

From Lump to Light: Laser Management of Tongue Fibroma

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Abstract: Traumatic fibromas are the most common benign soft tissue tumors of the oral cavity representing reactive hyperplastic responses to chronic mechanical irritation. Although conventional scalpel excision remains the standard of care, diode laser-assisted excision offers clinically significant advantages including intraoperative hemostasis, reduced postoperative pain, suture-free wound management, and scarless healing by secondary intention. The present report describes the successful management of a traumatic fibroma on the dorsal surface of the tongue in a patient attributable to chronic trauma from a fractured ipsilateral mandibular molar. The lesion was completely excised using a diode laser without intraoperative bleeding or suture placement. Histopathological examination confirmed the diagnosis. At one-month follow-up, complete epithelialization was achieved with no scar formation and no recurrence. This case is clinically distinctive in presenting a dorsal tongue fibroma, an uncommon site, managed with laser therapy without any adjunctive pharmacological intervention beyond standard analgesics, with simultaneous elimination of the causative traumatic factor. Given the tongue's critical role in speech and deglutition and its constant mobility, laser excision in this case facilitated precise removal with minimal functional impairment and enhanced postoperative comfort. The case underscores diode laser excision as a patient-friendly, efficient, and aesthetically superior modality for intraoral fibrous lesions.

Index Terms: Laser surgery, Minimally invasive dentistry, Oral fibroma, Tongue, Traumatic fibroma.

I. INTRODUCTION

Oral fibromas are the most common benign fibrous tumors of the oral mucosa. They make up a large percentage of all oral soft tissue lesions biopsied. These lesions are classified as reactive hyperplastic lesions instead of true tumors. They occur due to repeated low-grade trauma or chronic irritation from sharp teeth, ill-fitting dental work, cheek biting, or frequent tongue thrusting

against teeth (Jiang, 2019). The tongue, especially its lateral and dorsal surfaces, is among the most common sites for these lesions, along with the buccal and labial mucosa (Panta, 2015). In 1967, Barker and Lucas established specific diagnostic criteria for the identification of true fibromas.

Clinically, traumatic fibromas appear as well-defined, smooth, sessile or pedunculated nodules that feel firm and are pale pink to whitish, depending on the level of keratinization and blood supply. Most lesions do not cause symptoms, but larger fibromas can interfere with speech, chewing, or swallowing. From a histopathological perspective, they show tight bundles of collagen fibers mixed with fibroblasts and are covered by stratified squamous epithelium, which may have areas of hyperkeratosis (Sharma, 2023).

Standard surgical removal using a scalpel has been the usual treatment method (Diwan, 2023). However, it can cause bleeding that requires sutures, postoperative discomfort, and the risk of scars forming. The introduction of laser technology in dentistry offers a better, less invasive option. Diode lasers that work in the 810 to 980 nm wavelength range are easily absorbed by hemoglobin and melanin in soft tissues, allowing for cutting and coagulation at the same time (Azma, 2013; Agrawal, 2012). This results in bloodless, suture-free excision with good healing outcomes. This report details the successful treatment of a traumatic fibroma on the tongue with diode laser excision, achieving complete healing without any scarring.

II. CASE REPORT

A 52-year-old male patient came to the Department of Periodontology with the main complaint of a painless, slowly growing swelling on his tongue for about 14 months. His medical

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history was normal, with no chronic illnesses or long-term medications. Dental history showed sharp, broken lower molars on the same side, which the patient believed contributed to the swelling due to habitual contact.

The extraoral examination was normal. The intraoral examination revealed a well-defined, solitary, smooth, nodular swelling approximately 10.0 x 9.0 x 6.0 mm on the dorsal surface of the tongue, located at the mid-lateral border. The lesion was firm, non-tender to touch, and matched the pale-pink color of the surrounding tissue. There was no ulceration or bleeding (Figure 1). The regional lymph nodes were not palpable. Based on the clinical features and history of chronic irritation, we provisionally diagnosed it as a traumatic fibroma. Other potential diagnoses included mucocele, lipoma, and neurofibroma.

After routine blood tests confirmed that the patient was fit for minor oral surgery, informed consent was obtained. The patient underwent laser excision with local anesthesia (2% lignocaine with 1:80,000 adrenaline). A diode laser (810 nm wavelength, continuous wave mode 3 x 60 seconds and power setting of 1.5 W) was used for the excision. The lesion was grasped with tissue forceps, and excision was performed around the base of the lesion using the laser tip in contact mode (Figure 2). The entire procedure took eight minutes. There was no bleeding during the operation, and no sutures were needed (Figure 3). The removed specimen was sent for histopathological analysis (Figure 4).

Histopathological examination confirmed the diagnosis of traumatic fibroma, showing dense fibrous tissue made up of thick collagen bundles with scattered fibroblasts, covered by parakeratinized stratified squamous epithelium (Figure 5 and 6). No signs of dysplasia or cancer were found.



Figure 1: Pre-operative view



Figure 2: The laser tip is in contact mode



Figure 3: Immediate postoperative follow-up



Figure 4: Excised lesion

Postoperative instructions were given, and the patient was seen again after one week and one month. Healing was smooth. The patient reported minimal discomfort after the procedure, which was managed with over-the-counter pain relievers for two days. At the 1month follow-up, complete healing was noted with no scar, no recurrence, and normal tongue function (Figure 7).

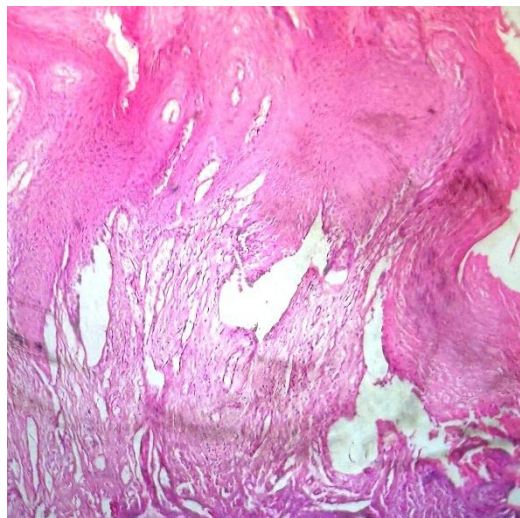


Figure 5: Para- keratinized stratified squamous epithelium

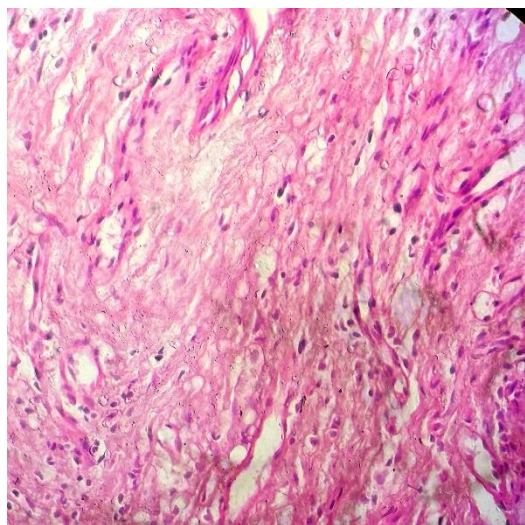


Figure 6: Dense collagen fibers and fibroblast proliferation

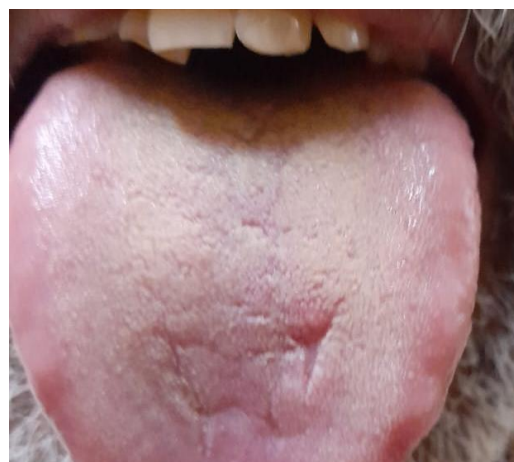


Figure 7: 1month postoperative follow-up

III. DISCUSSION

Traumatic fibromas in the mouth are reactive lesions that develop due to continuous irritation of the mucosa, with the tongue being one of the most common locations. While small fibromas are usually symptom-free, larger ones can affect function and appearance. The best treatment is surgical removal with histopathological testing to rule out any precancerous or cancerous conditions.

Traditional scalpel excision is effective, but it often results in bleeding that requires sutures and may necessitate multiple visits, along with a risk of scarring, especially on the flexible tongue surface. In contrast, using diode lasers for excision has changed the approach to oral soft tissue lesions. The thermal energy from the diode laser removes tissue and seals blood and lymphatic vessels, creating a dry surgical field that improves visibility and precision (Dr. Ajita, 2025).

The 810 nm diode laser employed in this case is well-suited for soft tissue work because it is strongly absorbed by hemoglobin and melanin and minimizes scattering in fibrous tissue. Several studies have shown its safety and effectiveness for treating oral fibromas. Bakhtiari S et al. noted significantly lower pain levels and quicker healing for laser-treated fibromas compared to those treated with scalpels.

The absence of scarring in our patient at 1 month aligns with known benefits of laser healing. The layer of coagulated tissue formed at the edges of the wound acts like a natural bandage, reducing the chance of infection and inflammation. This aids healing by secondary intention without the dense scarring typical of sutured incisional wounds. The tongue's abundant blood supply also speeds up re-epithelialization.

Completing the excision in a single visit, avoiding sutures, causing minimal postoperative complications, and achieving

excellent aesthetic and functional results reinforces the diode laser as the preferred option for tongue fibromas (La Terra, 2025). The patient had high satisfaction with this approach, emphasizing its value in regular dental practice.

CONCLUSION

Diode laser excision is a safe and effective technique for treating traumatic fibromas on the tongue. In view of the tongue's essential role in speech and deglutition and its constant mobility, laser excision allowed precise removal while preserving function and enhancing postoperative comfort. This method provides a healing outcome without scars and reduces perioperative complications, making it a treatment of choice when laser facilities are available.

ACKNOWLEDGMENT

I sincerely thank the guidance and support of Dr. Gunjan Gupta (Professor and Head), Dr Shivesh Mishra (Professor) and Dr Priyanka Tandon (Reader), ITS Dental College, Greater Noida, without whom this case could not have been completed.

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