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Cavernous Hemangioma of Temporalis Muscle: Report of A Case and Review of the Literature

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ABSTRACT

Hemangiomas are tumors of vascular origin comprising approximately 7% of all benign tumors. Intramuscular hemangioma is a rare condition and hemangiomas of the head and neck make up less than 15% of intramuscular hemangiomas. Temporalis muscle is an uncommon location for intramuscular hemangioma and seldom reported in the literature. Radiological methods are generally insufficient for the correct diagnosis and surgery is the treatment of choice to exclude malignancy and for adequate treatment of these lesions. A 37-year-old male was admitted with a slowly growing painless mass in his right temporal fossa. The lesion was surgically excised and histopathology confirmed the diagnosis of cavernous hemangioma. Diagnosis and treatment modalities for temporalis muscle hemangiomas are discussed.

KEY WORDS: Cavernous hemangioma, Intramuscular, Temporalis muscle.

INTRODUCTION

Hemangiomas are tumors of vascular origin comprising approximately 7% of all benign tumors. Intramuscular hemangiomas (IMHs) make up less than 1% of all hemangiomas and are mostly located in the extremities and the trunk. Hemangiomas of the head and neck make up less than 15% of IMHs. Three types of hemangioma have been described according to the vessel type involved: capillary, cavernous and mixed.

We encountered a patient with a cavernous hemangioma located in the temporalis muscle and reviewed the literature regarding the diagnosis and treatment of this disease.

CASE REPORT

A 37-year-old male was admitted to our clinic with a history of a painless mass lesion in front of his right ear. He noticed the mass approximately two years before his admission and reported that the mass has been growing in size since then. The patient was worried of having a malignancy. His neurological and physical examinations were normal except a solid immobile mass lesion approximately 3 cm in diameter in his right temporal fossa. The mass was not tender and did not change its size by jaw movements or valsalva maneuver. No pulsation or bruit was observed and the overlying skin was also normal. Computerized tomography (CT) revealed a well-demarcated isodense 15x26 mm mass lesion, reported as a fibroma, in the right temporal fossa (Figure-1A). On post-contrast images, the lesion enhanced minimally and homogeneously with a dense nodular enhancement in the center suggesting large vascular channels (Figure-1B). The lesion did not cause

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erosion or overgrowth on the underlying bony structures. The patient was operated and the lesion was excised totally under local anesthesia. Intraoperatively, the mass was located in the right temporalis muscle, was firm with palpation, reddish in color and did not show any infiltration to the muscle. There were a few enlarged venous structures on its capsule and they were coagulated and did not cause any bleeding. Histopathological examination of the specimen showed large cavernous vascular structures divided by hyalinized fibrous septa and the diagnosis was cavernous hemangioma (Figure-2). He was discharged from the hospital uneventfully and no recurrence of the mass was detected at his one-year follow-up.

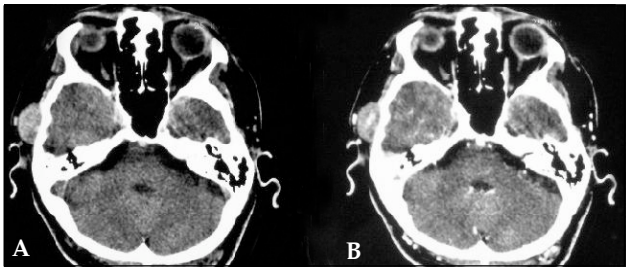

Figure 1 A, B: Brain CT shows a well-demarcated isodense 15x26 mm mass lesion in the right temporal fossa (**A**), enhancing minimally and homogeneously with a dense nodular enhancement in the center (**B**).

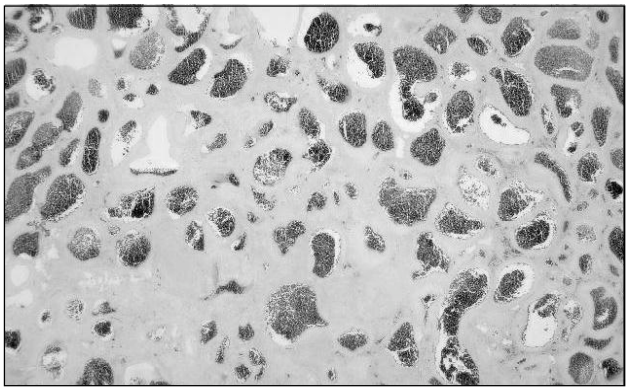

Figure 2: Photomicrograph of the specimen shows large cavernous vascular structures divided by hyalinized fibrous septa. H&E x40

DISCUSSION

Hemangiomas are benign vascular soft tissue tumors and abnormal development of embryonic vasculature is the suspected cause. Less than 1% of all hemangiomas are located in the muscles, mostly in the muscles of the trunk and extremities, probably due to the large muscle bulk of these regions [1,2]. Only 10-15% of IMHs are located in the head and neck region with a predilection for the masseter, trapezius and sternocleidomastoideus muscles [1,3,4]. However, hemangioma in temporalis muscle is an uncommon entity and rarely reported in the literature.

Three histopathological types of hemangioma have been described according to the vessel type: a- capillary type; characterized by predominantly capillary structures with proliferative activity, invasion to surrounding tissue and short clinical history, b- cavernous type; characterized by large vessels with occasional mitotic activity and longer clinical history and, c- mixed type; characterized by having both the capillary and cavernous structures and resembling the cavernous type clinically [3,5]. Both capillary and cavernous IMHs mostly occur in the second and third decade but capillary hemangiomas are smaller and located mainly in the trunk and upper limbs while the cavernous type prefers the lower limbs [6,7,8]. A female predominance for intramuscular hemangiomas has been reported in the literature [5,9].

Several radiological techniques are helpful in the diagnosis of IMHs (e.g. X-ray, ultrasonography, computed tomography, magnetic resonance imagining (MRI) or angiography). CT shows an isodense mass lesion occasionally accompanied with areas of decreased attenuation depending on the fat content. Bone overgrowth secondary to chronic hyperemia can also be observed in the CT examination. Intramuscular hemangiomas are characterized as isointense mass lesions with increased signal intensity due to fat on T1-weighted images, and well-marginated markedly hyperintense mass lesions containing tubular structures with blood flow characteristics on T2-weighted images in MRI [10,11]. Phleboliths can be seen inside the lesion as low-intensity areas and might be considered as a specific feature of hemangiomas [12]. Over 90% of IMHs are misdiagnosed radiologically since hemangiomas are rarely seen in muscles and sometimes contain an excessive amount of fat or fibrous tissue, [13].

The temporalis muscle is a rare location for IMHs and when they occur, they frequently present as a slow-growing painless mass causing cosmetic deformity in the temporal fossa, as in our patient

[14,15,16]. The lesion can occasionally be tender and cause temporomandibular joint pain or, as in the cavernous type, can change size by valsalva maneuver due to large venous channels within [17,18].

Treatment options for hemangioma of temporal muscle include simple observation, irradiation, injection of sclerosing agents, corticosteroid treatment, embolization and surgical excision. Only one venous hemangioma in the temporal muscle that disappeared spontaneously has been reported in the literature [19]. Although, based on the clinical history and physical examination, some authors argue that the cavernous type can be differentiated from the capillary type and recommend simple follow-up of these lesions unless they cause cosmetic, neurological or functional deficits, many others claim that surgery is the best way to exclude malignancy and report good outcomes and low reccurrence rates with surgical excision [14,17,20-24]. Local recurrence after surgery has been attributed to incomplete excision and not to the histopathological type [5]. Careful surgical dissection during excision of a temporal muscle hemangioma is important to prevent injury to the temporal and auricular branches of the facial nerve. Aspiration cytology or open biopsy from these lesions is not recommended because of the risk of insufficient sampling or bleeding. A preoperative angiography can be helpful in the operative planning and embolization of the tumor, but embolization alone has been reported as an inadequate treatment if not followed by surgery [25]. Irradiation is not recommended as the amount of radiation needed is very high and has severe potential complications especially in children [20].

CONCLUSION

Hemangiomas are benign vascular tumors and are rarely seen in the temporalis muscle. Although this is the report of a single case, the authors emphasize that radiological methods are generally insufficient for the correct diagnosis of intramuscular hemangiomas, and surgery is the treatment of choice to exclude malignancy and for adequate treatment of these lesions. The surgical plan should be individualized according to the patient's age, symptoms and the existence of cosmetic, functional or neurological deficits, the depth of invasion and the vascular structure of the tumor.

REFERENCES

1. Batsakis JG: Vasoformative tumors. In: Batsakis JG, editor. Tumors of the head and neck: clinical and pathological considerations 2nd ed., Baltimore, Md: Williams & Wilkins 294-296 pp, 1979
2. Beecham JE, Behrens HW: Intramuscular hemangioma of the head and neck: report of a case involving the prevertebral muscles. Head Neck Surg. 10(6): 402-405, 1988
3. Allen PW, Enzinger FM: Hemangioma of skeletal muscle. An analysis of 89 cases. Cancer. 29(1): 8-22, 1972
4. Clemis JD, Briggs DR, Changus GW: Intramuscular hemangioma in the head and neck. Can J Otolaryngol. 4(2): 339-346, 1975
5. Beham A, Fletcher CD: Intramuscular angioma: a clinicopathological analysis of 74 cases. Clin Orthop Relat Res. 399: 205-210, 2002
6. Conners JJ, Khan G: Hemangiomas of the striated muscle. South Med J. 70(12):1423-1424, 1977
7. Rosai J: Vascular neoplasms. Am J Surg Pathol. 10 Suppl 1:26-31, 1986
8. Wolf GT, Daniel F, Krause CJ, Kaufman RS: Intramuscular hemangioma of the head and neck. Laryngoscope. 95(2): 210-213, 1985
9. Tang P, Hornicek FJ, Gebhardt MC, Cates J, Mankin HJ: Surgical treatment of hemangiomas of soft tissue. Clin Orthop Relat Res. 399: 205-210, 2002
10. Buetow PC, Kransdorf MJ, Moser RP Jr, Jelinek JS, Berrey BH: Radiologic appearance of intramuscular hemangioma with emphasis on MR imaging. AJR Am J Roentgenol. 154(3): 563-567, 1990
11. Cohen EK, Kressel HY, Perosio T et al: MR imaging of soft-tissue hemangiomas: correlation with pathologic findings. AJR Am J Roentgenol. 150(5): 1079-1081, 1988
12. Baker LL, Dillon WP, Hieshima GB, Dowd CF, Frieden IJ: Hemangiomas and vascular malformations of the head and neck: MR characterization. AJNR Am J Neuroradiol. 14(2): 307-314, 1993
13. Yuh WT, Kathol MH, Sein MA, Ehara S, Chiu L: Hemangiomas of skeletal muscle: MR findings in five patients. AJR Am J Roentgenol. 149(4): 765-768, 1987
14. Joehl RJ, Miller SH, Davis TS, Graham WP 3rd: Hemangioma of the temporalis muscle: a case report and review of the literature. Ann Plast Surg. 3(3): 273-276, 1979
15. Murakami M, Nonaka N, Hirata Y, Sonoda H, Ushio Y: Hemangioma of the temporalis muscle: case report and review of the literature. Surg Neurol. 36(5): 388-393, 1991
16. Sharma RR, Netalkar AS, Pawar SJ, Musa MM, Lad SD: Congenital and late-onset primary haemangiomas of the temporalis muscle: case report. Br J Oral Maxillofac Surg. 39(1): 52-54, 2001
17. Heckl S, Aschoff A, Kunze S: Cavernous hemangioma of the temporal muscle. Neurosurg Rev. 25(1-2): 63-65; discussion 66-67, 2002
18. Hughes C, Hutchison I: Temporalis haemangioma presenting as temporomandibular joint pain dysfunction syndrome. Br J Oral Maxillofac Surg. 31(1): 21-22, 1993
19. Itosaka H, Tada M, Sawamura Y, Abe H, Saito H: Vanishing tumor of the temporalis muscle: repeated hemorrhage in an intramuscular venous hemangioma. AJNR Am J Neuroradiol. 18(5): 983-985, 1997

20. Bartlett JA, Riding KH, Salkeld LJ: Management of hemangiomas of the head and neck in children. J Otolaryngol. 17(2): 111-120, 1988
21. Cappabianca P, Cirillo S, de Divitiis E, de Caro MB, Spaziante R, Zona G : Hemangioma of the temporal muscle. Head Neck. 18(2): 197-200, 1996
22. Sharma BS, Chari PS, Joshi K, Rajvanshi A: Hemangioma of the temporalis muscle. Ann Otol Rhinol Laryngol. 100(1): 76-78, 1991
23. Shikhani AH, Shehadi SI: Surgical treatment of giant hemangiomas of the head and neck. Otolaryngol Head Neck Surg. 94(1): 113-122, 1986
24. Wild AT, Raab P, Krauspe R: Hemangioma of skeletal muscle. Arch Orthop Trauma Surg. 120(3-4): 139-143, 2000
25. Broniatowski M: Intramuscular hemangiomas of the masseter and sternomastoid muscles. Ear Nose Throat J. 72(4): 303-305, 1993