

LYMPHANGIOMA TREATMENT WITH Nd – YAG LASER*

Ferda Taşar Dt^{**}, Celal Tümer Dt^{***}, B. Cem Şener Dt^{****}
Kemal Şençift Dt^{****}

SUMMARY: Taşar F, Tümer C, Şener BC, Şençift K. (Department of Oral Surgery, Hacettepe University Faculty of Dentistry, Ankara, Turkey). Lymphangioma treatment with Nd-YAG laser. Turk J Pediatr 1995; 37: 253-256.

In the oral cavity, lymphangioma is a rare, non-odontogenic, benign neoplasm which originates from lymph vessels. This lesion is common in the first decade of life and mostly occurs on the dorsal surface and lateral border of the tongue and rarely arises on the palate, gingiva, buccal mucosa and lips. Treatment of the lesion is surgical excision, however in recent years Neodymium Yttrium Aluminum Garnet (Nd-YAG) laser surgery has become favorable due to its many advantages. This case report presents the treatment of a buccal lymphangioma in a 10-year-old girl by Nd-YAG laser. *Key words: lymphangioma, laser surgery.*

Lymphangioma, which has some similarities to cavernous hemangioma, is a benign tumor of lymphatic vessels¹. Most lymphangioma cases, similar to hemangioma, present at birth so it should be considered congenital². Ninety-five percent of the lesions arise before the age of 10 in the oral cavity. Lymphangioma occurs most commonly on the dorsal surface and lateral border of the tongue, and rarely arises on the palate, gingiva buccal mucosa and lips. Histologically, simple lymphangioma consists of numerous dilated lymphatic channels which are lined by endothelial cells and contain lymph fluid.

Neodymium Yttrium Aluminum Garnet (Nd-YAG) laser, which is used as a surgical tool in medicine and oral surgery, is suggested as an alternative treatment method to the conventional methods, such as scalpel surgery, electrocautery and cryosurgery, for the treatment of some lesions^{3,4}. Lasers may be used for evaporation and hemostasis because they create thermal changes and are applicable for sharp dissection due to adjustable spot size^{5,6}. This case report presents the treatment of a rare buccal lymphangioma in a 10-year-old girl with Nd-YAG laser, which recurred after conventional surgery.

Case Report

In December 1988, a 10-year-old girl was referred to our clinic with the complaint of vesicular lesions in her mouth. Her parents stated that these lesions had been

* From the Department of Oral Surgery, Hacettepe University Faculty of Dentistry, Ankara.

** Professor of Dentistry, Hacettepe University Faculty of Dentistry.

*** Assistant Professor of Dentistry, Hacettepe University Faculty of Dentistry.

**** Research Assistant in Dentistry, Hacettepe University Faculty of Dentistry.

present for five years and occasionally would flare up. Her medical history was not remarkable, and physical examination revealed bilateral chronic submandibular lymphadenopathy. In the intra-oral examination, translucent, pink-bluish vesicular lesions especially on the right buccal mucosa and alveolar ridge and minimally on the right lower labial mucosa were noticed (Fig. 1). A biopsy was taken from the right alveolar ridge and buccal mucosa. The result of the histological examination was reported as lymphangioma. Pathological examination of the specimen exhibited dilated vascular structures lined with thinned endothelial cells and containing serous fluid (Fig. 2). In February 1989, surgical excision and electrocautery of the lesion were performed under general anesthesia. Due to recurrence of the lesions after one month, the same surgical approaches were repeated. After 10 months, the treatment course was changed because of another recurrence, and Nd-YAG laser (20 watt) was used with 2-3 seconds of exposure under general anesthesia. The patient was followed up clinically on the second, fifth, seventh and fifteenth postoperative days. Epithelialization of the operative site was completed in three weeks. Lack of postoperative pain and edema was notable. Additionally, wound healing was better and scar tissue formation less than after electrocautery. Eighteen months after laser surgery, the clinical examination revealed no recurrence, and the operative site was healthy (Fig. 3).



Fig. 1: Preoperative intraoral view of lymphangioma.

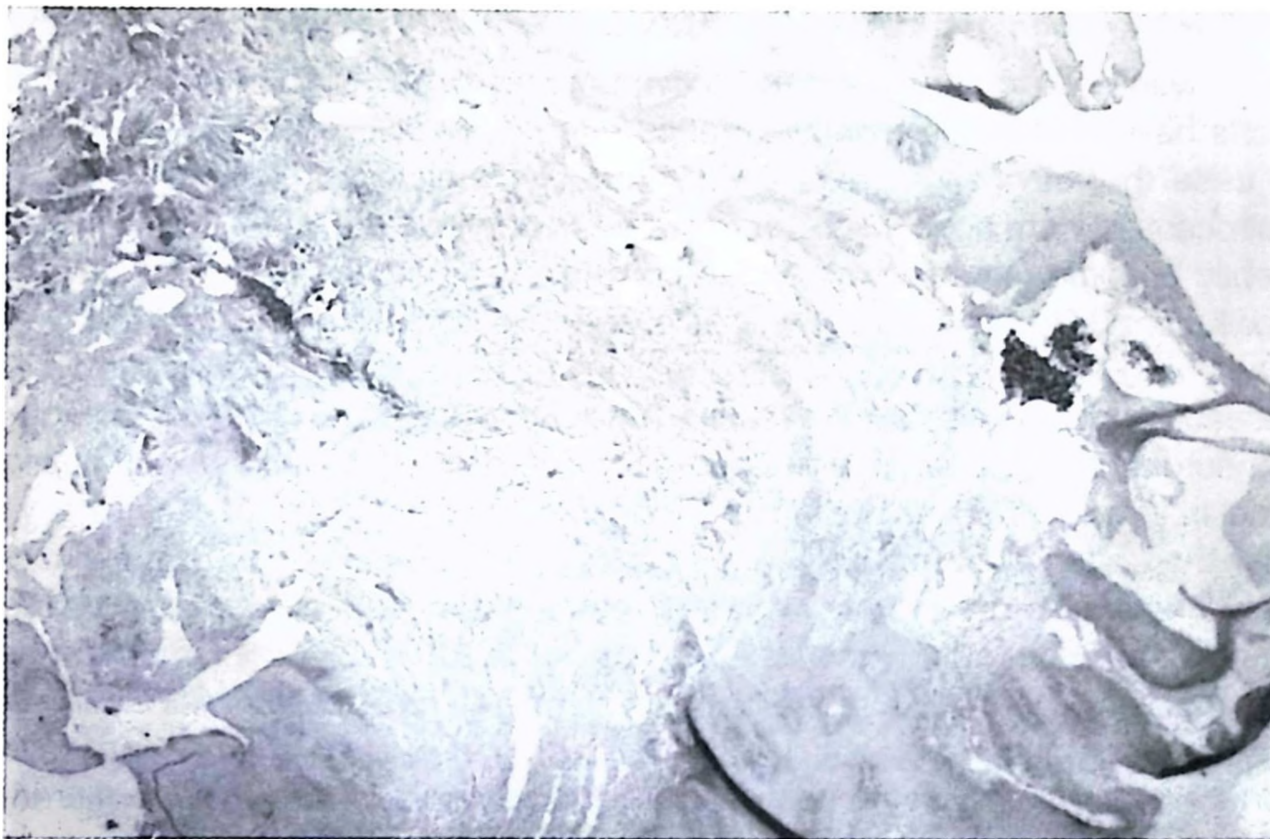


Fig. 2: Histopathologic appearance of the lesion.

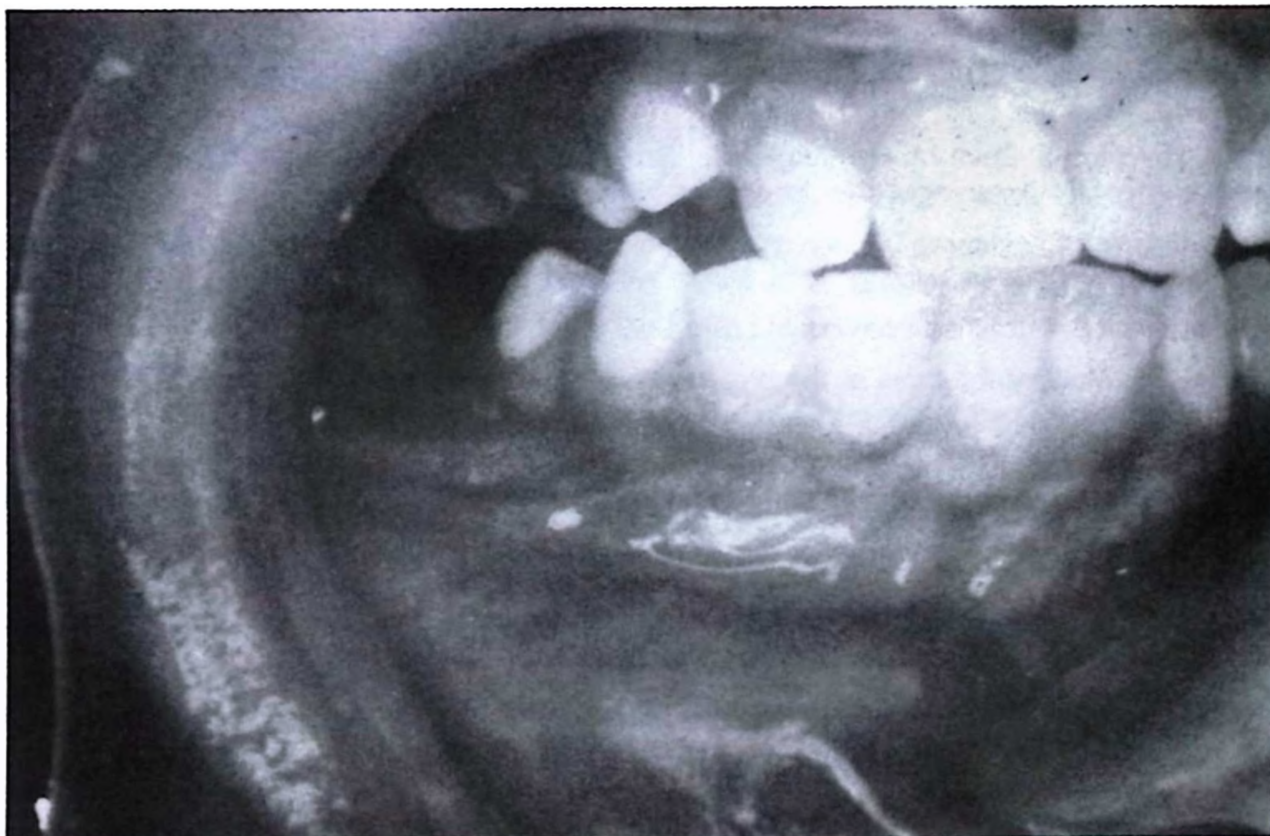


Fig. 3: Intraoral appearance in the postoperative 18th month.

Discussion

The conventional treatment course of lymphangioma is surgical excision. Case reports have revealed a high recurrence rate (41%) of this lesion¹. Similarly, in our case the lesions recurred even though extensive surgical excision and electrocautery were done. In oral surgery, carbondioxide and Nd-YAG lasers have recently become more favorable than conventional methods for the treatment of some lesions³. Studies have shown that laser application seals the blood and lymph vessels and yields superior wound healing^{4,7}. These properties of laser were noticeable in our case as well. Pecaro and Garehime⁸ claim the advantage of laser surgery in postoperative findings, such as edema, pain and wound healing, in the treatment of some benign oral lesions. In our case, wound healing was faster than after electrocautery and complaint-free. Bradley⁵ and Paulsen and Fibaek⁶ have also described certain features of laser surgery, such as excellent hemostasis, instant sterilization of the operative site and less contamination risk, as its most important advantages. In our case, the features of Nd-YAG laser, such as deep tissue penetration, sealing of the lymph vessels and ease of application, shortened the operative time and prevented recurrence. The healthy appearance of the operative sites in the postoperative 18th month show that Nd-YAG laser is an alternative and/or preferable method to conventional treatment for lymphangioma, which has traditionally been associated with a high recurrence rate.

REFERENCES

1. Shafer WG, Hine MK, Levy BM. Textbook of Oral Pathology (5th ed). Philadelphia: W.B. Saunders Co; 1983: 86-229.
2. Stal S, Hamilton S, Spira M. Hemangiomas, lymphangiomas, and vascular malformations of the head and neck. *Otolaryngol Clin North Am* 1986; 19: 769-796.
3. Pogrel MA, Yen CK, Hansen LS. A comparison of carbon dioxide laser, liquid nitrogen cryosurgery, and scalpel wounds in healing. *Oral Surg Oral Med Oral Pathol* 1990; 69: 269-273.
4. Schmelzeisen R. Published interview in Laser Brief at Int. Congr. "Lasers in Dentistry", Tokyo, 1988.
5. Bradley PF. Malignant tumors of the oral cavity. In: Oswal VH, Flood ML (eds). *The CO2 Laser in Otolaryngology and Head and Neck Surgery* (1st ed). London: Wright; 1988: 121-140.
6. Paulsen JW, Fibaek B. The CO2 laser in the oral cavity. In: Oswal VH, Kashima HK, Flood ML (eds). *The CO2 Laser in Otolaryngology and Head and Neck Surgery* (1st ed). London: Wright; 1988: 108-120.
7. Roodenburg JLN, Panders AK, Vermey A, Jansen HWB, Bosch JJ, Borsboom PCF. The histology of lasered tissues. In: Oswal VH, Kashima HK, Flood ML (eds). *The CO2 Laser in Otolaryngology and Head and Neck Surgery* (1st ed). London: Wright; 1988: 61-66.
8. Pecaro BC, Garehime WJ. The CO2 laser in oral and maxillofacial surgery. *J Oral Maxillofac Surg* 1983; 41: 725-728.