa et al. (from Ref. 3), 1979	13 mos., R	Elastic, painless testicular enlargement	Testicular tumor	Orchiectomy
Altadonna et al. (from Ref. 3), 1988	5 mos., R	Nontender, smooth testicular swelling	Simple cyst	Simple excision
Altadonna et al. (from Ref. 3), 1988	10 mos., R	Cystic mass during hydrocele operation	–	Simple excision
Peretsman et al. (from Ref. 3), 1995	5 mos., L	Firm testis	Simple cyst	Simple excision
Slaughenhoupt et al. (from Ref. 3), 1995	2 weeks, R	Testicular enlargement	Simple cyst	Simple excision
Upadhyay et al. (7), 1998	3.5 mos., R	Uniform testicular enlargement	Simple cyst	Simple excision
Honjo et al. (3), 2001	5 mos., R	Firm and enlarged testis	Simple cyst	Incision
Ceylan et al. (4), 2004	9 mos., L	Firm and enlarged testis	Simple cyst	Simple excision
Ceylan et al. (4), 2004	8 mos., R	Round, firm testicular enlargement	Simple cyst	Simple excision
Present case	5 mos., L	Round testicular mass	Hydrocele	Simple excision

In conclusion, simple testicular cyst is very rare in infants and should be included in the differential diagnosis of testicular mass in infants. Ultrasonography is the most useful diagnostic modality and testis-sparing surgery is the best treatment of choice.

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