

## Laser Practice in Dental Treatment: Some Examples in Dental Clinics

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**Abstract:** Laser treatment is used for a dentistry clinical treatment to be very wide now, such as environment improvement in a pocket in a periodontal disease, caries removal, melanin removal, and also as an incision technique as application of surgery and excision, relaxation of sharp pain of stomatitis. While laser treatment showing an expanse between dentists in Japan, I would like to report some laser experience from a view point of a beginner of Er:YAG laser remedy.

**Key words:** Er:YAG Laser, Dental, Clinical, Treatment

### Introduction

Laser treatment is used as various surgical application in dentistry, as the caries removal, the melanin removal, incision, excision, sharp pain relaxation of stomatitis and environmental improvement in a tooth lap pocket of a disease around teeth<sup>1,2)</sup>. In these remedy, mainly used lasers are CO<sub>2</sub> laser, Nd:YAG laser, Er:YAG laser and a semiconductor laser<sup>3,4)</sup>. Reaction to soft and hard tissue by a characteristic of a laser each is different, and then make use of those good points for clinical is applied. A range of application is wide, and it is said to caries, a disease around teeth, the aesthetic appreciation that Er:YAG laser crawls in that that there is expectation in a future use range. In this paper it was reported that some clinical experiences encountered as the freshman user of the clinical laser instrument.

### Case Reports:

Case 1: Laser application for cervix caries (Fig. 1)

Cervix caries in the lower left 4 and 5, 40's woman (Fig. 1-1).

Under DENTOLIGHT (HOYA Photonics) Er-YAG laser and irrigation, where air is taken out, flooding water was irradiated by 10HZ, 80mJ.

At first I irradiated the laser from a part in 3 centimeters to defocus refuse and I brought it close little by little and did the caries removal (Fig. 1-2). In addition, there didn't seem to have been the sharp pain during the caries removal. There wasn't bleeding of a gingiva, too. I did phosphoric acid etching and, according to reduction to a single unit, did resin filling (Fig. 1-3). Consideration about the caries removal:

In comparison with a turbine, there are few pains (there is a pain if deep, but it is with the degree that I can endure). Transpiration takes time to some extent, but it seems that I make a little difference for total time because I don't wait for anesthesia and finish it. In the case of the rhizoplane caries removal under a gum edge, resin filling is easily finished in particular neatly aesthetically by any chance because bleeding isn't caused even if mis-irradiation it to a gingiva.

The surface which transpired is white and becomes rough. It has been said 1:00 period "laser etching", but it has been said that

it is the dentin which actually it transpires, and was scattered and the scattered poor dentin which are just before. A resin is easy to come off by surface treatment of the reduction to a single unit that is used for resin filling so that there is this poor stratum.

It is a problem that there aren't a tooth side processing method and a treatment agent to be most suitable for cut with a laser. The caries removal in Er:YAG laser is said when I take time to some extent, but the range that it is possible for by no anesthesia is wide and doesn't change too much for the consultation hours when I can enter by anesthesia waiting in the case of a normal turbine.

Tooth enamel is hard to transpire, and dentin is easy to transpire, but, in addition, I am different from a milk tooth by a permanent tooth, and it is necessary to set the condition that let I bend and become you there being individual difference.

I don't do all treatments with a laser and I use a turbine and remove hard tooth enamel, and it seems that I transpire with a laser and use the place that is easy to feel a pain of dentin and had better do drawn game. In addition, I feel relieved and can use it for children because we do not have to worry to cut it even if mis-irradiation it on cheeks mucous membrane.

Case 2, the gingiva melanin removal (Fig. 2)

There are a 30's woman, history of cigarette smoking, but doesn't smoke now. Self-possession of melanin is considered to an upper jaw, a border gingiva of the lower jaw (Fig. 2, top). I did

Fig. 1. Laser application for caries lesion.



Fig. 1-1 Before irradiation.

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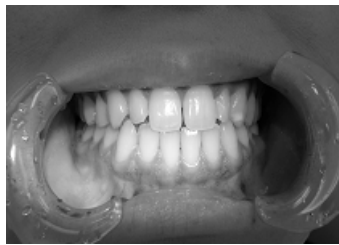


Fig. 1-2 (Middle). After Laser irradiation.



Fig. 1-3 (Bottom). After filling.

Fig. 2. Melanin removal by laser irradiation.



Before irradiation. Melanin accumulation was observed in the lower gum.



After irradiation. The gum regained healthy pink.

flooding in turn to confirm melanin if there was no flooding with Dentolight, Er:YAG laser, and, in the state that started air, transpired in 10HZ, 60mJ. The lower jaw went under anesthesia, but the upper jaw went only by surface anesthesia.

I transpired while confirming that melanin was removed while sometimes flooding it. I bled a little, but, just after irradiation, it was the degree that there was little sharp pain, and it wasn't worried about. I avoided it and irradiated the cervix to prevent a gingiva from withering. It began to heal on the next day, and there didn't seem to be the sharp pain at all. While I remove it, there is individual difference, but even no anesthesia gets off with sharp pain of the degree that I can endure. Furthermore, there are comparatively few aggressions for a bone without arriving at a deep part by acting on the surface, and there is little worry to make sequestrums. It almost healed and, for postoperative one week, became beautiful.

In the case of Er:YAG laser, I compare it with other lasers, and even an inexperienced teacher of a laser is easy to treat it (because there are few a gingiva and influence for a bone).

Because a laser has a good point, a bad point, I am not worried too much when I use it while putting a conventional method together (combination with a turbine). For example, I sharpen a part of the tooth enamel which I don't have a pain in in a turbine and think that I am convenient at all when I use it to supplement each other's weak points to say when I do the place where a pain

appears with a laser. The range that is enacted even if I don't anesthetize you is wide and is pleased with patient oneself.

It is indispensable to consider enough because I can reflect in mirrors unless I take protection glasses during medical examination and treatment.

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