

CONTINUING MEDICAL EDUCATION ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

Medical imaging quiz – Case 63

A 5-year-old girl visited her pediatrician due to enlargement on her right cheek. The exact duration of this symptom could not be determined. Her past history was unremarkable. The girl was referred to a radiologist for imaging evaluation with ultrasound and magnetic resonance imaging (MRI). Imaging findings were indicative of the diagnosis (figures 1, 2).

Comments

Soft tissue venous malformations, commonly known as soft tissue hemangiomas, are a location dependent benign vascular soft tissue tumor. They are the most common angiomatous lesions and represent up to 7% of all benign soft-tissue tumors. In the pediatric population, hemangiomas tend to be the most frequently diagnosed soft-tissue neoplasm. There may be a greater female predilection and it is usually detected in the first two decades of life.

Soft tissue hemangiomas may be classified into five histological subtypes according to the predominant type of vascular channel identified within them (capillary, cavernous, arteriovenous, venous, mixed).

Intramuscular hemangioma is a relatively rare lesion, constituting less than 1% of all hemangioma cases, and is usually located in the skeletal muscles of the trunk or limbs. Most frequently involves the pelvic region, but 10% to 15% occur in head and neck regions,

generally in the masseter, sternomastoid, and trapezius muscles. Among these, the masseter muscle is the most frequent location, constitutes approximately 36% of all head and neck cases.

Hemangioma in the masseter is described as a slowly enlarging mass with varied size, rubbery and relatively firm texture. It becomes prominent with muscle contraction, and more than a

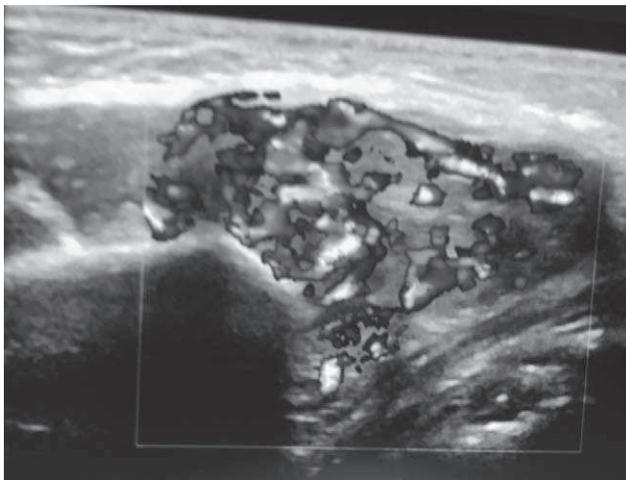


Figure 1. The ultrasound images demonstrate a fusiform heterogeneously hypoechoic highly vascularized lesion within the muscle with cystic areas representing blood-filled cavities. No calcification seen within the lesion.



Figure 2. MRI reveals a relatively well-circumscribed lesion on the muscle, with post contrast prominent enhancement on T1WI and peripheral rim of fatty signal well-visualized on T1WI sequences.

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half of patients complain of associated pain with preauricular or buccal swelling. Clinically, degree of the pain correlates with speed of expansion, pressure on surrounding anatomic structures, and thrombosis. Sometimes, abrupt onset of facial palsy is reported, probably resulting from an enlarged lesion inducing pressure on the facial nerve.

Standard radiographs are a simple diagnostic method since they can detect phleboliths, which are highly suggestive of hemangioma. Small lesions may be occult on plain film. Other diagnostic imaging modalities such as computed tomography (CT), MRI, and ultrasound can be used to enhance the accuracy of a preoperative diagnosis. Ultrasound can have a variable appearance; typically seen, as a well-defined hypoechoic mass of heterogeneous echo texture with multiple cystic spaces within. On color Doppler, there may be no detectable signal or only weak signal. On unenhanced CT, it may appear as an ill-defined mass of similar attenuation to muscle. CT may also show the presence of associated phleboliths.

MRI is considered the most reliable imaging tool for tissue characterization and identification of the extent. Hemangiomas are typically well-defined, lobulated and heterogeneous with no features of local invasion. While many sequences show a rather heterogeneous signal mass certain signal characteristics tend to dominate.

Rare incidence of this lesion and lack of certain clinical findings may complicate the diagnosis. Differential diagnosis includes neoplasms in parotid gland, benign muscular hypertrophy especially related to the masseter, or congenital cysts.

Treatment of hemangiomas can be divided into two broad categories, medical treatment and surgical or invasive treatment.

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