CASE STUDY

Management of a Recurrent Pyogenic Granuloma of the Inferior Lip with Pulsed Dye Laser: A Case Report

Serkan Demirkan, MD*

Kirikkale University Faculty of Medicine, Department of Dermatology and Venerology, No:14 Yenisehir District, Tahsin Duru Avenue, Yahsihan, Kirikkale, Turkey

KEYWORDS:

Pyogenic granuloma;
Inferior lip;
Pulsed dye laser

Abstract Pyogenic granuloma (PG) is a common, acquired, benign vascular reactive proliferation. This article presents the unique and successful pulsed dye laser treatment of a labial PG on a 60-year-old patient.

© 2017 Elsevier Inc. All rights reserved.

Introduction

Pyogenic granuloma (PG) is a common, acquired, benign vascular reactive proliferation.¹ It was first described by Hullihen in 1844, and the pyogenic granulomatous term was first used by Hartzell in 1904.^{2,3} PG typically develops as a erythematous papule on skin or mucosal surfaces. The immediate PG may sometimes be due to long-standing low-grade infections, microtrauma, poor oral hygiene or hormonal impairment.⁴ Once the underlying cause is removed, the lesion can be surgically excised. However, this modality can cause unexpected complications.⁵ Lesions may recur up to 16% after surgical excision.⁵ It is believed that the causes of recurrence are incomplete excisions, the etiologic factor not being removed, or recurrent trauma.⁵

Pyogenic granuloma usually occurs in the skin and oral cavity as a tumor like lesion. The lesion may bleed spontaneously or due to trauma.⁵ Although pyogenic granulomas are pathologically benign, they can sometimes lead to destruction

in neighboring tissues.⁶ Initially they are identical to granulation tissue, with numerous capillaries and venules distributed radially to the skin surface in edematous stroma with mixed inflammatory infiltrate. In more advanced stages, fibrous septa partition the lesion into lobules composed of aggregates of capillaries and venules with prominent endothelial cells but no stromal edema and little inflammatory infiltration. Finally, fibroplasia replaces the lobules of capillaries until the lesion transforms into a fibroma.^{7,8}

Many different treatment modalities other than surgical excision (such as cryotherapy, sodiumtetradecylsulfate, sclerotherapy, intralesional steroid, neodymium-doped yttrium garnet (Nd-YAG), carbon dioxide (CO₂) laser, erbium-doped yttrium aluminum garnet laser) may be used for PG.^{9–15} However, the result is often unsatisfactory especially in difficult areas and large lesions.¹⁶ This article present a pulsed dye laser treatment of a 60-year-old male patient with a labial PG.

Case

A 60-year-old male patient had a lesion on his inferior labium after a herpetic attack. The lesion was bleeding at intervals for 2 months and the bleeding was severe. The

Conflict of interest: There is no conflict of interest.

* Corresponding author. Kirikkale University Faculty of Medicine, Department of Dermatology and Venerology, Yenisehir District, Tahsin Duru Avenue, No:14, Yahsihan/Kirikkale/Turkey.

E-mail address: serkan.demirkan@yahoo.com.tr

Figure 1 Histopathology of pyogenic granuloma showing lobulated proliferation of capillary sized vessels in a loose and oedematous stroma.

patient's lesion was surgically excised and a biopsy showed pyoderma gangrenosum (Fig. 1). The lesion subsequently recurred after 1 month and continued to bleed intermittently (Fig. 2). Laser photocoagulation was applied to the patient's lesion using pulsed dye laser with parameters of 585 nm wavelength, 5 mm diameter spot size, 450 msec pulse duration, and 9J/cm². As a result, the lesion was fully healed with minimal cicatrice after 4 weeks (Fig. 3). The

Figure 2 Bleeding pyogenic granuloma lesion on lower lip.

Figure 3 Fully healed lesion with minimal cicatrice.

lesion was successfully treated with no bleeding, minimal pain, minimal swelling, rapid healing, and minimal scarring with a flash lamp pulsed dye laser which is a conservative and stress free procedure.

Recently, different laser wave lengths have been used to treat labial PG.¹⁷ Pyogenic granuloma treatment with pulsed dye laser has been reported in a few patients.¹⁸⁻²² However, pulsed dye laser therapy has not been mentioned in recurrent lesions. Flash lamp pulsed dye laser can be used as an old, reliable, effective and non-invasive tool for regressing labial vascular benign lesions.

References

1. Al-Khateeb T, Ababneh K: Oral Pyogenic granuloma in Jordanians: a retrospective analysis of 108 cases. *J Oral Maxillofac Surg.* 2003;61: 1285-1288.
2. Hullihen SP: Case of aneurism by anastomosis of the superior maxillae. *Am J Dent Sci.* 1844;4:160-162.
3. Hartzell MB: Granuloma pyogenicum. *J Cuttan Dis Syph.* 1904;22: 520-525.
4. Kamal R, Dahiya P, Puri A: Oral pyogenic granuloma: various concepts of etiopathogenesis. *J Oral Maxillofac Pathol.* 2012;16: 79-82.
5. Jafarzadeh H, Sanatkhan M, Mohtasham N: Oral pyogenic granuloma: a review. *J Oral Sci.* 2006;48:167-175.
6. Yenidünya MO, Gürel M: A pathological diagnosis that does not resemble its name: pyogenic granuloma. *Yeni Tıp Derg.* 2009;26: 90-95.

7. Requena L, Sangüeza OP: Cutaneous vascular proliferations. Part II. Hyperplasias and benign neoplasms. *J Am Acad Dermatol.* 1997;37: 887–919.
8. Bhaskar SN, Jacoway JR: Pyogenic granuloma—clinical features, incidence, histology, and result of treatment: report of 242 cases. *J Oral Surg.* 1966;24:391–398.
9. Gupta R, Gupta S: Cryo-therapy in granuloma pyogenicum. *Indian J Dermatol Venereol Leprol.* 2007;73:141.
10. Samatha Y, Reddy TH, Jyothirmmai, Ravikiran A, Sankar AJ: Management of oral pyogenic granuloma with sodium tetra decyl sulphate. A case series. *N Y State Dent J.* 2013;79:55–57.
11. Deore GD, Gurav AN, Patil R, et al: Sclerotherapy: a novel bloodless approach to treat recurrent oral pyogenic granuloma associated with port-wine stain. *Ann Vasc Surg.* 2014;28(1564):9–14.
12. Parisi E, Glick PH, Glick M: Recurrent intraoral pyogenic granuloma with satellitosis treated with corticosteroids. *Oral Dis.* 2006;12:70–72.
13. White JM, Chaudrhy SI, Kudler JJ, Sekandari N, Schoelch ML, Silverman J Jr.: Nd:YAG and CO₂ laser therapy of oral mucosal lesions. *J Clin Laser Med Surg.* 1998;16:299–304.
14. Asnaashari M, Mehdipour M, MoradiAbbasabadi F, AzariMarhabi S: Expedited removal of pyogenic granuloma by diode laser in a pediatric patient. *J Lasers Med Sci.* 2015;6:40–44.
15. Fekrazad R, Nokhbatolfoghahaei H, Khoei F, Kalhori KA: Pyogenic granuloma: surgical treatment with Er:YAG Laser. *J Lasers Med Sci.* 2014;5:199–205.
16. Asnaashari M, Jamile Bigom-Taheri J, Mehdipour M, Bakhshi M, Azari-Marhabi S: Posthaste outgrow of lip pyogenic granuloma after diode laser removal. *J Lasers Med Sci.* 2014;5(2):92–95.
17. Frigerio A, Tan OT: Laser applications for benign oral lesions. *Lasers Surg Med.* 2015;47:643–650.
18. Meffert JJ, Cagna DR, Meffert RM: Treatment of oral granulation tissue with the flashlamp pulsed dye laser. *Dermatol Surg.* 1998;24: 845–848.
19. Tay YK, Weston WL, Morelli JG: Treatment of pyogenic granuloma in children with the flashlamp-pumped pulsed dye laser. *Pediatrics.* 1997;99:368–370.
20. Goldberg DJ, Sciales CW: Pyogenic granuloma in children. Treatment with the flash lamp pumped pulsed dye laser. *J Dermatol Surg Oncol.* 1991;17:960–962.
21. Glass AT, Milgraum S: Flashlamp-pumped pulsed dye laser treatment for pyogenic granuloma. *Cutis.* 1992;49:351–353.
22. Gonzalez S, Vibhagool C, Falo LD Jr., Momtaz KT, Grevelink J, Gonzalez E: Treatment of pyogenic granulomas with the 585 nm pulsed dye laser. *J Am Acad Dermatol.* 1996;35:428431.