Pathologic Quiz Case

A 2-Month-Old Male Infant With a Large Hydrocele

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A 2-month-old male infant presented with a large hydrocele and an associated hernia. The diagnosis was first established at birth, when an ultrasound indicated abundant fluid in the scrotum consistent with a hydrocele. Examination of his external genitalia revealed an enormous hydrocele. The testes were nonpalpable. Further workup revealed that the testes were undescended. The patient was taken for surgical removal of the hydrocele and for orchiopexy. During surgery, it was noted that the hydrocele extended up into the left groin. Examination of the scrotum itself revealed a large cystic structure. The inner aspect of the lesion also was noted to contain some gelatinous material, and the cystic fluid-filled structure was removed. The structure was noted to have a very tiny extension in the midline off the scrotum posteriorly, below the location of the urethra. However, no communication with the urethra was noted.

The cyst fluid (20 mL) was sent for cytologic evaluation. Cytospin smears disclosed numerous mature squamous cells in a discohesive single-cell pattern. On Diff-Quik staining, these cells had translucent cytoplasm with a small pyknotic nucleus (Figure 1). On Papanicolaou staining, the cells disclosed abundant pink to faint blue cytoplasm with mostly centrally located vesicular nuclei consistent with intermediate-type squamous cells (Figure 2). Abundant anucleate squames were present in the slide background and were better appreciated in the cell block sections (Figure 3). Subsequent histopathologic examination showed a densely sclerotic cystic wall lined by stratified keratinizing squamous epithelium (Figure 4).

What is your diagnosis?

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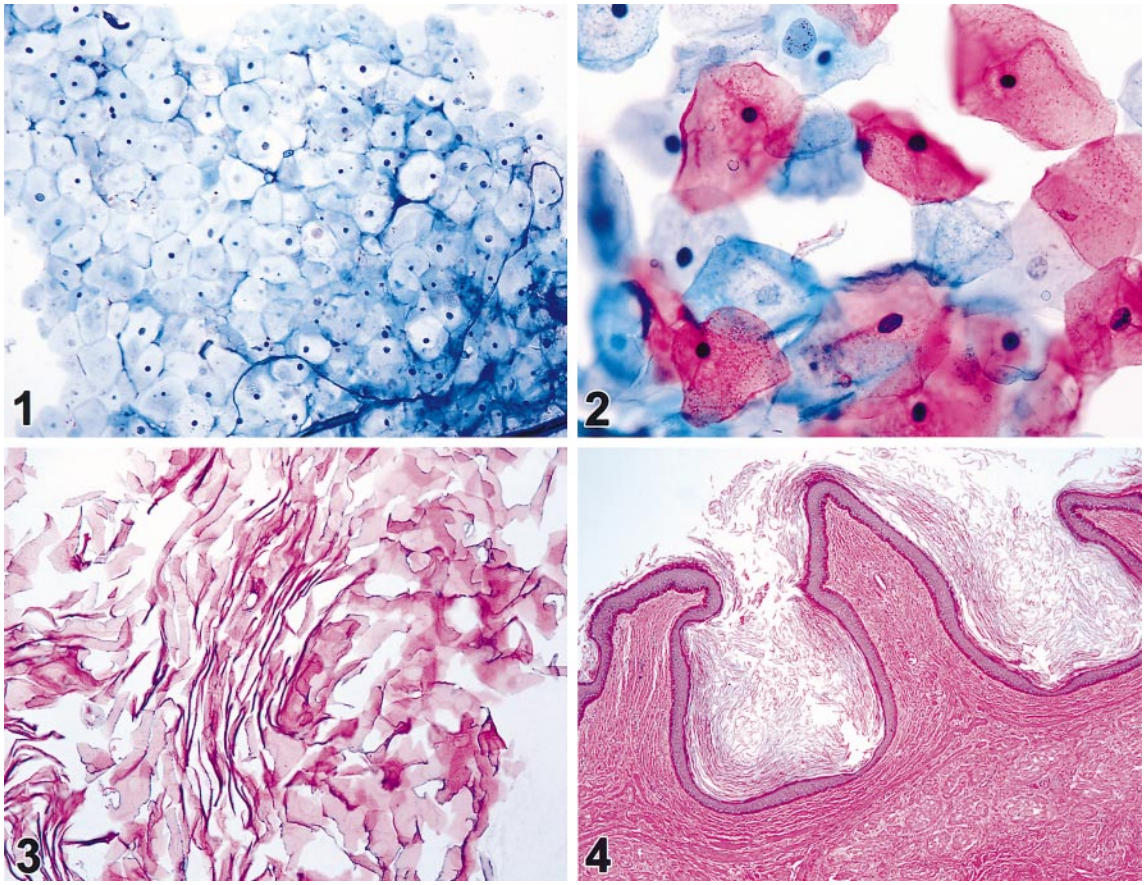

Pathologic Diagnosis: Epidermoid Cyst of the Scrotum

Epidermoid cysts (ECs) of the testicular region are rare tumor-like lesions that account for approximately 1% to 3% of all testicular tumors.[1,2] They usually present between the second and fourth decade of life, and very rarely in prepubertal children.[1,3–5] Most intratesticular masses are malignant, in contrast to most extratesticular masses, which are usually benign. Intrascrotal cysts present an interesting differential diagnosis, which includes simple testicular cysts, intratesticular epidermoid and dermoid cysts, tunica albuginea cysts, epididymal cysts, and spermatoceles.[6] To our knowledge, this is the first report in the cytopathology literature of an EC diagnosed by examination of cystic fluid in a pediatric patient presenting with a hydrocele and undescended testes.

Most ECs involve the testis in a unilateral fashion, and patients most often present with painless enlargement. There are rare reports of ECs involving the scrotum.[1,2,6–8] Intrascrotal ECs are extremely rare. Tomobe et al[7] reported only 1 case of EC in a series of 120 cases of intrascrotal tumors treated at the University of Tsukuba.[9] Huang et al[8] reported a case of an intrascrotal EC in 9-year-old boy who presented with an asymptomatic scrotal mass. On surgical exploration, the mass was solid, separate from the testes, and extended into the pelvis.[8] Sadler et al[6] also reported a case of an intrascrotal EC in an 8-year-old boy. The lesion was asymptomatic, extratesticular, and extended across the urogenital diaphragm into the pelvis.[6]

Imaging studies of ECs, including the use of ultrasound, reveal a characteristic pattern, consisting of a well-circumscribed lesion with a solid, homogeneous center and an outer echogenic wall. The echogenicity of the cyst content is variable and may consist of concentric rings of hypoechogenicity and hyperechogenicity, giving rise to a typical ''target'' or ''onion'' appearance.[9] This feature is often helpful in arriving at an accurate diagnosis and guiding appropriate patient management, particularly in cases of benign lesions not involving the testis.

Histologically, ECs are enclosed by a fibrous wall. The cyst wall is lined with squamous epithelium and contains keratinized debris. No teratomatous elements are present within the cyst or elsewhere within the testis. Dystrophic calcification has also been reported, often leading to extensive scrotal calcinosis.[6] Berner et al[10] described the fine-needle aspiration findings from EC of testis. Cytopathology shows a uniform population of squamous epithelial cells and cystic debris containing abundant keratin and anucleate squames. The squamous epithelium lacks atypia and appears mature and monomorphic. Mitoses, necrosis, and inflammation are not seen.

The etiology of scrotal EC is unclear. These cystic lesions may represent a monolayer teratoma of germ cell origin or abnormal embryological closure of the median raphe and urethral groove, and they may have sinus tracts to the skin surface (anywhere from the distal penis to the anus). If the lesion is testicular in origin, it may be a monodermal teratoma of germ cell origin. Because intrascrotal ECs are rare and have important treatment and management implications, accurate diagnosis is important in the patient with these benign intrascrotal tumors. The management of a scrotal EC involves simple transscrotal excision with intent to cure. However, due to the extreme rarity of the lesion, the clinical data on the long-term follow-up of these lesions is very limited. Most patients have remained asymptomatic and disease-free after the surgical resection.

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