HEMANGIOMA OF THE PAROTID GLAND: CASE REPORT

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HEMANGIOMA OF THE PAROTID GLAND: CASE REPORT (Abstract): Hemangiomas account for half of the parotid gland tumors occurring in children. After a rapid increase in the first months of life, some of them gradually regress (until complete disappearance) in a period of several years. Hemangiomas that do not regress over time, grow in size (possibly within a short period of time) or develop complications such as intralesional acute bleeding or thrombosis require aggressive therapy: intralesional corticosteroid injection, sclerotherapy, radiation therapy, laser photoagulation, embolization, or surgical removal. We present the case of a 12-year-old boy with hemangioma of the left parotid gland diagnosed by CT scan, angio-CT with 3D reconstruction and angiography successfully treated by superselective intraarterial embolization with acrylic glue followed after 4 days by left superficial parotidectomy with facial nerve preservation. Keywords: HEMANGIOMA, PAROTID GLAND, SURGICAL TREATMENT.

Salivary gland tumors occurring in children are less than 5% of all tumors, and hemangiomas are the most common (50% versus 2% in adults), followed by: pleomorphic adenomas, mucoepidermoid carcinomas, lymphangiomatas, acini cells carcinomas (1, 2, 3). The clinical picture of parotid hemangioma is characterized by the presence of a painless swelling, usually confined to the superficial lobe of the gland, but sometimes involving the masseter muscle, bluish discoloration of the overlying skin and a network of vascular capillaries (4). Magnetic resonance imaging is considered to be the first choice in making an accurate diagnosis and investigating the vascular supply of this lesion due to image quality, soft tissue definition, lack of ionizing radiation, additional invasive procedures not being required (5,6). Therapeutically there are two options: a) conservative management and clinical monitoring of parotid hemangioma, given the probability for most of these lesions to resolve spontaneously, and b) a more "aggressive" treatment (systemic corticosteroids or intralesional steroid injection, laser photoagulation, sclerotherapy, embolization and surgical excision), particularly when parotid hemangiomas are large, deforming, ulcerated or involve neighboring structures, with functional consequences (3, 7, 8, 9, 10, 11).

In this article, we present the case of a 12 years old boy diagnosed at the Department
of Oral and Maxillofacial Surgery with left parotid hemangioma. Management consisted in preoperative embolization and surgical excision of hemangioma by parotidectomy, without postoperative complications, the best morphological, functional and aesthetic results being achieved one year after surgery.

**CASE REPORT**

A twelve-year-old boy with no associated general diseases was referred to the Department of Oral and Maxillofacial Surgery for the presence of a 5cm x 4cm tumor mass in the left parotid region, poorly defined, soft, compressible, non-pulsatile, painless, and healthy overlying skin; case history revealed that the tumor mass progressively increased in size over the last 10 years (fig. 1). Head and neck CT scan showed a nodular mass located at the superficial lobe of the left parotid gland, 4.4/2.6/4.8 cm in diameter, intensely enhanced (arterial phase) after contrast administration, with a low intensity signal in the middle of the lesion (fig. 2). Angio-CT with 3-D reconstruction showed that the arterial blood supply of the tumor was from the branches of the transverse facial artery and venous drainage into the internal and external jugular vein (fig. 3). Presumptive diagnosis was parotid hemangioma and the therapeutic decision was surgical removal of vascular lesion, due to the lack of natural tumor involution. Angiography (fig. 4) and superselective intraarterial embolization with acrylic glue (Glubran), used in interventional neuroradiology, were performed prior to surgery (fig. 5) in order to reduce tumor vasculature. Four days after arterial embolization, the vascular tumor was removed by superficial parotidectomy, with facial nerve preservation (fig. 6); at 1 year postoperatively the results were very good (fig. 7). Histopathological examination confirmed the mixed type of parotid hemangioma (capillary and cavernous) (fig. 8).

![Fig. 1.](image1.png)  
Left half-profile, showing the tumor developed in the left parotid area

![Fig. 2.](image2.png)  
CT scan with contrast, showing structural details of the left parotid tumor
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DISCUSSION

Hemangiomas of the salivary glands are benign vascular mesenchymal tumors and may arise from the gland proper or by secondary invasion of subcutaneous blood vessels into the gland structure (12). Congenital
capillary hemangiomas („true” hemangioma according to the classification proposed by Mulliken and Glowacki in 1982) represent 90% of the parotid gland tumors in infants and young children (2). The course is characterized by a rapid growth phase in early childhood (proliferative phase), followed by a gradual spontaneous involution over a period of several years (5). This type of benign vascular tumor is found more frequently in girls, mean age at presentation 4 months, and the overlying skin has a characteristic bluish tint. Comparatively, cavernous hemangiomas (classified as true vascular malformations) occur as a consequence of the abnormal development of blood vessels in late childhood, are not accompanied by a bluish discoloration of the overlying skin, may contain „phleboliths” (a feature that is not found in true hemangiomas), and are unlikely to regress spontaneously, their surgical removal being the treatment of choice (13). There are also compound types (capillary and cavernous), as the case presented in this paper, in which case the final diagnosis is established histologically.

The clinical description of a parotid hemangioma includes: tumor in the parotid area, slowly progressive, poorly defined, soft, compressible, mobile, painless and the overlying skin has sometimes a bluish tint (14). Deformity and severe pain depend on tumor size and the presence of intralesional bleeding or acute thrombosis. History and physical examination are elements supporting the diagnosis of probability, but imaging is needed to confirm the suspicion.

In children, the initially recommended imaging study to salivary gland lesions is ultrasound examination, since the pathology in these locations is generally benign, ultrasound images have good accuracy and no sedation or anesthesia is required for optimal exploration (3). In particular, color Doppler is recommended to explore salivary vascular lesions. Ultrasound protocol of a parotid hemangioma reveals a homogenous mass that replaces most of the parotid gland, with fine echogenic internal septa and numerous intratumoral vessels (described as non-echogenic areas) (5). Color Doppler shows filling of non-echogenic areas, the high vascular density (> 5 per cm²) differentiating these vascular tumors from others. At CT scan without contrast material parotid hemangioma has the same density as the muscle structure, the administration of contrast material revealing a homogenous, well defined, high absorption mass (1). An accurate diagnosis of juvenile parotid hemangioma sometimes requires an additional fine needle puncture-aspiration (15). T1-weighted magnetic resonance image shows flow voids within the lesion, thus distinguishing parotid hemangioma from other soft tissue lesions encountered in children. On T2-weighted MRI the vascular lesion appears hyperintense to muscle. During hemangioma involution, there are areas of fat replacement that appear hyperintense on T1-weighted images. Magnetic resonance imaging in cavernous hemangioma shows a heterogeneous T2 signal (due to phleboliths and venous lakes) and no intraläsional flow voids (1). More recently, as to differentiate between a high and low flow lesion, or hypovascularized and hypervascularized tumor is not always possible, MRI digital subtraction angiography can be used (6). This technique can be safely performed in children of all ages, without complications, providing information on the vascular supply of the explored lesion, information not available by clinical examination or routine magnetic resonance imaging. Our patient was investigated by CT, angio-CT with 3D reconstruction, and angiography,
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useful and sufficient data for determining the vascular supply of the parotid lesion being thus obtained.

Therapeutic approach of parotid hemangioma in children should be individualized, initial therapy being less aggressive and the subsequent ones more aggressive. The spectrum of treatment modalities includes: clinical monitoring of tumor involution over several years, corticosteroids (intralesional or systemic), interferon treatment, sclerosis, radiation therapy, laser therapy, cryotherapy, arterial ligatures, and surgical excision (3). Since many parotid hemangiomas are likely to regress, the indications for surgery are: increase in tumor size, rapidly growing lesion, non-involuting hemangiona, or intralesional bleeding. It is recommended that tumor vascular supply to be explored by MR angiography or digital subtraction angiography prior to surgical removal of a parotid hemangioma (6). Surgical excision of parotid hemangioma is performed by superficial or total parotidectomy, with intraoperative identification and preservation of the facial nerve. The case presented in this article was managed mainly surgically, but we also resorted to a postoperative "artifice" - superselective intraarterial embolization with acrylic glue, a technique used in recent years in interventional neuroradiology to achieve endovascular embolization stability in the treatment of cerebral vascular tumors or malformations (16, 17); the advantage of this therapeutic "mix" was a decrease in the vascular flow to the parotid lesion, facilitating intraoperative hemostasis and, thus, optimal performance of parotidectomy.

CONCLUSIONS

Surgical removal of parotid hemangioma must be preceded by a thorough imaging study of the lesion aimed at clearly detecting the vascular supply (main and collateral) in order to avoid intraoperative bleeding complications.

Superselective intraarterial embolization with acrylic glue just a few days before parotidectomy is a method that decreases vascular flow of a parotid hemangioma, with positive impact on operative performance.

REFERENCES

BIOMARKERS AND SILENT CARDIAC DISEASE IN PRIMARY PREVENTION: TIME TO UNMASK THE DAMAGE?

The aim of this study was to examine whether biomarkers can identify silent cardiac target organ damage (cTOD) in a primary prevention population. The researchers observed that one possible way to improve primary prevention of cardiovascular events is to identify those patients who already harbor silent cTOD (i.e., myocardial ischemia, left ventricular hypertrophy, systolic dysfunction, diastolic dysfunction, or left atrial enlargement). This might be possible by screening with a biomarker (e.g. high sensitivity cardiac troponin T [hs-cTnT] or B-type natriuretic peptide [BNP]). The prospective methods used for identifying silent cTOD were transthoracic echocardiography, stress echocardiography, and/or myocardial perfusion imaging. Few conclusions have to be take in cpnideration. In asymptomatic treated primary prevention patients, BNP screening is able to identify existing silent cTOD. The performance of hs-cTnT was not as good as that of BNP. B-type natriuretic peptide plus hs-cTnT together performed best. Prescreening with BNP ± cTnT followed by targeted phenotyping is worth exploring further as a possible way to improve primary prevention. (Nadir MA et al. Improving the primary prevention of cardiovascular events by using biomarkers to identify individuals with silent heart disease. J Am Coll Cardiol. 2012; 60 (11):960-968).

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