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Diode laser treatment and clinical management of multiple oral lesions in patients with hereditary haemorrhagic telangiectasia

G. Favia [a], A. Tempesta [a,*], L. Limongelli [a], P. Suppressa [b], C. Sabbà [b], E. Maiorano [c]

[a] *Department of Interdisciplinary Medicine, Complex Operating Unit of Odontostomatology, "Aldo Moro" University, P.zza G. Cesare, 11, 70124 Bari, Italy*

[b] *Department of Interdisciplinary Medicine, Geriatric Unit and Rare Disease Center, "Aldo Moro" University, P.zza G. Cesare, 11, 70124 Bari, Italy*

[c] *Department of Emergency and Organ Transplantation, Operating Unit of Pathological Anatomy, "Aldo Moro" University, P.zza G. Cesare, 11, 70124 Bari, Italy*

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Abstract

Hereditary haemorrhagic telangiectasia (HHT) is rare, and characterised by vascular dysplasia that leads to various symptoms including visceral arteriovenous malformations and mucocutaneous telangiectatic lesions. Our aim was to describe the clinical features and options for the treatment of multiple oral lesions, and to illustrate the efficacy of the diode laser in the treatment of early (<2 mm) and advanced lesions (2 mm or more). We report 24 patients with 1200 oral telangiectatic lesions, which were often associated with regular bleeding (from monthly to daily), superinfection, pain, and swelling, and treated with multiple sessions of laser according to the number and size of the lesions. Early lesions were treated with a single laser impulse in ultrapulsed mode, and advanced lesions with repeated laser impulses in pulsed mode (t-on 200 ms/t-off 500 ms), at a power of 8 W. Early lesions healed completely after laser photocoagulation with no operative or postoperative complications, while advanced lesions improved with a remarkable reduction in size but more discomfort. Protective occlusal plates were sometimes used to reduce the incidence of new lesions caused by dental trauma. The treatment of oral telangiectatic lesions is still being debated, and it is important to improve quality of life for patients. Diode laser surgery could be an effective treatment for oral lesions in those with hereditary haemorrhagic telangiectasia.

Keywords: Laser treatment; Osler–Weber–Rendu disease; Rare disease; Telangiectasia; Diode laser photocoagulation

Introduction

Hereditary haemorrhagic telangiectasia, or Osler–Weber–Rendu disease, is a rare disorder of the development of blood vessels that is characterised by mucocutaneous telangiectatic lesions and visceral arteriovenous malformations.[1] The classic clinical triad consists of multiple mucocutaneous telangiectasias, recurrent epistaxes, and familiarity.[2] It is inherited as an autosomal dominant trait,[3] although 20% of the cases may be sporadic.[4]

* Corresponding author. Tel.: +39 3338403125/0805218784; fax: +39 0805218784.

E-mail addresses: gianfranco.favia@uniba.it (G. Favia), angelatempesta1989@gmail.com (A. Tempesta), lull489@hotmail.it (L. Limongelli), patrizia.suppressa@gmail.com (P. Suppressa), carlo.sabba@uniba.it (C. Sabbà), eugenio.maiorano@uniba.it (E. Maiorano).

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Table 1
Curaçao criteria for the diagnosis of hereditary haemorrhagic telangiectasia.[6]

Criteria
• Spontaneous, recurrent epistaxes. Nocturnal nosebleeds.
• Mucocutaneous telangiectasias, particularly on lips, tongue, oral cavity, fingers, and nose.
• Internal arteriovenous malformation (pulmonary, cerebral, hepatic, gastrointestinal, or spinal).
• First-degree relative with hereditary haemorrhagic telangiectasia according to these criteria.

Diagnosis definite if 3 or more criteria present, possible if 2 or more are present, and unlikely if fewer than 2 are present.

Recent epidemiological studies have established that the incidence is 1/5000–8000 to 12,200 patients,[5] with no sex or racial bias. It shows age-related penetrance, as outbreaks usually increase with age. Epistaxis is generally the first symptom while mucocutaneous telangiectatic lesions appear later in life.[1] Consensus diagnostic criteria, often referred to as the Curaçao criteria, were published in 2000 (Table 1).[6]

Although recurrent bleeding of mucocutaneous lesions is not usually life-threatening it can lead to chronic anaemia, iron deficiency, and dependence on transfusion. Its difficult inhibition and sporadic appearance are serious handicaps for relationships, because of the concern about bleeding in public. Mucocutaneous telangiectatic lesions are often painful and cosmetically bothersome,[2] and are indications for treatment that is aimed at reducing the number of bleeds and their intensity.[7] There are several options available.[7]

The aim of this study was to describe the clinical features of, and treatment options for, multiple oral telangiectatic lesions, and to suggest that diode laser photocoagulation may be the best prophylaxis for early lesions (<2 mm) and control for advanced lesions (2 mm or more).

Patients and methods

We report 24 patients with hereditary haemorrhagic telangiectasia who presented with oral lesions and were referred to the Italian referral centre for the disease at the Polyclinic in Bari. There were 15 women and 9 men, mean (range) age 51 (11–76) years. Four had no family history, 12 had a paternal inheritance, and 8 a maternal one. All the patients had epistaxes and multiple cutaneous telangiectatic lesions, 17 of whom were also diagnosed with visceral arteriovenous malformations. On clinical examination there were 1200 oral telangiectatic lesions, which presented as pink to red punctiform lesions that were sharply separated from the surrounding mucosa (Figs. 1 and 2). They were mainly on the tongue (33%), the upper lip (19%), the cheek (17%), the lower lip (15%), the palate (10%), and the gingiva (6%). There were 795 early lesions and 405 advanced lesions, and the latter were symptomatic in 87% of the cases. These caused bleeding (from once a month to once a day) and, if associated with superinfection, pain and swelling as well.

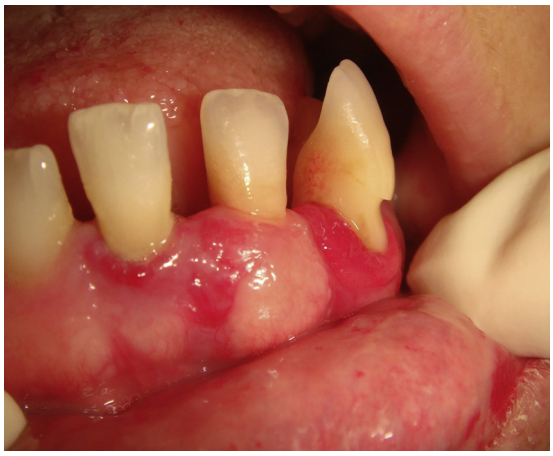

Fig. 1. Multiple advanced telangiectatic lesions on the gingival mucosa of a patient with hereditary haemorrhagic telangiectasia before laser photocoagulation.

Complications and the larger lesions were mainly found in association with dental trauma.

The patients gave informed consent to diagnostic and therapeutic procedures and for the use of their data for scientific publication, and the study was approved by the hospital ethics committee (Study no. 4576 – Prot. 1443/C.E.). Among different options for treatment, we chose laser photocoagulation for the treatment of the lesions using a diode laser (GaAlAs – A2GLaser "Surgery 35", A2G srl) with an energy output ranging from 9 to a maximum of 16 W, which acts specifically on the vascular target, thanks to the capability of its wavelength (800 (10) nm) to be selectively absorbed by haemoglobin.[8]

Each patient was treated with multiple laser sessions according to the number and size of the lesions, and the approach differed depending on the size of the lesion. Early lesions were treated with a single laser impulse in ultrapulsed mode (t-on 150 ms/t-off 200 ms), and advanced lesions with repeated laser impulses in pulsed mode (t-on 200 ms/t-off

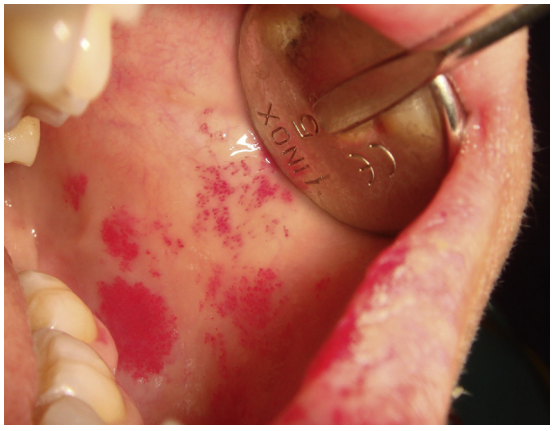

Fig. 2. Multiple early and advanced telangiectatic lesions on the left cheek of a patient with hereditary haemorrhagic telangiectasia before laser photocoagulation.