

Excision of Traumatic Fibroma of the Tongue in a Pediatric Patient: A Case Report

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ABSTRACT

Traumatic fibroma is a benign reactive exophytic oral lesion in response to local trauma in the oral cavity. The article presents the case of an 11-year-old boy patient with a month-long proliferation on the left lateral margin of the tongue. Upon detailed history and clinical examination, it was determined that the sharp cusps of the mandibular posterior were the etiological component. Here a soft tissue laser was used for the complete excision of the lesion. The main advantages of using a soft tissue laser in pediatric patients are effective hemostasis that can be achieved in a short span, is less invasive, and better postoperative phase. It is a safe and fast procedure that allows easy manipulation of the tissue without scarring. The excised lesion was then sent to histopathology for analysis. After clinical and histological examinations, the case was diagnosed as a traumatic fibroma.

Keywords: Case report, Irritational fibroma, Laser excision, Traumatic fibroma.

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BACKGROUND

Within the oral cavity, fibrous growths are a ubiquitous presentation occurring in soft tissues. These fibrous growths can present as both reactive and neoplastic lesions. Reactive lesions like granuloma pyogenicum, focal fibrous hyperplasia, giant cell epulis, and ossifying fibrous epulis usually manifest as localized growths.¹

Traumatic fibroma is a noncancerous active mutilation that evolves secondarily to regional abuse. It occurs due to trauma to a mucosal site of oral soft tissue.² Traumatic irritants include habits like lip biting, any occlusal trauma, poorly aligned teeth, sharp edges or irregular edges of teeth, fractured restorations, or dental calculus.³

Traumatic fibroma is otherwise known as focal fibrous hyperplasia, irritational fibroma, fibroepithelial nodule, oral fibroma, fibrous nodule, or oral polyp. The typical locations of traumatic fibroma are the buccal mucosa, tongue, and lower labial mucosa. Although traumatic fibromas are more frequent in middle-aged people, they can affect people of any age or gender. It is generally represented by a gradual and noxious growth that accumulates over months or years. Clinically, the growth is localized, usually with normal colored mucosa, attached to the surface with or without stalk or peduncle and measuring lesser than 1.5 cm in greatest dimension.⁴

Fibroma can be the consequence of a persistent rehabilitation process involving vascularized connective tissue and scarring, proceeding in a submucosal fibrous aggregation. Periodical recurrences are uncommon and occur as a result of repeated damage to an identical location. This condition doesn't have a possibility for malignant transformation.⁵ Treatment options should also include the elimination of the etiology and traumatic habits.⁶ Here, a case of traumatic fibroma of the tongue's left lateral border in an 11-year-old child is presented.

CASE DESCRIPTION

Patient Information

A male child aged 11 years arrived at the Department of Pediatric and Preventive Dentistry and complained of globular enlargement

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of the left side of the tongue for 3 months associated with difficulty in speech and mastication. It initially started as a small lesion 3 months ago, which had grown to its current size with no history of bleeding or pain. Chewing and normal oral functions were affected by the growing lesion. In addition, the child did not show any associated habits. Nor does the child nor the mother remember any event that must have triggered the growth of this lesion. But the child did play with it while biting on it.

Clinical Finding

Clinical intraoral examination revealed a well-defined, pedunculated, single, and ovoid growth of normal mucosal color present on the left lateral border of the tongue (Fig. 1). On palpation, it was firm in consistency, nontender lesion measuring 9 × 10 mm in size, and not associated with any ulceration or bleeding. Hard tissue examination revealed the presence of sharp lingual cusps of mandibular posterior teeth, which could be one of the contributing factors to the growth of the lesion. No extraoral swelling and no lymphadenopathy were

present. A tentative diagnosis of traumatic fibroma was made based on the patient's history and clinical findings. Chronic fibrous hyperplasia, pyogenic granuloma, peripheral ossifying fibroma, and peripheral giant cell granuloma were among the differential diagnosis. The patient's parents gave informed consent after being apprised of the treatment procedure. Blood tests were conducted and found to be within normal norms.

Surgical Procedure

Local anesthetic infiltration was injected around the lesion. The tongue was immobilized by holding the tip with dry gauze during the procedure. After performing selective grinding of the cusps, the lesion was completely excised from its base using a soft tissue diode laser (Biolase laser, California, United States of America) in pulsed mode with a continuous wavelength of 940 nm, a power of 2 W, and with a surgical tip off 300 μ diameter causing ablation (Fig. 2). The tip was in contact with the edges of the lesion during surgery. Total excision of the lesion was done by taking 1 mm of the tissue beyond the lesion as compared to the neighboring tissue (Fig. 3). No sutures were made. There was no bleeding at the surgical site.

The sample was placed in a container with 10% formalin solution and sent for histopathological analysis right away (Fig. 4). The patient and dental team donned protective glasses throughout the treatment to avoid eye injury from this type of wavelength.

When analgesics were needed, the patient was recommended to take them. A full-frame camera, a 100 mm macro lens, and a dual flash were used to create the images.

Histopathological Features

Histological examination revealed that the epithelium was predominantly hyperparakeratinized, atrophic, and hyperplastic (Figs 5 and 6). The underlying connective tissue consists of dense collagen fibers with focal areas of hyalinization. Numerous dilated and congested capillaries of variable sizes and focal aggregates of moderate to dense chronic inflammatory cell infiltrate are evident subepithelial (Fig. 5). Based on the clinical and histopathological findings, we confirmed the diagnosis of traumatic fibroma.

Follow-up

A follow-up after 3 days, 1 week, 1 month, and at the end of the 6th month was done. After the surgery, the patient reported no pain or discomfort. The lesion healed with no recurrence.

DISCUSSION

In the oral cavity, fibroma seems to be the most prevalent benign soft-tissue neoplasm. In fact, it is indeed the localized proliferation of the dense collagenous fibers produced by regional trauma rather than prolonged irritation instead of a real neoplasm.⁷



Fig. 1: Growth on the left lateral border of the tongue

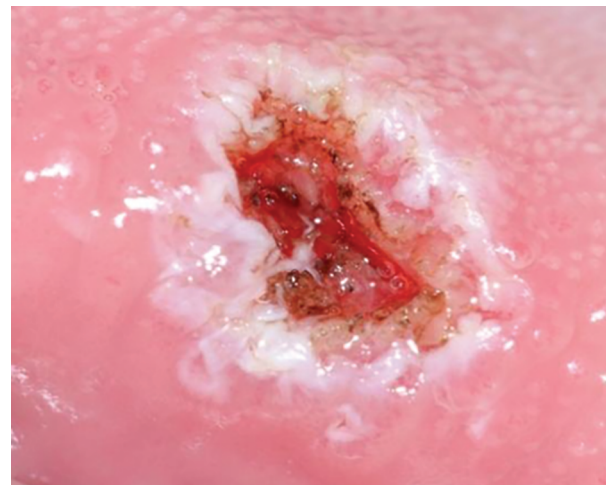


Fig. 3: Surgical site after excision of the lesion



Fig. 2: Laser tip in contact with the tissue causing ablation

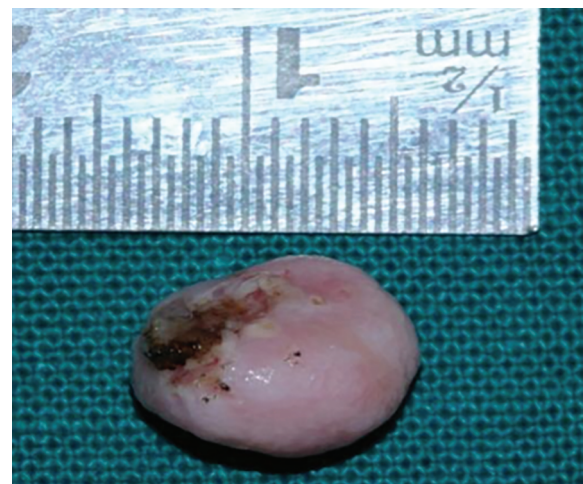


Fig. 4: Surgically removed lesion using laser

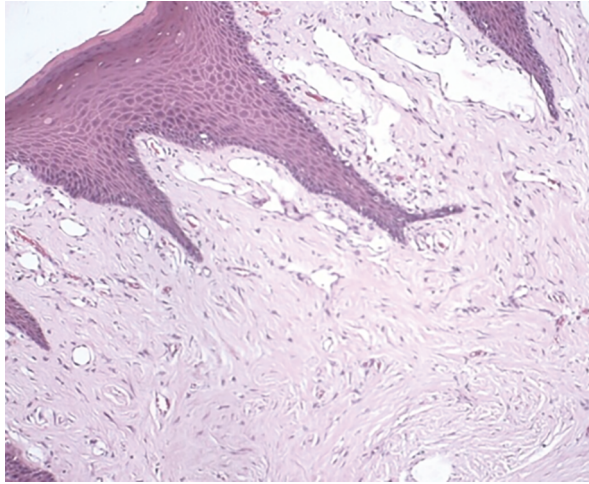


Fig. 5: Histopathology (H/P) showed hyperparakeratinized epithelium

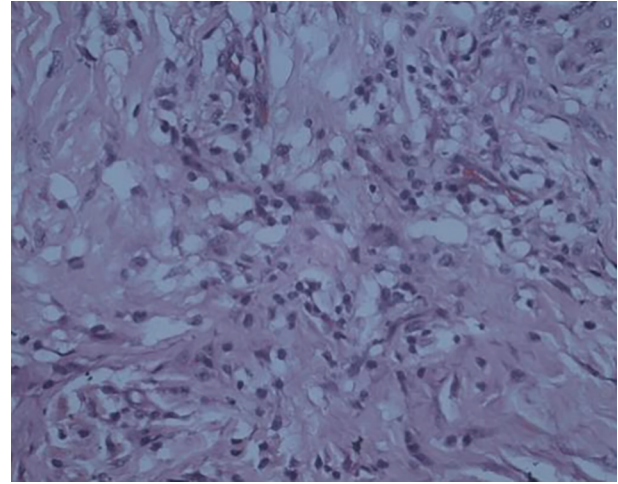


Fig. 6: H/P showed dense collagen fibers

Traumatic fibroma is essentially a fibrous submucosal mass that consists of granulation tissue and scar tissue. Traumatic fibromas, according to Barker and Lucas, show a pattern of collagen organization based on the location of the lesion and the extent of aggravation. The two types of patterns are a radiating pattern and a circular pattern. The authors postulated that when there is a greater degree of stress, a radiating pattern arises in immobile areas (e.g., the palate), but less trauma causes a circular pattern to appear in flexible regions (e.g., cheeks).⁸ In this case, both radiating and circular patterns of collagen are evident in the tongue.

The therapy of choice for traumatic fibroma, as well as any reactive hyperplasia, is total surgical excision and eradication of the source. Irritational fibroma is treated with removal of the etiological causes, complete scaling of teeth, and complete surgical removal to reduce the risk of exacerbation.⁹ Excision has been treated in different ways depending on anatomical and clinical factors. Treatment options involve the traditional surgical approach, the use of soft tissue lasers, cryosurgery, or electrosurgery.¹⁰

The most common form of treatment is surgical enucleation with a scalpel, which involves the total excision of the lesion with safety margins during the surgical process. Intraoperative bleeding control, the need for suturing, and the possibility of postoperative edema are all disadvantages of traditional knife surgery.¹¹ Electrosurgery is an intrusive operation since it generates a lot of heat and might cause scars. Cryosurgery is the use of liquid nitrogen to rapidly freeze tissue and destroy it. It's a time-consuming technique that's not recommended for people who are sensitive to cold.¹²

Soft-tissue lesions respond well to laser treatment. The hard and soft tissues of the mouth have a unique ability to absorb a certain wavelength of laser energy. As a result, the practitioner's laser unit selection is based on the target tissue that needs to be treated. Photothermal activity is the fundamental action of a laser in target tissues. When the temperature of a target tissue containing water climbs over 100°C, water vaporizes, causing soft tissue ablation. Because soft tissue has a large amount of water, excision of soft tissue begins at this temperature.¹³

Laser technology allows for more efficient diagnosis and treatment of soft and hard tissue disorders in children's mouths and teeth. Due to its low invasiveness, laser treatment is favorably received by both children and parents. In this example, the laser was employed to minimize bleeding and postoperative pain while also promoting rapid healing with little scarring. Electrosurgical

technologies cause more thermal necrosis of surrounding tissues than lasers. During soft tissue procedures, hemostasis may usually be achieved without the use of sutures.

With the support of hemostasis during soft tissue therapies, wound healing can be accelerated, resulting in less postoperative discomfort and a lower need for analgesics. The majority of soft tissue treatments do not necessitate the use of a local anesthetic. The time spent in the operator chair is shortened when soft tissue treatments are performed with lasers. Lasers have been found to be both bacteriocidal and decontaminating.

Antibiotics are prescribed less frequently after surgery because of their antibacterial activities on tissues. Lasers can reduce the pain and inflammation associated with aphthous ulcers and herpetic lesions without the need for medical intervention.¹⁴

Because different wavelengths are required for different soft and hard tissue operations, the practitioner may need more than one laser. The diverse therapeutic applications and varieties of lasers necessitate additional training and expertise.

CONCLUSION

Proper evaluation of the case with careful clinical and histological diagnosis is essential for the treatment of irritational fibroma. Irritational fibroma, although benign, can be quite bothersome to the patient and requires surgical removal. From the patient's and clinician's point of view, diode laser excision is an effective method of removing the fibroma. Laser treatment remains the most effective for a variety of oral lesions, with greater patient acceptance and greater physician convenience.

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