Juvenile Hemangioma of the Parotid Gland

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History

A 10-month-old male presented with a left-sided facial mass that was initially noticed at 3 weeks of age. With the history of rapid enlargement, the patient was referred to and evaluated by the Department of Otorhinolaryngology. Image studies were consistent with a hemangioma of the left parotid gland and later confirmed by aspiration cytology. Follow-up examination of the patient indicated continual growth of the mass. When the mass failed to respond to a 3-week course of steroid treatment, the patient underwent surgical resection of the parotid mass.

Radiographic Features

Magnetic resonance imaging of the head and neck showed a well-circumscribed soft tissue lesion involving the left parotid gland. The lesion demonstrated relatively homogeneous contrast enhancement and flow-voids, representing vasculature (Fig. 1). The findings were consistent with a hemangioma.

Diagnosis

Histologic examination of hematoxylin and eosin stained slides demonstrated a lobular proliferation of small, indistinct and closely packed vascular spaces containing

red blood cells. The associated endothelial cells were large, plump and had fine chromatin; no significant mitotic activity or cytologic atypia were identified. Scant scattered chronic inflammatory cells and residual acinar elements and ducts were seen through out the lesion (Fig. 2).

Discussion

A hemangioma is characterized by a benign proliferation of vessels lined by endothelial cells. It is considered to be the most common neoplasm of childhood, and is one of the most common salivary gland tumors of childhood and infancy [1]. Juvenile hemangioma, a subtype of hemangioma, is a proliferative tumor of infancy that typically develops by 6 months of age with 70–95% of lesions spontaneously regressing by age 7 years [2]. Hemangiomas of the salivary gland are generally thought to show a predilection for females, however, juvenile hemangiomas may favor males [3]. Hemangiomas account for approximately 0.4% of salivary gland tumors and occur almost exclusively in the parotid, representing approximately 50% of parotid tumors in the first year of life [4]. Clinically, salivary gland hemangiomas present as asymptomatic soft tissue swellings which may impart a bluish hue to the overlying skin. They may become very large, causing severe facial deformity. Associated cutaneous hemangiomas are common. Deep seated hemangiomas may create diagnostic difficulties as they may have no consistent clinical signs or symptoms. Image studies including ultrasonography, and CT and MRI, in addition to fine needle aspiration may aid in diagnosis. Sonographically, these lesions are hypoechoic, may involve the gland diffusely or partially, and have a variable degree of vasculature, showing increased flow with Color-Doppler imaging [5].

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Fig. 1 Axial MR image showing a well demarcated left parotid mass with homogenous contrast enhancement and flow-voids representing vascularity

There is homogenous contrast enhancement of these lesions on CT and MRI. The radiographic differential diagnosis of these lesions includes: hemangioma, malignant neoplasm, and abscess. Cytologic aspirate smears demonstrate cohesive groups of bland spindle cells with a bloody background [2]. Histologically, the lesions demonstrate a lobular architecture composed of a densely cellular proliferation of endothelial cells and poorly formed capillary-sized lumina. The lesional cells may surround nerves and replace acinar units leaving ductal structures intact. Mitotic figures may be seen, but not atypical forms. The lobules of the parotid gland are maintained [3, 4, 6].

Neonatal and infantile hemangiomas grow rapidly initially, but the majority spontaneously involute by age 7 years. Surgical excision during the proliferative phase should be avoided due to risk of major blood loss and injury to the facial nerve [4]. Diagnosis may be made by aspiration cytology and conservative nonoperative management includes steroids to reduce growth, compression therapy, or embolization. No treatment may be required, however, a small percentage of hemangiomas present with indications for prompt therapy (including surgical excision), such as severe disfigurement, airway compromise, excessive bleeding, and ophthalmologic complication [1, 3].

Fig. 2 Low power photomicrograph showing a lobular proliferation of endothelial cells forming small lumens and replacing the acinar cells within the salivary gland lobules

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