

CASE REPORT

Excision of Intraoral Fibroepithelial Polyp using 940 nm Diode Laser

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ABSTRACT

Fibroepithelial polyp or acrochordon is small benign tumor arising from tissue folds with some irritating factors enhancing it in size or shape. They are generally painless. Some patients due to esthetic concerns prefer to remove such lesions. This article is unique as an elderly male patient with no systemic conditions manifested with this lesion. He had no symptomatic concern until he wanted to wear a removable partial denture. This article highlights the use of lasers in excision of such intraoral pathological lesions. Advantages of lasers have made clinical dentistry both affordable and adorable to the patients.

Keywords: Diode laser, Fibroepithelial polyp, Painless dentistry, Minimum bleeding, Excision.

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INTRODUCTION

A fibroepithelial polyp or acrochordon (cutaneous tag) is a small benign tumor that forms primarily in areas where the skin forms creases, such as the neck, armpit, and groin. They may also occur on the face, usually on the eyelids. Acrochorda are harmless and typically painless, and do not grow or change over time. Their size however varies from typically the size of a grain of rice to about half-inch long. The surface may be smooth or irregular in appearance and is often raised from the surface of the skin on a fleshy stalk called a peduncle. It can also represent as a common endpoint of various processes, including seborrheic keratosis or warts. Microscopically, an acrochordon consists of a fibrovascular core, sometimes also with fat cells, covered by an

unremarkable epidermis. The differential diagnosis can be dermatosis papulosa nigra, Birt-Hogg-Dube syndrome, lipofibroma, pleomorphic fibroma, or may present as a case of pseudomalignancy.

Their rate of prevalence is 46% in the general population having a high female predilection mainly due to hormonal imbalance. Sometimes having a genetic link, they are also associated with acromegaly and polycystic ovary syndrome. They are quite common in elderly people 60 years or older and more common in people who are obese or overweight, patients who have diabetes, in pregnant women or controversial association with intestinal-polyposis.

The fibroepithelial polyp can get irritated due to constant rubbing against the folds of skin that may be unsightly. A skin tag at first may appear as a tiny soft bump on the skin. Over time, it grows into a flesh-colored piece of skin attached to the skin surface by a stalk. It is easy to move or wiggle a skin tag back and forth. If a skin tag is twisted on its stalk, a blood clot can develop within it and the skin tag¹ may become painful. Because these cutaneous tags are benign, treatment is unnecessary, unless the tags become frequently irritated or present a cosmetic concern. If removal is desired or warranted, a dermatologist, general practitioner, or similarly trained professional may use cauterization, cryosurgery, excision, or surgical ligation² to remove the acrochorda.

A new addition in the treatment modality is with the advent of lasers into clinical dentistry. Lasers have proved their versatility in its usage for painless, bloodless, conservative and instant solution for such surgical excision of intraoral soft tissue³ pathological lesions. Diode lasers⁴ which have been ingrained into almost all elite dental clinics, is a small portable instrument which ablates the host tissue and brings about the desired effect due to laser tissue interaction.^{5,6}

Laser Equipment

The 940 nm diode laser (Ezlase, Biolase, USA) is classified under class IV laser; hence, all laser safety protocols have to be followed. Laser safety officer should ensure appropriate wearing of protective eyewear, minimization of the metallic reflective surfaces on the treatment site, reducing movement of traffic during laser operation,

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Fig. 1: No posterior teeth in the upper right quadrant showing poor oral hygiene



Fig. 2: A tissue overgrowth seen in 47, 48 region arising from the right buccal mucosa



Fig. 3: Overgrowth shaped leaf-like with a peduncle



Fig. 4: Laser parameters used

placement of sign boards outside the operatory, etc. prior and during the procedure and prevention of any untoward undesirable effect due to lasers.

CASE REPORT

A 72-year-old gentleman had visited our dental clinic with complaint of missing teeth in the right upper posterior quadrant and wanted replacement of the teeth. On proper history taking, the patient confirmed that he was not a diabetic or hypertensive and had normal food habits with no habits. On clinical examination, there was missing teeth in the upper right posterior region for over 5 years. The patient had poor oral hygiene (Fig. 1) and was concerned about eating only on the left quadrant and wanted to rectify his dental issue. An over growth of tissue in the 47, 48 region (Fig. 2) at the level of occlusion was of concern as there was no opposing teeth in the arch. The tissue had its origin from the right cheek, was pedunculated shaped like a leaf (Fig. 3), similar in color to the surrounding buccal mucosa measuring around 1.5 cm in length, 1 cm in breadth and 0.5 cm in width. The tissue was painless and hindered the patient during speech and mastication. The texture of the tissue overgrowth was

soft but fibrous in nature. The patient had not replaced his missing teeth in the first quadrant for over 5 years. The patient had missing teeth in the site of irritation and the sharp edges of his remaining teeth might have triggered this growth. Enameloplasty was done in the entire quadrant as a preventive measure to prevent any further similar growth. The patient was explained about the tissue and motivated to remove it as it might hinder in occlusion after wearing of the removable partial denture. After the detailed discussion and further clarifications, lasers were chosen as the treatment of choice and an informed consent was obtained.

The lesion was excised using a 7 mm length, 400 µm surgical tip with diode⁷ laser parameters of 2.56 W gated mode, with pulse length of 0.5 ms, pulse width of 0.5 ms, 5.44 J energy and average power of 1.28 W (Figs 4 and 5). The lesion was excised *in toto* (Fig. 6) and the patient was quite comfortable throughout the procedure even without administration of any local anesthetic injection, spray or topical application. An immediate postoperative view (Fig. 7) revealed excellent hemostasis⁸⁻¹⁰ and a visibly clean site. The patient was motivated to brush his teeth and to maintain good oral hygiene. The patient



Fig. 5: A 940 nm diode laser, 400 μ m 7 mm tip used to excise the lesion



Fig. 6: Excised specimen



Fig. 7: Immediate postoperative view with no signs of bleeding



Fig. 8: One day postoperative view

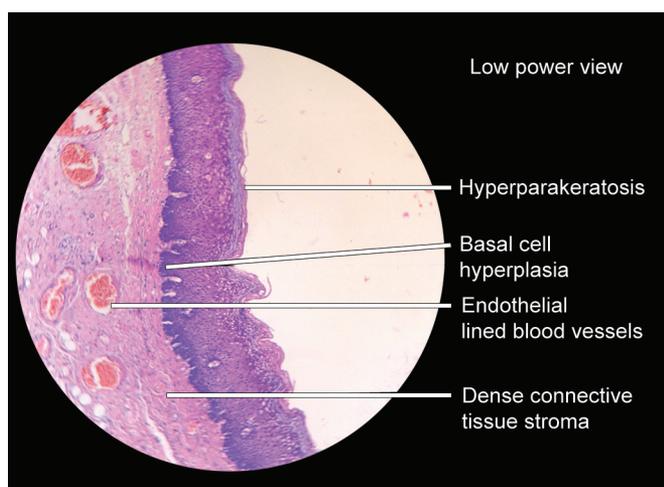


Fig. 9: The lesion seen under the 20x resolution—
histopathological findings

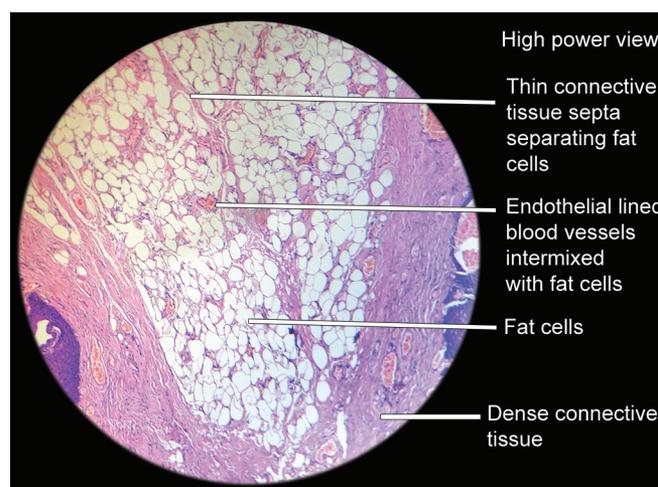


Fig. 10: Histological findings—40x resolution

was recalled for subsequent checkups 1 day (Fig. 8) and 1 week later. No sutures were placed post excision as it was a pedunculated lesion with small base. The patient was comfortable and had not taken any intraoral medication. However, antibacterial mouthwashes were suggested to aid in good oral hygiene. The excised tissue was immediately sent for histopathological analysis to a reputed laboratory for confirmation of the diagnosis.

Care was taken to mention that the lesion was excised using lasers.

HISTOPATHOLOGY

Hematoxylin and eosin-stained histopathological sections of the lesion showed parakeratinized stratified squamous epithelium with underlying connective tissue stroma. Epithelium shows hyperparakeratosis. Basal

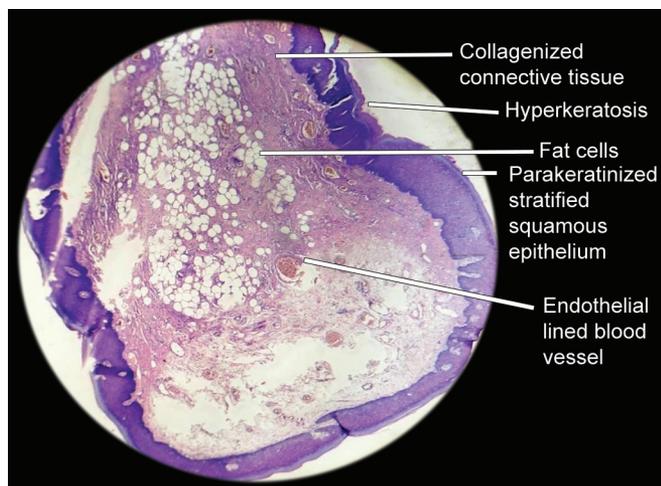


Fig. 11: Scanner view showing polypoid growth

cell hyperplasia is also seen. Connective tissue stroma is densely collagenized, shows fibroblasts, moderate number of endothelial lined blood vessels and minimal chronic inflammatory cells. Normal appearing fat cells are present with few endothelial lined blood vessels and are separated by thin connective tissue septa. The lesion histopathologically is suggestive of fibroepithelial polyp (Figs 9 to 11).

DISCUSSION

The fibroepithelial polyp is a commonly occurring small benign tumor of less clinical importance as it is painless and generally does not grow in size. It is generally seen on the surface of the skin due to the abrasion of multiple folds of skins. Hence, obesity is one of the commonest reasons where multiple folds of skin rub against each other bringing about such extensions of tissue. Jewellery also irritates and initiates such growth. However, cases of polyp seen in the oral cavity are quite rare. People with thick buccal pad of fat along with missing teeth aid in multiple folds of tissues in the retromolar pad region giving rise to such lesions. Hormonal imbalances especially during pregnancy also sometimes are a precursor for polyps in women.

Lasers have a niche over other conventional treatment modalities due to multiple and cumulative benefits.¹¹ The advantages of lasers as against the usage of scalpel, diathermy, cryosurgery is that; lasers offer sterilization of the operation site, offer more precise cuts, healing is also uneventful with no need of packs or suturing for most of the soft-tissue procedures. Blood-free surgical field also aids in better visualization. Bacteria reduction in the surgical area also aids in a comfortable and uneventful healing period.¹² This further does not require any medication which for an elderly patient is definitely a boon. Less discomfort for the patient (less

pain, less swelling, less postoperative bleeding) along with high quality of healed tissues (no scar tissue, no retraction, no discoloration, no anatomical alterations after surgery) is predictable with lasers. Immediate postoperative wound site has a coagulum of denatured protein formed on the surface. Fewer myofibroblasts are present along the incision margin which aid in no or little wound contraction.¹³

Biopsy has always been the gold standard in diagnosis and should be utilized, when patients present with suspicious lesion. Hence, excisional or incisional biopsies¹⁴ are done in such intraoral pathological lesions. Lasers aid in excisional biopsies of lesions as an effective,¹⁵ less traumatic and quick time frame treatment modality.

CONCLUSION

This article is unique as it occurred on an elderly obese male patient who had no systemic concern. The site was intraoral which is also rare. Lasers have numerous advantages and thereby are now gaining its popularity among patients of all ages. The surgical excision is done within a short span of time with the postoperative healing period being uneventful and comfortable. Lasers have surely made surgical dentistry more predictable, affordable, exciting and comfortable for the patient and well as stress-free dentistry for the dentist.

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REFERENCES

1. Gupta S, Aggarwal R, Gupta S, Arora SK. Human papillomavirus and skin tags: is there any association?. *Ind J Dermatol Venereol Leprol* 2008;74(3):222-225.
2. Munisekhar MS, Reddy KM, Ahmed SA, Suri C. Esther Priyadarshini S. Conventional scalpel vs laser biopsy: a comparative pilot study. *Int J Laser Dent* 2011;1(1):41-44.
3. Goharkhay K, Moritz A, Wilder-Smith P, Schoop U, Kluger W, Jakolitsch S, Sperr W. Effects on oral soft tissue produced by a diode laser in vitro. *Lasers Surg Med* 1999;25(5):401-406.
4. Kher U. Diode lasers: the cutting edge. *Int J Laser Dent* 2011; 1(1):49-53.
5. Parker S. Laser: tissue interaction and its application in clinical dentistry. *Int J Laser Dent* 2011;1(1):1-8.
6. Gutknecht N, Kanehi S, Moritz A, Mittermayer C, Lampert F. Effects of Nd:YAG-laser irradiation on monolayer cell cultures. *Lasers Surg Med* 1998;22(1):30-36.
7. Borchers R. Comparison of diode lasers in soft tissue surgery using CW and superpulsed mode: an in vivo. *Int J Laser Dent* 2011;1(1):17-27.

8. Karu TI. Photobiological fundamentals of low-power laser therapy. *IEEE J Quant Electron QE-2* 1987;3:1703-1717.
9. Karu TI. Molecular mechanism of the therapeutic effect of low-intensity laser radiation. *Lasers Life Sci* 1988;2:53-74.
10. Karu TI. *Photobiology of low-power laser therapy*: Harwood Academic Publishers, London; 1989.
11. Dhabekar GS, Dandekar RC. Laser as an alternative to scalpel biopsy. *Solaze J Laser Dentistry* 2010 Mar;4(1):24-27.
12. Medrado RAP, Pudliese LS, Reis SRA, Andreade ZAA. The influence of low level laser therapy on wound healing and its biological action upon myofibroblasts. *Lasers Surg Med* 2003;32(3):239-244.
13. Woodruff LD, Bounkeo J, Brannon WM, Dawes KS, et al. The efficacy of laser therapy in wound repair: a meta-analysis of the literature. *Photomedicine and Laser Surgery* 2004;22(3): 241-247.
14. Gaspar L, Szabo G. Manifestation of the advantages and disadvantages of using the CO₂ laser in oral surgery. *J Clin Laser Med Surg* 1990;8(1):39-43.
15. Mathews MA. Diode lasers: a versatile clinical tool (a technical and clinical review). *Int J Laser Dent* 2011;1(1):9-15.