Scholars Journal of Medical Case Reports (SJMCR) **ISSN 2347-6559 (Online)**
Abbreviated Key Title: Sch. J. Med. Case Rep. **ISSN 2347-9507 (Print)**

A United of Scholars Academic and Scientific Society, India

Successful Surgery for Giant Infantile Hemangioma: Case Report and Literature Search

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Article History
Received: 15.09.2018
Accepted: 27.09.2018
Published:30.09.2018

DOI:
10.36347/sjmcr.2018.v06i09.023

Abstract: Vascular anomalies found frequently on the child's hand. We distinguish tumors and vascular malformations. The most common tumors are infantile hemangiomas. It is a benign tumor, which evolves in three phases: a phase of rapid evolution, a phase of stabilization then a phase of involution. The traditional surgical approach is to abstain with delayed treatment of skin scars. However some situations may require urgent or early surgical treatment when the lesions present a significant life-threatening situation or functional risk. We report the case of a 7-year-old male admitted for a giant left thenar lodge hemangioma who underwent successful full surgical resection of the tumor.
Keywords: infantile hemangioma, giant, surgery, successful.

INTRODUCTION

The cutaneous hemangioma is a benign vascular tumor of the child, known for its characteristic evolution in three phases: Rapid or even explosive evolution of the first weeks of life, then phase of stabilization before slow involution over several years, leading in the most favorable cases to a restitution ad integrum of the concerned integuments. The traditional surgical approach is abstention with delayed treatment of skin scars. However, some situations may require urgent surgical treatment of lesions presenting a significant vital or functional risk.

The surgical procedure proposed is a reduction of tumor volume without intention of aesthetic improvement. We report the case of a 7-year-old child with a giant hemangioma of the thenar lodge successfully treated by surgery.

OBSERVATIONS

This is a 7-year-old male, who presented two weeks after birth a small bluish mass at the thenar lodge of the left hand. The evolution is marked by the gradual increase in the size of the formation. At the age of 7 years, and because of the large size and the very functional discomfort that causes, the parents consulted at the university hospital center of Rabat. Admission's examination found a mass of about 9 cm at the thenar lodge, subcutaneous, dense and hot with some cutaneous telangiectasia. The diagnosis of a subcutaneous infantile hemangioma is posed. An MRI of the left hand performed was in favor of a hemangioma invading the muscles of the thenar lodge and compressing the vessels of the region.

View the size of the mass, the age of the child, and especially the functional disability caused with the psychic repercussion, a surgical resection is posed.

The operation is started by a fusiform excision of the mass followed by a total excision by bipolar electrocautery with direct sutures and tension-free closure. The vascular and nervous structures were respected which made it possible to avoid the necrosis of the thumb. The follow up was marked by preservation of the sensitivity and the motricity of the thumb with normal aspect of the hand.

Fig-1: Image showing the hemangioma a the thenar area

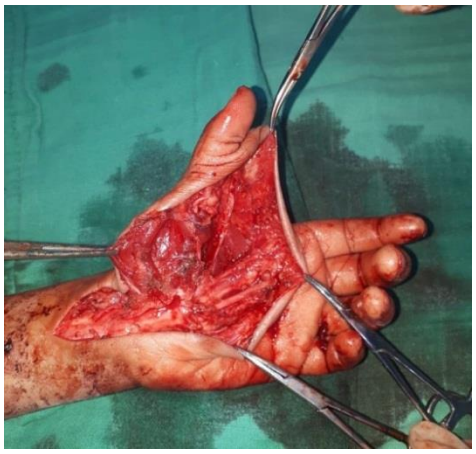

Fig-2: peroperative view shoing vascular, nervous and tendinous structures after masse resection

Fig-3: final appearance after skin reconstruction of the palm of the hand and thumb

DISCUSSION

IH (or "immature angioma") are the most common vascular abnormalities and the most common tumors in children. They reach 10 to 12% of newborns and 30% of premature infants less than 1800 grams [1]. There is a female predominance with a sex ratio of about 3/1. It is a transient hyperplastic proliferation of the mesenchyme angioformator, consisting of endothelial cells expressing placental markers such as GLUT-1, merosin, Lewis antigen and Fc gamma receptor II. [2]. Histology found the presence of GLUT1 marker in 100% of IH.

The hemangioma has no elective localization and the hand is often affected. The lesion is most often unique but sometimes there are two or three hemangiomas. A visceral hemangioma must be suspected in the presence of numerous hemangiomas, but especially in cases of miliary hemangiomatosis (disseminated hemangiomatosis with liver injury) [3].

Clinically, there are superficial hemangiomas and subcutaneous (pure or mixed: the most common). Superficial hemangiomas appear as red scarlet hillocky swelling (appearance of "strawberry") .Subcutaneous hemangioma, it appears as a dense and warm mass with some cutaneous telangiectasia (as our case). The diagnosis is more difficult and an echo-Doppler can help the diagnostic confirmation.

An MRI is indicated to assess the extent of the lesion. At the hand, we find mainly superficial hemangiomas but the literature reports cases of deep hemangiomas, in particular on the synovial sheath [4].

The lesion is usually absent or not very visible at birth, and then undergoes a phase of rapid evolution in the first weeks of life, then stabilizing around the age of eight months, and then slowly regressing over the first seven to eight years of life. Relying on this classic notion of natural involution of the lesion, the rule is attentive therapeutic abstention, and surgical treatment is not the first-line treatment of hemangioma [5, 6]. In some cases (large volume of the lesion, particular localization in a "risky" zone, progressive or functional complication or involuntary non-completeness), the use of surgical procedure can be discussed or even imposed in certain circumstances (Table 1) [7].

Table-1: Surgical indications in the management of hemangioma

0 to 12 months	1 to 7 years	Beyond 7 years
Vital emergency Heart failure Functional Complication or Evolutionary Angiomatous Residue	Hemangioma with low involutional potential Median line-predominant subcutaneous component Hemangioma with aesthetic prejudice +++ (school) Face Hemangioma deforming neighborhood structures Nose, lips, ears, eyelids Non involuting congenital hemangioma (NICH)	Skin and neighbors sequens Angiomatous residues
phase 1 (0 to 12 months): emergency surgery	phase 2 (one to seven years): early surgery without waiting for natural involution	phase 3 (after seven years): Surgery of post-involution sequelae

We distung different possible phases of the surgical treatment:

- Urgent surgery: it is performed because of a complication of the hemangioma, after failure or insufficiency of the medical treatments implemented: vital distress, functional complication, evolutionary complication.
- Early surgery: it is performed without waiting for complete involution of the lesion (before the age of seven) for lesions with low involutional potential, hindering social life, with a high psychological impact (cervico-facial hemangiomas) or which may be at the origin of deformations difficult to reverse if natural involution was expected;
- Late surgery or treatment of post-involution sequelae (after seven years): it treats residual skin surpluses, fibro-fatty residues and angiomatous residues.

Surgical treatment can be offered in the absence of functional imperative after the last active growth phase. Surgery is usually performed before the age of schooling in the preparatory class, or before the age of six. Some authors advocate treatment at the age of two or three years before schooling in the maternal class, for facial lesions with a strong impact on social life [8, 9].

The purpose of the treatment is essentially aesthetic. It must be careful and conservative in all cases respecting the surrounding teguments. It is never used as a first line for complex reconstructive surgery procedures, which can lead to clean sequelae. The excision should allow, as much as possible, a closure without tension to avoid unsightly secondary scar enlargements. For lesions whose topography and residual volume allow, the surgical principle is that of a total or subtotal resection with direct suture. Fusiform excision followed by a direct cutaneous suture is the most common technique; some authors advocate circumferential excision of the lesion with closure in the stock market [10].

In the other cases, a modeling treatment of surface or of the subcutaneous part of the lesion (or both) is carried out thanks to a partial modeling resection by a way of direct or indirect approach. This action can be repeated if necessary or be associated with other therapeutic modalities such as the laser that can correct residual surface telangiectasia lesions. Dissection is difficult and sometimes dangerous because of the risk of hemorrhage, hence the advantage of using a monopolar electrocautery or even ultrasound by Cavitron type devices [11].

In our case, fusiform excision with the use of bipolar electrocautery allowed a total resection of the mass with cutaneous closure without tension and normal aspect of the hand with conservation of the vascularization, the motricity and the sensitivity of the thumb.

CONCLUSION

The surgery of the infantile hemangioma remains an exceptional surgery. Indications for early surgery should be carefully considered and after careful consideration by the various practitioners caring for the child. The surgical treatment proposed for mainly aesthetic purposes, it must be careful and conservative respecting the surrounding teguments.

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