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Case Report

Cavernous Hemangioma of the Forearm and Hand. Case Report

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Abstract

Hemangiomas represent the fourth most common tumor of the hand, after lymph nodes, tendon sheath giant cell tumor, and mucosal cysts. Skeletal muscle is one of the tissues most affected by this neoplasm. 80-90% of intramuscular hemangiomas occur in people under 30 years of age. In the thoracic limb they can be associated with nerve compressions; We present a 14-year-old female patient, who refers to the relative, who since she was a child presented an increase in volume at the level of the lower third of the forearm and the right hand, later at 7 years of age she continued to grow accompanied by loss of mobility of the fingers, as well as pain. He was admitted to our center where he underwent imaging studies and excisional biopsy. Satisfactory evolution and improvement of the mobility of the affected hand was achieved. Follow-up continues in the outpatient clinic.

Keywords: Cavernous Hemangioma; Forearm; Hand

Introduction

Cavernous hemangioma, also known as deep hemangioma, is a benign neoplasm of the blood vessels [1-3], characterized by the presence of a large number of normal and abnormal vessels on the skin or other internal organs; they are usually localized [2,3].

Hemangiomas represent the fourth most common tumor of the hand, after lymph nodes, tendon sheath giant cell tumor, and mucosal cysts. Skeletal muscle is one of the tissues most affected by this neoplasm. 80-90% of intramuscular hemangiomas occur in people under 30 years of age [4-6]. In the thoracic limb they may be associated with nerve compressions; they may involve the median nerve, causing carpal tunnel syndrome, or the ulnar nerve at the elbow or in Guyon's canal, although they are an almost exceptional cause of nerve compression syndromes, very few have been published and all of them in women [4].

Hemangiomas are noncancerous mesodermal tumors that account for 7% of all benign soft tissue tumors [3,7-9]. Intramuscular cavernous hemangiomas in the extremities are uncommon (0.8% of hemangiomas) [8]. They originate in the intrinsic vessels of tissues. Histologically, they are classified into cavernous and capillary, depending on the dominant vessels, although there are mixed forms [9] their main etiology is unknown, 2 possible origins of hemangiomas can be detected: reactivation of quiescent embryonic hemangioblasts or neoangiogenesis leading to the growth of new aberrant vessels [3].

Case

A 14-year-old female patient, who reports the family, since she was a child presented an increase in volume at the level of the lower third of the forearm and the right hand and after 7 years, she continued to grow accompanied by loss of mobility of the fingers, as well as pain.

Imaging Studies

A simple CT scan and CT angiography of the forearm and right wrist showed that the increase in volume at this level correspond-

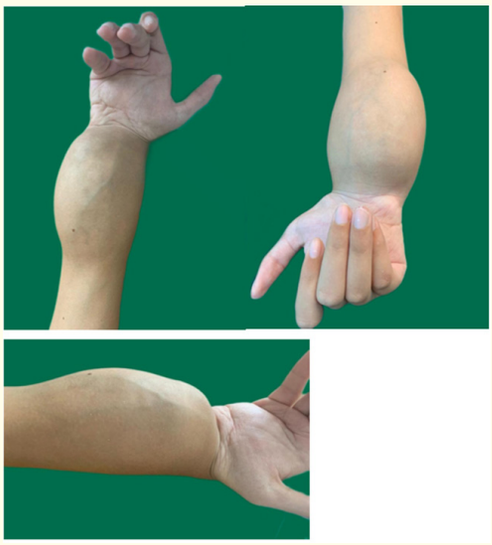

Figure a

ed to a solid, hyperdense, heterogeneous, polylobed mass of 118 x 65 x 68 mm in sagittal and coronal reconstructions, multiple calcifications inside it in relation to phleboliths. (Figure 1 a-d) and it was demonstrated in the CT angiography figure 1 (e, f) that this hyperdense mass was made up of great tortuosity and dilation of vessels predominantly venous (cavernous) associated with soft tissue components, which compressed and displaced the adjacent musculotendinous planes.

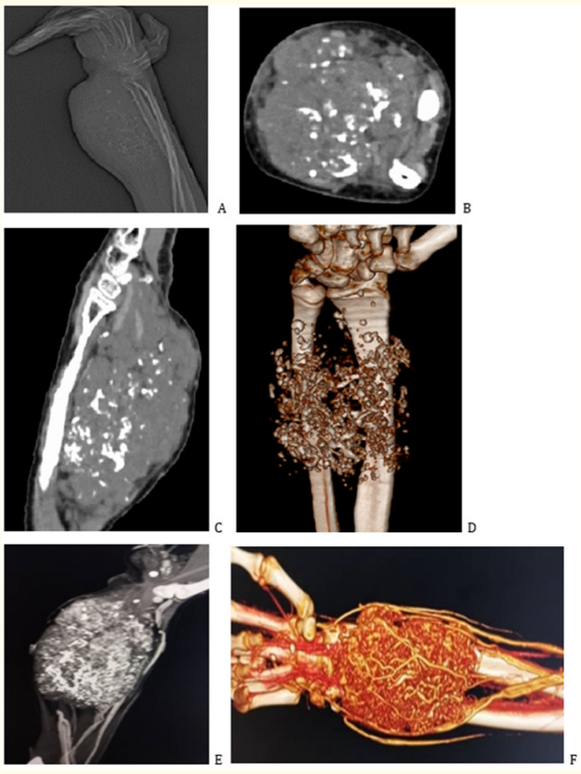

Figure 1: CT images: A Topogram, B axial section PB, C sagittal reconstruction PB, D volumetric reconstruction, E angiotac reconstruction, F volumetric reconstruction angiotac where cavernous hemangioma is evident.

MRI images at T1, T2 and T2 SF showed hyperintense mass (medium to high) in relation to muscle planes in all sequences, heterogeneous with absence of signals inside and myotendinous displacements.

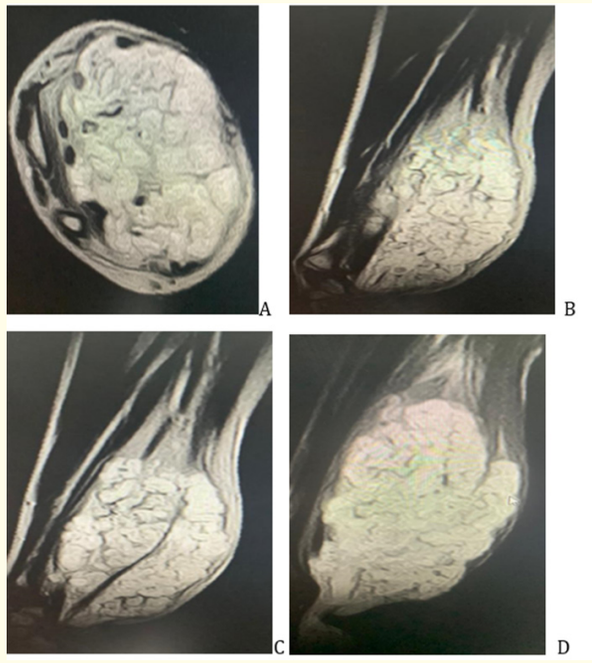

Figure 2: A-D T1, T2 and T2 SF sequences, axial, sagittal and coronal plane showing large cavernous hemangioma.

Anatomical pathological findings

Macro

Tumour mass of 10 x 5cm, tubular in shape, irregular surface, dark brown. When cutting areas, multiple well-defined blackish areas.

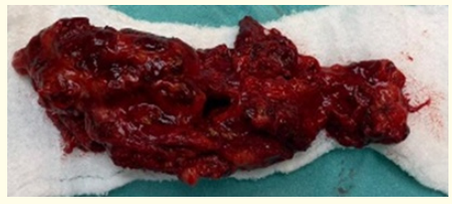

Figure b

Micro

The samples obtained in pathological anatomy are composed of a large number of cystically dilated vascular lumens, lined with flat endothelium with thinning of their wall and filled with blood. These vascular structures rest in a stroma of connective tissue.

Due to these morphological characteristics of the lesion, the biopsy was concluded as a cavernous hemangioma.

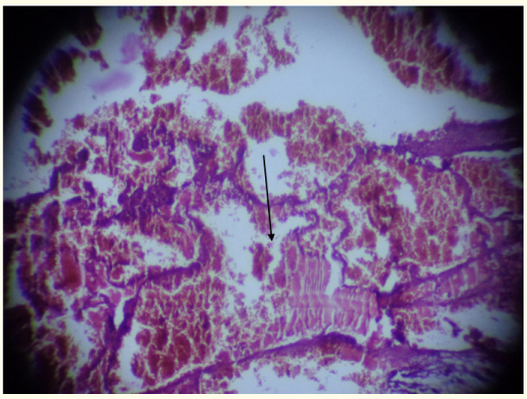

Figure c: Overview of cystically dilated vascular canals (arrow).

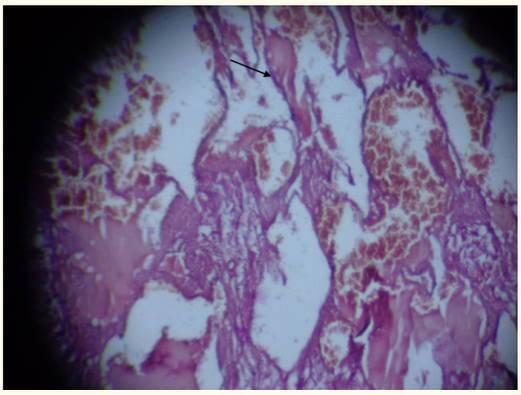

Figure d: Panoramic view of multiple dilated blood vessels with thin vascular wall (arrow).

Discussion

Cavernous hemangioma is a disease that usually affects children and adolescents [3,10]. without a predilection for sex [5,10-15]. It is the most common benign tumor in childhood [13-15]. With a prevalence of 2 to 3% in newborns, 10% in children under 1 year of age and up to 22 to 30% in premature babies weighing less than 1 kilogram [13] can be divided according to their histological characteristics into capillaries, more frequent in the skin and subcutaneous tissues and with a microscopic appearance of small bundles of capillary-like vessels, or cavernous, which affect deeper structures, such as bone, forming blood-filled caverns surrounded by endothelium, [14] their most frequent symptoms and signs are increased volume and pain. Treatment consists of resection of the tumor through a margin of safety and its main complication is recurrence [3,4].

The term hemangioma has been used incorrectly for years to refer to all types of vascular anomalies, regardless of their pathogenesis, histological features, and clinical course [10,16]. Typical sites of localization are as follows: lower limb such as thigh and calf (most frequent), head and neck, upper extremity and trunk [16].

Hemangiomas can be: 1) solitary, the most common, 2) multiple (hemangiomatosis) or 3) they can be associated with other pathological processes such as Kasabach-Merrit syndrome or associated with osteomalacia in Gorham's syndrome [4].

The current classification was established in April 2014, in Melbourne; approved by the ISSVA (International Society for the Study of Vascular Anomalies) [10]. According to the predominant type of vascular spaces we distinguish 3 types: cavernous, capillary and mixed based on the predominant vascular pattern [10,16,17]. On the other hand, depending on the location of the hemangiomas, they may be superficial (cutaneous or subcutaneous) or deep (intramuscular) [10].

Musculoskeletal hemangioma is the most common form of deep soft tissue hemangioma, but if all vascular tumors are considered together. Watson and McCarthy report an incidence of approximately 0.8% of all benign vascular tumors [5,17].

The first musculoskeletal hemangioma was described by Liston in 1843. It was a tumor of the popliteal hollow originating in the semimembranous muscle. Subsequently, multiple reviews have been published that have established the main clinical, paraclinical and therapeutic guidelines for enermity [5].

The characteristics of this tumor are very similar to those of sarcomas, so this is the first clinical differential diagnosis [5] in addition to clinical suspicion, the diagnosis is mainly radiological, mainly MRI, CT and angiography [13,16].

Among the differential diagnoses of cavernous hemangioma, the most important to rule out is angiosarcoma. Cavernous hemangiomas are well-defined lesions unlike angiosarcomas, which have diffuse and infiltrating growth. The latter also shows nuclear atypia, mitotic activity and necrosis, morphological characteristics that cavernous hemangioma does not present. Another diagnosis to rule out is spindle cell hemangioma, which presents a mixture of areas identical to the cavernous hemangioma of dilated vessels and areas of spindle cells; as well as vacuolated endothelial cells [18].

The case received a multidisciplinary evaluation that allowed us to make the clinical, imaging and histological diagnosis of cavernous hemangioma, with a favorable evolution and evident improvement in the mobility of the affected hand.

Conclusion

Cavernous hemangioma is a benign neoplasm of the blood vessels, characterized by the presence of a large number of normal and abnormal vessels on the skin or other internal organs; They are generally localized and represent the fourth most common tumor of the hand, after lymph nodes, tendon sheath giant cell tumor, and mucosal cysts. They are non-cancerous mesodermal tumors that account for 7% of all benign soft tissue tumors.

The use of radiological means based on CT, MRI and angiographic tests is important for its diagnosis.

Conflict of Interest

None to declare.

Bibliography

1. Fernández Albán M., *et al.* "Cavernous hemangioma in the frontal bone. Presentation of a case and review of the literatura". *Invest Medicoquir* 12.3 (2020): 16.
2. Chércoles Cazate LE., *et al.* "Cavernous hemangioma". *Revista Cubana de Angiología y Cirugía Vascular* 22.1 (2021): 10.
3. Arévalo-Sáenz A., *et al.* "Peripheral nerve cavernous hemangioma: presentation of a clinical case". *Neurocirugía* 34.4 (2023): 9.
4. Fernández Vázquez JM., *et al.* "Cavernous hemangioma of the forearm and hand". *Anales Médicos de la Asociación Médica del Centro Médico ABC* 49.3 (2004): 6.
5. Minasian P., *et al.* "Giant hemangiomas of skeletal muscle". *Cir Uruguay* 76.1 (2006): 9.
6. Wierzbicki JM., *et al.* "Intramuscular hemangiomas". *Sports Health* 5.5 (2013): 25.
7. Rodríguez Collar TL., *et al.* "Cavernous hemangioma of the renal pelvis". *Revista Mexicana de Urología*66.6 (2006): 4.
8. Vidal-Folgar MA., *et al.* "Quadriceps intramuscular cavernous hemangioma". *Revista Española de Cirugía Ortopédica y Traumatología* 52.4 (2008): 3.
9. Carrasco-Moro R., *et al.* "Cranial intraosseous cavernous hemangioma". *Neurosurgery* 20.6 (2009): 9.
10. Alvarez-López A., *et al.* "Cavernous hemangioma of the foot: a case report". *Arc Méd Camagüey* 26 (2022): 12.
11. Ariza Rodríguez A. "Hemangioma in the foot: Prevalence study and review. Final Degree Project 2017 [Thesis]. [Barcelona]: Universitat de Barcelona (2017): 21.
12. Santiago Silva D., *et al.* "Cavernous hemangioma. Report a case". *Revista Información Científica* 73.1 (2012): 7.
13. Torres Morrientes LM., *et al.* "Cervical hemangiomas. Description of a case". *ENT Magazine* 7.1 (2016): 39.
14. Masot León B., *et al.* "Cavernous hemangioma of the bones of the nose: a case report". *Anales del Sistema Sanitario de Navarra* 41.3 (2018): 11.
15. Macca L., *et al.* "Update on Treatment of Infantile Hemangiomas: ¿What's New in the Last Five Years?" *Frontiers in Pharmacology* (2022): 13.
16. Radiopaedia.org [location unknown]: Radiopaedia.org; c2005-2023. Intramuscular hemangiomas (2023).
17. Quintero Contreras ML and Rubiano Pedroza JA. "Intramuscular cavernous hemangioma of the serratus major: postsurgical differential diagnosis". *South Florida Journal of Development* 4.6 (2023): 6.
18. Folpe A and Carrie Y. "Bone and Soft Tissue Pathology". Phildelphia: Saunders Elsevier (2010): 460.