Chapter 22
Cryotherapy Treatment in Infantile Hemangioma: A Case Report

Muhammad Zuldan Karami, Devy Caroline, Puguh Riyanto, Muslimin, Buwono Puruhito, and Widyawati

A 3-month-old female infant presented with a rapidly growing bright red tumor on the forehead since 1 week of age was brought to Diponegoro National Hospital (Fig. 22.1). There was no complaint of tenderness and bleeding. There was no sign of fever, bleeding, and lymph node enlargement. The patient has been given propranolol without any improvement.

Fig. 22.1 A smooth-surfaced bright red tumor on the patient's forehead

M. Z. Karami (✉) · D. Caroline · P. Riyanto · Muslimin · B. Puruhito · Widyawati
Department of Dermatology and Venereology, Faculty of Medicine, Diponegoro National Hospital, Universitas Diponegoro, Semarang, Indonesia

Indonesian Society of Dermatology and Venereology, Jakarta, Indonesia

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Based on the case description and the photographs, what is your diagnosis?

1. Infantile hemangioma
2. Pyogenic granuloma
3. Tufted angioma

On physical examination we observed a sharply-demarcated, smooth-surfaced bright red tumor on the patient's forehead with the size of 3 × 2 cm. The infant was born through spontaneous delivery with no history of preterm birth and low birth weight from a mother who was 31 years old at that time. The patient had normal birth weight, had no previous medical history, and was not on any other medication.

The patient was diagnosed with infantile hemangioma and was treated with cryotherapy and prescribed oral analgesic and topical antibiotic before the patient was discharged (Fig. 22.2). A 6-month follow-up presented the lesion as a post-inflammatory hypopigmented macule on the patient's forehead (Fig. 22.3).

Discussion

Infantile hemangioma is estimated in 4–5% of children and more likely to be observed in female infants. According to the literature, the superficial infantile hemangioma is the most often to be found from all three subtypes, with the

Fig. 22.2 A post-inflammatory hypopigmentation on the patient's forehead after second cryotherapy

Fig. 22.3 A post-inflammatory hypopigmentation on the patient's forehead on a 6-month follow-up after first cryotherapy

characteristics of pink to bright-red strawberry plaque or nodule, on the head or neck region. Superficial infantile hemangioma is identified since the first month of age and will grow bigger the next month. The lesion will stop expanding after 5 months of age and starts to go through the involution phase until 3.5–4 years old in 90% of all children [1–4].

The patient was born from a full-term pregnancy with no history of low birth weight, from a 31-year-old mother. According to the references, pregnancy above 30 years old is one of the risk factors for infantile hemangioma [1].

The diagnosis of infantile hemangioma was established based on history taking and physical examination. Histopathologic examination was not performed since the patient was planned to be subjected to cryotherapy.

The differential diagnosis of infantile hemangioma was ruled out because the lesion was not in accordance with pyogenic granuloma which is covered in scales, prone to erosions and bleeding, and does not undergo involution phase [1, 2, 4, 5]. The lesion was also not befitting as tufted angioma since the latter is located on a subcutaneous layer, proliferates slowly, and commonly found on the neck, shoulders, and upper body region. Spontaneous regression is expected if the onset of disease is before 6 months old [1, 6].

Intervention is recommended for infants with infantile hemangioma which does not respond to medical therapy, life-threatening hemangioma, lesion with malignancy tendency, and progressive hemangioma with recurrent infections [1, 4]. The patient was subjected to surgical intervention because the lesion showed no improvement despite having been treated with oral propranolol and topical timolol. Propranolol was prescribed with the dosage of 1.5–3 mg/kg/day, 2 to 3 times a day. Topical beta-blockers such as timolol 0.5% were given two times a day for superficial hemangioma [7, 8]. Cryotherapy was decided due to parental preference and the location of involvement which was favorable for resection [4]. After second cryotherapy, a 6-month follow-up presented the patient with a post-inflammatory hypopigmentation on the forehead as expected of a wound healing following an uncomplicated resection.

The prognosis in this patient is *quo ad vitam ad bonam, quo ad sanam ad bonam, quo ad cosmeticam dubia ad bonam (the prognosis of this patient is good and the post-procedure scar is minimal).*

Key Points

- Superficial infantile hemangioma is one of the most common benign vascular malformations with the characteristics of pink to bright-red strawberry plaque or nodule, on the head or neck region
- Cryotherapy is one of the interventional modalities regarding infantile hemangioma which does not respond to medical therapy

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