A 14-year-old girl presented with a 3-year history of a worsening itching sensation and intermittent pain in the region of the left parotid gland when drinking fluids. The pain lasted from a few minutes up to an hour. She denied dysphagia, odynophagia, numbness, tingling, and facial weakness.

A computed tomography (CT) scan performed 3 years prior to our evaluation demonstrated a 1.5-cm fat density in the left parotid gland with soft tissue attenuation within the inferior aspect. Fine needle aspiration (FNA) also performed prior to our evaluation revealed few glandular acini with benign features, an inflammatory background, and multinucleated giant cells.

On examination, the head and neck appeared normal. There was no left parotid gland tenderness or masses. However, there was a soft, palpable fullness.

A new CT scan (Figures 1-3) demonstrated a 1.3 cm × 1.5 cm × 2.1 cm fat density, essentially unchanged from the previous scan. A portion of the fat-density lesion measuring 0.7 mm × 0.7 mm extended into the deep portion of the left parotid gland (Figure 2). The lesion was excised surgically and pathology revealed a dermoid cyst (Figure 4).

Dermoid cysts are benign tumors lined by stratified squamous epithelium that possess various mature epidermal appendages. Epidermoid cysts, in contrast to dermoid cysts, are devoid of any adnexa. The appendages often include hair follicles that project into the lumen. The dermis usually contains sebaceous, eccrine, or apocrine glands. When found in the skin, they often demonstrate various amounts of fatty tissue. The majority are found in the ovaries and coccyx, while about 7% can be found in the head and neck. Dermoid cysts comprise about 60% of all facial cysts and the most common sites are the orbit (50%), submental or submaxillary space (23%), and nose (13%). The occurrence of a dermoid cyst within the parotid gland is exceedingly rare. There have been 20 case reports comprising 22 individual cases published to date. The otolaryngologist is often responsible for the surgical excision of these lesions due to their often inconclusive clinical and radiological characteristics. The objectives of this report are to describe the 23rd case of dermoid cyst found in the parotid gland as well as to review the current literature of these rare cases.

This patient represents the 23rd case (and 21st case report) of a dermoid cyst within the parotid gland, and this is only the third pediatric case in the literature.

Most congenital dermoid (and epidermoid) cysts arise due to an embryologic event during the early stages of development, between 3 and 5 weeks of gestation. They may result from abnormal sequestration or invagination of surface ectoderm along the embryologic sites of dermal fusion that form the eyes, ears, and face. Alternatively, these cysts may arise, at any age, in the subcutaneous tissues and the spinal canal because of a traumatic implantation of skin elements from the surface into the underlying tissues. Craniofacial dermoid cysts have been described to have subtle differences in their embryologic timing. Periorbital cysts develop early, between 3 and 5 weeks of gestation, whereas nasal cysts develop closer to week 8 during intramembranous ossification of the nasal capsule. Dermoid cysts of the scalp are thought to arise during intramembranous ossification of the cranial bones.

Given these subtle differences in embryology, Reissis et al examined the differences between 16 craniofacial dermoid cysts of varying locations in order to determine whether these variations result in differences in the histology and structure of dermoid cysts, which might influence the severity of clinical presentation. They demonstrated that the histopathological appearance of dermoid cysts is consistent between sites despite variations resulting from differences in embryology.
Differences in the structures involved and the timing of embryological development. Dermoid cysts may present as early as birth; however, since the adnexa of the cysts are functional, the cyst often grows slowly over time resulting in a wide range of age at presentations. For the 23 documented cases (including this one), the age at diagnosis ranged from 4 to 69. Physical examination generally shows a mobile and nontender lesion with or without fluctuation. A reasonable differential diagnosis could include lipoma, branchial cleft cyst, lymphoepithelial cyst, mucous retention cyst, parotitis, and other benign cystic tumors of the salivary glands.

Evaluation with ultrasound, FNA, magnetic resonance imaging (MRI), or CT may provide diagnostic clues. On ultrasound, dermoid cysts are well circumscribed, avascular, hypoechoic (compared to subcutaneous fat), and occasionally contain hyperechoic foci due to the presence of calcification, fat, mucoid, and/or purulent material. Cytological evaluation of FNAs often reveals benign-appearing squamous cells and amorphous cellular debris, but, when foreign body-type granulomatous reaction is intense, multinucleated giant cells and macrophages can be the dominant cell population. Radiographs of dermoid cysts can be complex because of their lining and presence of dermal adnexa (eccrine/apocrine glands, sebaceous glands, and/or hair follicles). The walls tend to be thicker and may be radiologically visible, and they even calcify and enhance with contrast material. The sebaceous, lipid material in a dermoid has attenuation and signal intensity characteristics that simulate those of fat on both CT and MRI images: hypoattenuating relative to water at CT and hyperintense with T1-weighted images.

The cornerstone of treatment for all locoregional parotid lesions is a complete surgical resection, even with lesions that are highly unlikely to be malignant. As with other parotid tumors, the capsule must not be violated to minimize the likelihood of recurrence. Another reason for complete surgical excision is the possibility of malignant transformation. Malignant transformation of dermoid cysts is exceedingly rare but
has occurred in the sublingual,27 submental,28 and scalp regions.29

Of the 23 reported dermoid cysts in the parotid gland, the average age at diagnosis was 29.8 years and median age at diagnosis was 24.0 years. The male-to-female ratio of all known cases is 15:7. Simple cyst excision was performed in 3 cases.4,19,22 All of the other 20 cases underwent a superficial or deep lobe parotidectomy.

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