

Case Report

Two Cases of Progressive Ulceration in Flat, Sacral, Infantile Hemangioma; Delayed Wound Healing Due to Propranolol

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Abstract

Background: Segmental lumbosacral infantile hemangiomas are associated with developmental abnormalities and early, therapy-resistant ulceration. Since 2008 propranolol has become the first-choice treatment of infantile hemangioma and it seems that ulceration is prevented or improved by propranolol. **Methods:** Two cases of flat, segmental lumbosacral infantile hemangiomas were reported with early, progressive ulceration in which propranolol treatment was apparently inadequate to support wound healing. **Results:** In these cases, propranolol may have been an inhibitor of wound healing instead of a benefactor. **Conclusion:** Physicians should be aware of possible negative effects of propranolol on wound healing and adjust dose or stop therapy in case of failure.

Keywords: progressive ulceration, infantile hemangioma, propranolol

Abbreviations

IH: Infantile Hemangioma

Introduction

Infantile hemangioma (IH) is the most common, benign vascular tumor in infancy. Since 2008 propranolol treatment has become the first-choice treatment for IHs with (impending) complications [1]. Different studies report an excellent efficacy of propranolol, also for ulcerating Ihs [2]. In our tertiary referral center it was noticed that ulceration of flat, segmental midline lumbosacral IHs did not react adequately on propranolol treatment. In the present paper two similar cases are reported.

Case Presentations

Case report 1

A 1-month-old girl was presented at our out-patient department with a big light red telangiectatic macule of the gluteal area and legs. In the first weeks of life ulceration of about 1 cm² and small erosions had appeared in the inguinal area (Figure 1a).

Propranolol treatment with an initial target dose of 1.5 mg kg^{-1} daily was initiated [1]. Topical therapy was added: Fusidic acid hydrogel (1X daily), miconazolnitrates cream in the skin folds (2X daily) and Cavilon spray and zinc oxide oil (unrestricted).

Propranolol had an excellent effect on the IH but could not inhibit the progressive ulceration (Figure 1b). About three weeks later systemic amoxicillin/clavulanic acid $100/12.5 \text{ mg/ml}$ (0.4 ml/kg/24hr) and acetaminophen against pain were added. The ulceration did not react to this treatment either (Figure 1c). Propranolol dose was temporarily increased to 2.2 mg kg^{-1} daily without additive effect. Therefore, the dose was brought back to 1.5 mg kg^{-1} daily. Seventeen days later some slow healing of the ulceration was observed. Propranolol was continued till the age of 15 months. After the treatment, extensive scars in combination with telangiectasia were present (Figure 1d).



Figure 1: Ulceration of flat, segmental midline lumbosacral Infantile Hemangioma despite propranolol treatment. (a) Before propranolol treatment (b,c) During propranolol treatment (d) After propranolol treatment

Case report II

A 1-month-old girl was presented at our out-patient department. Directly after birth a red perianal macule, combined with telangiectasia was seen. Two weeks later painful ulceration appeared in this lesion (Figures 2a & 2b).

Propranolol treatment with the target dose of 2.2 mg kg^{-1} daily was initiated at the age of 1 month. Barrier spray and zinc oxide cream (Sudocrem®) were applied as additional topical therapy. During treatment the IH became

lighter in color but ulceration remained progressive (Figure 2c). Amoxicillin/clavulanic acid (100/12.5mg/ml; 0.4ml/kg/24hr) was added. Healing of ulceration was relatively slow (Figures 2d & 2e). At the age of 4 months ulceration was healed completely (Figures 2f & 2g).



Figure 2: Ulceration of flat, segmental perianal Infantile Hemangioma despite propranolol treatment. (a,b) Before propranolol treatment (c-g) During propranolol treatment

Discussion

The present cases show a specific clinical subtype of IH: flat, segmental IH in the sacral midline with early, recalcitrant ulceration. Ulceration in this type of IH is relatively early and does not seem to have the usual causes of ulceration like outgrowth of blood supply, trauma or infection [3]. Notwithstanding the disappointing effect on ulceration, the effect of propranolol on the IH was as expected.

Beta-blockers have been described as inhibitors of wound healing by interfering with the sympathetic nervous system through poorly understood and controversial mechanisms [4]. This effect on wound healing seems to be dose dependent. Extremely high dosage of propranolol (50 mg kg⁻¹ daily) may delay the wound healing [5,6]. On the contrary, low dose of propranolol may improve it [7,8].

In general ulceration of IH wanes quickly after initiation of propranolol [2]. This may be attributed to the fact that swelling is reduced wherein wound healing is facilitated. This positive effect of fast volume reduction in bulky IH transcends the possible (smaller) negative effect on wound healing. In our two cases of flat, non-bulky IH this volume reducing effect is insignificant with much less impact on ulceration.

Physicians should be aware of possible negative effects of beta-blockers on wound healing (in IH) and adjust dose or stop therapy in case of failure: dose escalation may be counter effectively.

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