



LASER MANAGEMENT OF TRAUMATIC FIBROMA WITH METHYLENE BLUE ASSESSMENT: A CASE REPORT

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ABSTRACT

Introduction: This article depicts the clinical presentation, diagnosis, management, and reepithelialization assessment of a fibroma; a fibrotic lesion of the gingiva and oral mucosa that can cause aesthetic and functional issues. **Case report:** The case report involves laser excision of a painless, firm growth on the lower front region of the jaw, caused by trauma or irritation. The lesion was histologically confirmed as originating from the oral mucosa and healing was assessed using methylene blue assay. **Conclusion:** The case highlights the importance of proper diagnosis, biopsy, and histologic evaluation in managing oral fibrotic lesions.

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INTRODUCTION

Fibromas are the most common benign soft tissue growth in the oral cavity. They arise from the gingival connective tissue or the periodontal ligament.¹ They are slow-growing, spherical tumors that tend to be firm and nodular but may be soft and vascular. The term, focal fibrous hyperplasia was suggested by Daley et al.1990, which implies a reactive tissue response.⁴ The lesion presents as painless, sessile, round, or ovoid, broad-based swelling, lighter in color than surrounding tissue due to reduced vascularity. The surface may be ulcerated and the dimension varies from 1 millimeter to several centimeters. Treatment of the fibroma involves surgical excision using a scalpel, laser, or electrocautery. Traumatic fibroma is a common submucosal response to trauma from teeth or dental prostheses.

Methylene blue is an inexpensive, safe, easily available basic dye employed clinically in medical treatment and diagnostics. It stains negatively charged molecules, including DNA, within damaged cells.³ Methylene blue does not stain nonabsorptive epithelia such as the squamous epithelial cells of the skin (Celikoz et al., 1999). It is also effectively used as an early diagnostic marker for oral precancerous lesions and cancerous lesions.

This case report describes the management of traumatic fibroma treated with laser. Additionally, the study is aimed to assess re-epithelialization using the methylene blue assay.

CASE REPORT

A 20-year-old male patient reported to the Department of Periodontics, with a chief complaint of swelling in the lower front teeth region for 6 months. History revealed a systemically healthy male with no family history of gingival epulis. The lesion was first noticed 6 months ago which gradually increased in size. There was a history of orthodontic treatment, but due to the impingement of the bracket on the gingiva, the treatment was discontinued for 3 months. On palpation, the lesion was painless. No history of bleeding was reported. An oral hygiene index score of 1 with satisfactory oral hygiene.

On intraoral examination

The lesion was seen on the labial aspect 42 with a dimension of about 7mm × 8mm in size, sessile, and pinkish-white in color. The lesion was firm in consistency. The radiographic image showed no bony involvement. (fig.1)

Based on both the clinical and radiographic findings, the provisional diagnosis was made to be traumatic fibroma on the labial aspect of 42. Possible differential diagnoses included giant cell granuloma, pyogenic granuloma, neurofibroma, or a benign salivary gland tumor. Differential diagnoses considered were further investigated through the biopsy and histomorphometry analysis.

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Fig.1 Preoperative photograph showing lesion on the buccal aspect 42

TREATMENT PLAN

The treatment was thus planned to surgically excise the lesion completely using diode LASER. The treatment protocol was explained prior and written consent was obtained from the patient. The recommended routine blood tests were performed. At the first visit, the treatment plan started with scaling and root planing, the patient was kept in the maintenance phase for a week to subside the inflammation in gingival tissue with 42. Following oral prophylaxis, it was decided to perform an excisional biopsy of the growth under local anesthesia using Diode LASER. Local infiltration anesthesia (2% lidocaine 1:80,000 adrenaline) was given. The pedunculated lesion was washed at the base using a suture and was raised for proper visualization of the margins of the lesion.

The 980 nm laser was set on fibroma setting with 4-watt power



Fig.2 Pre operative set up



Fig.3 Pedunculated lesion on 42



Fig.4 Complete removal of the lesion.



Fig.5 Excised growth. About 7*8 mm in size



Fig.6 Methylene blue stain



Fig.7 Healing checked on 2nd day. Note the increased uptake of dye by the damaged tissue



Fig.8 Healing on 4th day. Note the decrease in uptake of the dye by the healing issue.



Fig.9 Healing checked on the 7th day showing little or no uptake of the dye by tissues thus indicating re-epithelialization

in continuous wave mode. After removal of the complete lesion, the sample was then transferred to a vial containing 10% formalin and sent for histopathological evaluation. Postoperative instructions were given to the patient with the advice to take ibuprofen 400 mg thrice a day for 3 days and 0.2% chlorhexidine mouthwash twice daily for 14 days. The patient was assessed every day for a week and the degree of epithelialization was evaluated using methylene blue stain. The patient was instructed to rinse with dye and immediately wipe the stained area with wet gauze to remove the dye on the surface of the normal epithelium, to stain the infeasible tissue and granulation tissue at the same time.

RESULT

The uptake of methylene blue dye by the tissue gradually decreased indicating complete re-epithelialization within 1 week (fig 7-9)

HISTOPATHOLOGY

Based on the H and E-stained section analysis, it appears that the sample showed para-keratinized stratified squamous epithelium of varying degrees and an underlying fibrous connective tissue stroma that displayed mild chronic inflammatory infiltrate and few blood vessels. These features are suggestive of telangiectatic granuloma.

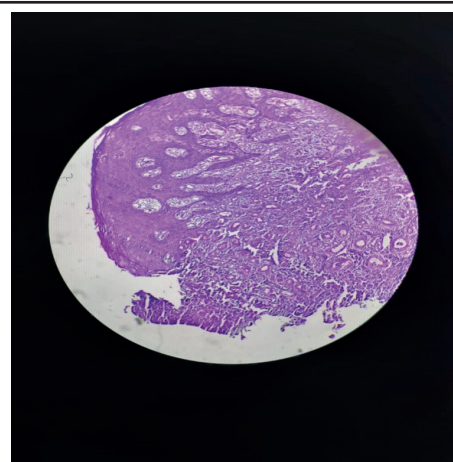


Fig.11. Histopathology Report

DISCUSSION

The clinical presentation and epidemiology of most nonneoplastic growths in the oral cavity are quite similar; thus, identification is dependent on histopathological differentiation. Histologically, these lesions vary from granulation tissue to mature scar-like tissue, depending on age and vascularity

In the present case report, the lesion was excised by diode LASER. Notable advantages of using LASER over the surgical scalpel include rapid dissection, precise tissue cutting with the self-disinfecting tip without the use of manual pressure, immediate and consistent hemostasis, reduced overall operative blood loss, and scar-free wound healing.^{11,12} Atraumatic tissue cleavage and wound sterilization eliminate the unfavourable postoperative sequelae common to scalpel surgery, contributing to rapid, uneventful postoperative healing. Disadvantages of Laser surgery include the inevitable burning smell, poor tactile sensitivity, and increased thermal damage to surrounding tissues (including bone). Patients with pacemakers or implants cannot use electrosurgery. Methylene blue is a vital dye that has been used to assess the progress of wound healing.¹⁴ It is also effectively used as an early diagnostic marker for oral precancerous lesions and cancerous lesions.^{15,14} It stains the negatively charged molecules, including the DNA, within damaged cells but does not stain the nonabsorptive epithelia. This makes it a simple yet effective technique to track the course of re-epithelialization.¹⁶ As seen in the present case, methylene blue dye uptake gradually reduced over 1

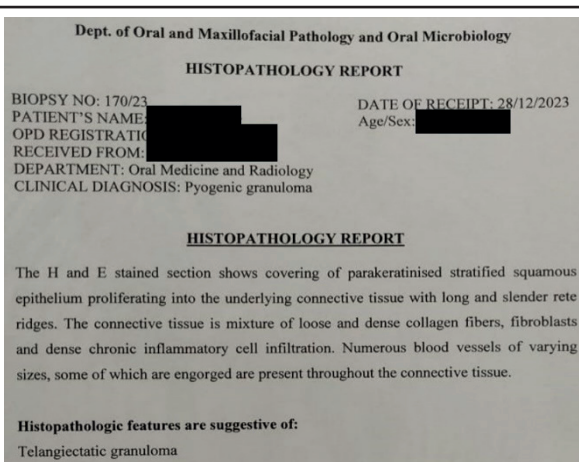


Fig.10 H and E-stained section

week and isan indicative of re-epithelialization.

CONCLUSION

Chairside evaluation of postoperative methylene blue re-epithelialization can be a routine procedure. It is a simple, inexpensive, and quick procedure that can assist doctors in determining the cure rate and degree of cure due to its minimal toxicity.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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