Ulcerated infantile hemangioma in a newborn: a case report.

Abstract :

Infantile hemangiomas are common benign vascular tumors that usually resolve spontaneously in 80% of cases. Propranolol is currently the first-line treatment, particularly in complicated cases. We report the case of a newborn who presented at birth with a double infantile hemangioma on the right cheek. The condition was unfavorable, progressing to ulceration and secondary infection. The baby was hospitalized and showed significant improvement with penicillin G and propranolol. Subsequent progress was marked by good healing and the disappearance of necrosis. In light of this observation, we discuss the diagnostic, therapeutic, and progressive aspects of this pathology.

Keywords: Infantile hemangioma; Newborn; Ulceration; Propranolol

Background :

Angiomas are a heterogeneous group of vascular conditions that are most often congenital or occur early in life. They can affect any organ, but skin involvement is the most common.

Infantile hemangioma (IH) is a common benign vascular tumor with an estimated prevalence of approximately 10% in children under one year of age [1]. In typical forms, diagnosis is clinical and straightforward. It is based on the patient's medical history, since it is a lesion that develops after an interval of a few days to a few weeks after birth and progresses in three phases: a phase of rapid proliferation lasting approximately 3 to 6 months, a plateau phase, and then a phase of slow involution lasting 3 to 7 years [1]. On the other hand, the diagnosis is confirmed by the clinical appearance.

The progression remains stereotypical. The majority of hemangiomas regress spontaneously and do not require treatment. However, some hemangiomas (approximately 10 to 20%) compromise the child's aesthetic, functional, or vital prognosis due to their location and/or complications. These potentially serious hemangiomas require active therapeutic management [2].

In this article, we report the clinical observation of an infantile hemangioma in a newborn whose progression was unpleasant, leading to ulceration.

Case presentation :

A male newborn, from a monitored pregnancy without complications, born at 40 weeks gestation weighing 4000 g (86th percentile), had marked angiomatous lesions on his right cheek since birth, with no other associated lesions. The condition progressed around day 15 of life with the appearance

of ulceration of the hemangioma. Several practitioners were consulted and, assuming it was irritative or candidal dermatitis of the diaper area, various local treatments were tried (healing creams, drying lotions, antifungal creams, etc.) without success. As the ulceration spread, the baby was hospitalized at his neonatal period for treatment. The examination on admission revealed two hemangiomas centered on a painful ulceration measuring 4 to 5 cm on the right cheek, with erythematous edges and a central area of necrosis (**Fig. 1)**. A small purulent discharge was also noted. Standard laboratory tests were performed with no abnormalities. Syphilis serology was negative, as were local virological (herpes PCR), bacteriological, and mycological samples. A dermatological opinion was sought: appearance consistent with an ulcerated and superinfected hemangioma. The initial treatment was gentle cleaning with saline solution, drying, and application of local care based on fucidin, vaseline, and penicillin G with a moist dressing. A slight improvement in the lesion was noted, with the onset of healing and disappearance of necrosis. Radiological investigations were performed to look for other sites, including brain MRI and liver ultrasound, which were normal. Transthoracic echocardiography showed restrictive ventricular septal deffect without repercussions.

Outcome and Follow-up :

At a month of age, the infant showed favourable clinical evolution following treatment initiation with Hemangiol (propranolol) syrup at 2 mg/kg/day, Progressive healing of the ulcerated hemangioma was observed with reduction of inflammation and gradual re-epithelialisation **(fig. 2)**. A maxillofacial surgery consultation was requested, indicating that treatment should be continued at the same dosage of 2 mg/kg/day for a period of one year. Laser surgery will be scheduled at a later date depending on progress.

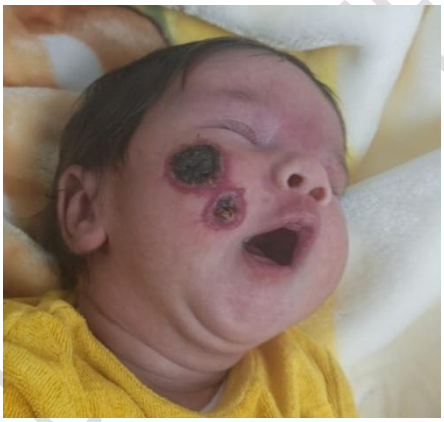

Figure 1: Image of the patient showing two ulcerated infantile hemangiomas on the right cheek with central necrosis

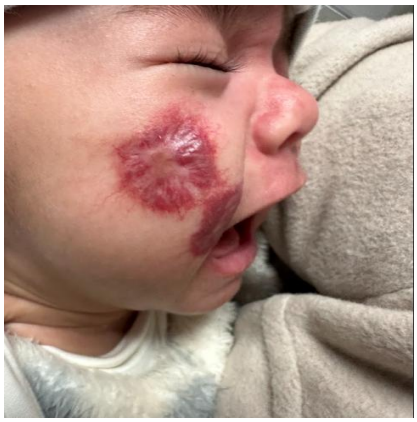

Figure 2: Image of the same patient at day 40 of life showing good healing under oral propranolol

Discussion :

The classification of angiomas distinguishes hemangiomas from vascular malformations. Hemangiomas are regressive tumors. Vascular malformations affect capillaries, veins, or lymphatic

vessels. This classification divides "angiomas" into vascular tumors, the most frequent of which is infantile hemangioma, and superficial vascular malformations [3].

Infantile hemangiomas (IH) represent 32% of vascular tumors, affecting 4 to 10% of white infants, with a predominance in female newborns (sex ratio = 2:1 to 3:1) [4]. They are most often cutaneous, appearing as plaques or nodules with varying degrees of subcutaneous and dermal involvement. These hemangiomas frequently occur on the head or neck, initially presenting with the classic appearance of a bright red plaque or nodule (capillary or tuberous hemangioma). In predominantly subcutaneous forms, the color may be almost that of normal skin or slightly bluish. The lesions may be single or multiple. The diagnosis of cutaneous IH is clinical. In difficult cases, Doppler ultrasound may be performed. An MRI with gadolinium injection is rarely necessary for the diagnosis of cutaneous or subcutaneous lesions, but it is useful for visceral forms in order to specify the extent of the vascular lesion.

Ulceration is the most frequent complication (15-25%) of hemangioma, occurring on average between 4 and 6 months of age, but sometimes earlier, at 1 month [5]. The risk of ulceration increases when the lesion is located on the neck, armpits, lower lip, in cases of hemangiomas larger than 5 cm on the trunk, in segmental hemangiomas, or in hemangiomas with a mixed component. The early appearance, around 2-3 months of age, of a whitish-gray discoloration on the surface is a good indicator of impending ulceration [6].

Superinfection is often a complication of ulceration, but it can sometimes occur in isolation, particularly in the anal or preoral regions. It should be suspected in the event of the appearance of purulent discharge, erythema around the area, cutaneous infiltration of the HI or foul odor [5]. In the exceptional presence of fever and constitutional symptoms, the presence of sepsis or underlying osteomyelitis should be considered.

Necrosis of a hemangioma can be spontaneous or induced by inappropriate treatments (cryotherapy, radioactive isotope therapy, sclerotherapy), these procedures being practically abandoned today. This necrosis manifests as a blackish crust centered on the lesion. It can occur in superficial, cutaneous, or mixed hemangiomas, and it accelerates the hemangioma's regression process at the cost of a permanent scar. The cause of spontaneous necrosis remains unknown, but some authors believe that in these cases, the blood supply is insufficient to meet the demands of this growing tumor. Certain cytokines, including tumor necrosis factor (TNF), also appear to play a role.

Regarding the treatment protocol, local care consists of simple cleansing with soap and the application of a hydrocolloid dressing to assess the wound's progress. This local care is essential to accelerate healing, prevent superinfections, and, above all, reduce pain. Oral propranolol treatment can be initiated in a hospital setting at the first consultation, provided there is a normal clinical examination and no contraindications (primarily bronchospasm, arrhythmias, blood pressure disturbances, or hypoglycemia), at a dose of 1 mg/kg/day divided into two doses, then increased in weekly increments to 2 mg/kg/day and then 3 mg/kg/day in two doses [7]. No further tests are necessary. At each increment, blood pressure and pulse should be monitored during the consultation for up to two hours after administration. In infants under two months of age or weighing less than 2 kg, a prior echocardiogram and a short hospital stay for initiation of treatment under continuous

monitoring are recommended. Complete healing is achieved in most cases within approximately 2 weeks. Treatment must be continued for a minimum of 6 months. The risk of relapse of hemangiomas is estimated at 10–15% after treatment discontinuation, especially in cases of segmental or deep hemangiomas [4]. In the long term, pulsed dye laser (PDL), alone or in combination with beta-blockers, plays a significant role in the management of ulcerated hemangiomas [8]. It is also sometimes offered to accelerate the clearing of superficial hemangiomas or to treat residual telangiectasias. Surgery remains an alternative in the treatment of certain hemangiomas [9].

Conclusion:

While benign, infantile hemangiomas can lead to complications. Our case illustrates the efficacy of propranolol in the treatment of complicated infantile hemangiomas, with notable clinical improvement observed within the first few months. The persistence of sequelae underscores the importance of early diagnosis and prolonged follow-up. Multidisciplinary management, including dermatology, pediatrics, and plastic surgery, is essential to optimize the aesthetic and functional prognosis.

Learning points :

- Ulceration is the most frequent complication of infantile hemangiomas.
- Early recognition and prompt treatment are essential to prevent pain, infection, and scarring.
- Combined medical therapy and local wound care promote healing and favourable outcomes.
- Regular follow-up is important to monitor lesion regression and treatment response.

References:

1. Berenguer B, Mulliken JB, Enjolras O, Boon LM, Wassef M, Josset P, et al. Rapidly involuting congenital hemangioma: clinical and histopathologic features. Pediatr Dev Pathol Off J Soc Pediatr Pathol Paediatr Pathol Soc. déc 2003;6(6):495-510.

2. Wassef M, Blei F, Adams D, Alomari A, Baselga E, Berenstein A, et al. Vascular Anomalies Classification: Recommendations From the International Society for the Study of Vascular Anomalies. Pediatrics. juill 2015;136(1):e203-214
3. Boon LM, Enjolras O, Mulliken JB. Congenital hemangioma: Evidence of accelerated involution. J Pediatr. 1 mars 1996;128(3):329-35.
4. Moore SW, Satge D, Sasco AJ, et al. The epidemiology of neonatal tumours. Report of an international working group. Pediatr Surg Int 2003;19:509–19.
5. Luu M, Frieden IJ. Haemangioma: clinical course, complications and management. Br J Dermatol, 2013;169:20-30.
6. Léauté-Labrèze C, Harper JI, Hoeger PH. Infantile haemangioma. Lancet, 2017;390:85-94
7. Batta K, Goodyear HM, Moss C et al. Randomised controlled study of early pulsed dye laser treatment of uncomplicated childhood haemangiomas: results of a 1-year analysis. Lancet, 2002;360: 521-527.
8. David LR, Malek MM, Argenta LC. Efficacity of pulsed dye laser therapy for the treatment of ulcerated hemangiomas: a review of 78 patients. Br J Plast Surg 2003;56:317–27.
9. Faguer K, Dompmartin A, Labbé D, et al. Early surgical treatment of cyranonose hemangiomas with Rethi incision. Br J Plast Surg 2002;55:498–503.