



## SPLIT MOUTH APPROACH FOR GINGIVAL ENLARGEMENT -A CASE REPORT

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Gingival enlargement is a common clinical problem associated with fixed orthodontic appliances. The causative factors that lead to hyperplastic tissue response to chronic inflammation is generally associated with local irritants such as plaque, calculus, and bacteria. Genelhu et al and Kouraki et al observed that gingival enlargement is however more common sequel of orthodontic treatment<sup>3</sup>. Fibroepithelial gingival enlargements associated with fixed orthodontic appliances are transient and it is thought that enlargement resolves on removal of orthodontic appliances. However, this was contradicted by Ramadan et al as he observed that resolution may not be complete even after removal of orthodontic appliances<sup>2</sup>.

Surgical treatment is considered to be invasive and may not be effective if self-care oral hygiene practices remain poor. In the recent decades lasers have gained considerable attention with advantages like superior haemostasis, less postoperative discomfort, pain or oedema, better tolerance from the patient, less complicated procedures, suturing and dressing of any kind is not required, decrease chances of postoperative bacteraemia, better visibility and accessibility<sup>12</sup>.



## CASE REPORT

The present case report is of a 22-year-old girl undergoing orthodontic treatment with a habit breaking appliance (tongue crib), who reported to the department of periodontics and oral implantology with gingival enlargement in the palatal region of the maxilla (FIGURE 1). The treatment was initiated with a non-surgical therapy that included scaling and root planning followed by the conventional scalpel and laser gingivectomy to remove the excessive gingival growth.



FIGURE 1-GINGIVAL ENLARGEMENT IN THE PALATAL REGION OF MAXILLA

Presurgical preparation consisted of scaling, reinforcement of instructions regarding proper oral hygiene, histological and routine blood investigations. After thorough scaling, gingivectomy was decided for tooth number 11-13 using diode laser and tooth number 21-23 using conventional scalpel technique (FIGURE 2). The tissues in the palatal region were given local infiltration anaesthesia (0.5 ml in the 11-13 region and 1.2 ml in the 21-23 region) and gingivectomy procedure was performed on tooth number 21-23 with scalpel (B.P handle and 15 number blade) and a wall of soft tissue was excised. Tooth number 11-13 were operated with diode laser of wavelength 890 nm, power of 3W, pulsed contact mode (CP2), with pulse interval and length of 0.1 mm, while keeping the tip of laser perpendicular to surface of tissue (FIGURE 3). A soaked cotton was placed to obscure the effects of laser onto the sites not treated by laser. Post operative pain medications were prescribed to the patient for three days followed by warm saline gargles after 24 hours for 5 days. Post operative instructions were explained to the patient.

At 1 week follow up, it was observed that healing was good on both sides (acc. to Landry et al wound healing index), pain was more in the 21-23 region compared to 11-13 region (visual analogue scale) (FIGURE 4). 1 month and 3 months follow up showed excellent healing (acc. to Landry et al wound healing index) and no pain in both regions (AAC.TO VISUAL ANALOGUE SCALE). It was found that there was no bleeding the follow up period. Plaque accumulation was not seen post surgically. (FIGURE 5)



FIGURE 2-ARMAMENTARIUM



FIGURE 3-POST OPERATIVE



FIGURE 4-HEALING AFTER 1 WEEK



FIGURE 5-HEALING AFTER 1 MONTH

## RESULT

The use of both scalpel and laser therapy gingivectomy was effective in the management of gingival overgrowth. In the region (tooth no 11-13) treated by laser showed better results in the 1 week follow up compared to the region (tooth no 21-23) treated by the conventional method. In the 1 month and 3 months follow up no significant difference were seen in the results.

Histologically, biopsy taken immediately showed fibroepithelial hyperplasia on both the sides whereas the biopsy taken after 1 month showed less tissue infiltration of cells and better epithelialization.

## DISCUSSION

In many instances gingival enlargement in orthodontic patients is iatrogenic mainly because of the long duration of the treatment. studies have shown that patients undergoing orthodontic treatment notice changes in the gingival tissue or gingival overgrowth as a result of the nickel ions present in orthodontic brackets<sup>2,3</sup>. Among the many interactions of nickel ions present in orthodontic bands, one of the interactions between nickel ions and gingival tissues is fibroblast proliferation, resulting in gingival overgrowth<sup>2</sup>. Management for such gingival overgrowth is proper oral hygiene maintenance along with surgical technique like gingivectomy. A split mouth approach was taken into consideration to evaluate the patient's pain perception and healing at the surgical site. Histological evaluation was done of the excised soft tissue pre- and post-surgical treatment. (FIGURE6)

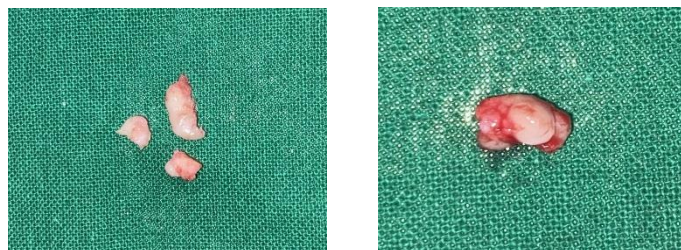


FIGURE 6-BIOPSY TAKEN FROM THE PALATAL REGION POST SURGERY FROM TEETH NO 11-13 AND TEETH NUMBER 21-23 REGION.

Diode laser provides adequate hemostasias and accurate incision margins. Postoperative advantages of laser include lack of pain, swelling and less scar tissue formation and good and uneventful wound healing. For postoperative pain and discomfort, no significant difference was noted in the first week. Duration of surgical procedure was less for laser treatment for gingivectomy when compared with conventional method by scalpel. Lesser local anaesthesia, minimal to no bleeding and good vision of the field was obtained during diode laser surgery. Laser surgery has lower rate of recurrence of gingival overgrowth compared to the conventional method<sup>10</sup>. Fibroepithelial hyperplasia was seen histologically on both the sides in the biopsy conducted immediately after surgery. After 1 month, less infiltration of inflammatory cells in laser with a good, improved epithelization. The proper use of a soft tissue laser in orthodontic patients can improve the quality of results, decrease treatment time, and

reduce appointments. Compared to the traditional scalpel, the incision of Er:YAG laser have smaller inflammation reaction, more pseudo membrane coverage, and minimal damage of the mucoperiosteal tissue<sup>11</sup>.

	CONVENTIONAL METHOD		LASER	
	HEALING	PAIN	HEALING	PAIN
1 WEEK	GOOD	4	GOOD	2
1 MONTH	VERY GOOD	0	VERY GOOD	0
3 MONTHS	EXCELLENT	0	EXCELLENT	0

Acc to Landry et al (wound healing index) and Visual analogue scale.

Both laser treatment and conventional method are effective for gingivectomy. Though the results of laser treatment for gingivectomy are favourable, larger sample sizes are required to to get more elaborate effects of laser therapy so that lasers are frequently used in several periodontal procedures, thus allowing favourable results with minimal patient morbidity. Healing after laser gingivectomy treatment is still controversial as some researchers have reported delayed healing of tissues compared to conventional gingivectomy<sup>5,6</sup>. While some studies shows that healing of laser wound is either similar to the scalpel or have an accelerated healing<sup>7</sup>.

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