

## Case Report

# Dental Anxiety – Diode Laser A Boon

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**Abstract:** Anxiety to dental procedures can create a major setback for the patient. A single experience of traumatic dental extraction can scar the patient and subsequently avoidance for treatment. Such a patient should be dealt with care so that any procedure rendered should not cause any more trauma to the patient. Dental lasers are one such modality which can aid in reducing the anxiety of the patient as well as create confidence in the patient to get dental treatments. The present case report is a patient with Dental anxiety assessment with MDAS, treated by Positive reinforcement and Diode laser (940nm) excision of Traumatic fibroma in the buccal mucosa. The Positive reinforcement and Diode laser procedure helped the patient to overcome Dental anxiety and was able to accept other dental procedures without any fear or anxiety.

**Keywords:** Dental anxiety, Diode laser, Traumatic fibroma, “4 S” principle, Dental fear, MDAS, Positive reinforcement.

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## INTRODUCTION

Dental anxiety and fear triggers cognitive, emotional and behavioural responses in patient which can in turn hinder the treatment outcome making the patient more UN cooperative resulting in unpleasant experience for both patient and the dentist (Weisenberg, M. *et al.*, 1984; & Al Absi, M., & Rokke, P. D. 1991). The etiology can be multifactorial such as previous negative or traumatic experience, especially in childhood (conditioning experiences), vicarious learning from anxious family member, lack of understanding, exposure to frightening portrayals of dentists in the media, the coping style of the person, perception of body image, and the vulnerable position of lying back in a dental chair. Anxiety can also be provoked by sensory triggers such as sights of needles and air-turbine drills, sounds of drilling and screaming, the smell of eugenol and cut dentine, and also sensations of high-frequency vibrations in the dental setting (Walsh, LJ. 2007). Milgrom *et al.*, identified four different groups of anxious patients based on their origin or source of fear. They were anxious of specific dental stimuli, distrust of the dental personnel, generalized dental anxiety, and anxious of catastrophe (Milgrom, P. *et al.*, 1995). A subjective assessment can be done based on psychophysiological, behavioural, and

emotional responses and with various anxiety scales as CDAS, MDAS and DFS. Various modalities of intervention from psychotherapeutic intervention with relaxation techniques, guided imagery, biofeed back, hypnotherapy, CBT, positive reinforcement, pharmacological management with sedatives and newer technologies such as dental lasers can be considered (Appukuttan, D. P. 2016).

The present case report is a patient with Dental anxiety assessed with MDAS, treated by Positive reinforcement and Diode laser (940nm) excision of Traumatic fibroma in the buccal mucosa.

## CASE REPORT

A 24 year old, male patient had come to the dental clinic with a swelling in the right cheek region near the lower back teeth for the past one month with a presenting history of the illness as a swelling which developed spontaneously and he noticed the swelling only when it started causing discomfort while chewing food with no history of pain. No relevant medical history. Past dental history, patient had got his 46 extracted 3 years ago with a history of traumatic extraction experience which made him anxious about any dental procedures. The patient was continuously

nervous constantly verbally eliciting signs of fear to sutures, cutting, drilling sound and pain.

On extra oral examination the face appeared to be symmetrical with no swelling and no lymph nodes palpable. On intra oral soft tissue inspection a round growth measuring about 1x 1cm in size at the posterior right buccal mucosa being distal to 47 at the junction between the posterior buccal mucosa and the retromolar area was observed with smooth surface appearing pink in colour with no ulceration [Fig: 1]. On palpation, all inspector findings such as site, shape, extents were confirmed. The growth was firm in consistency and sessile with no tenderness on palpation, non-reducible and non-compressible. On hard tissue examination the 18 appeared to be impinging the surface of the growth.



**Figure 1:** A well-defined growth present in relation to the right posterior buccal mucosa in relation to distal surface of 47

Correlating the history, clinical findings of the growth was provisionally diagnosed as Traumatic fibroma in posterior buccal mucosa in relation to 47. And the history of traumatic experience of previous dental treatment and behavioural finding, the patient was assessed with Modified Corah's Dental Anxiety Scale (MDAS) form. MDAS assessment:

**The modified dental anxiety scale (MDAS) contains 5 multiple-choice items including the followings:**

- 1 = If you went to your dentist for treatment tomorrow, how would you feel?
- 2 = If you were sitting in the waiting room, how would you feel?
- 3 = If you were about to have a tooth drilled or tissue cut how would you feel?
- 4 = If you were about to have your teeth scaled and polished, how would you feel?
- 5 = If you were about to have a local anesthetic injection in your mouth, how would you feel?

Answering scheme was devised ranging from not anxious to extremely anxious.

The responses are scored from 1 to 5. The score for the scale ranges from a minimum of 5 to a maximum of 25.

The result concluded that the patient was more anxious with the score of 20. The patient was diagnosed to have **Dental anxiety**. The **"4 S" rule or principle** was implemented. The patient was given positive reinforcement and Diode laser treatment modality were suggested since the patient was fearful and anxious about surgical procedures. The patient was explained about the laser treatment and written consent form was taken before the procedure in both English and vernacular languages.

The patient, operator as well as the assistant wore protective eye glasses during the procedure. Topical application of procaine B local anaesthetic gel was administered. The growth was laser excised with **940nm Diode laser (Biolase, USA) power setting of 1.5 watt, 615 joules using contact mode** [Fig 2].



**Figure 2:** Diode laser excision being done on the growth site

Throughout the procedure patient did not experience any pain and only minimal bleeding was observed. No suturing was done [Fig: 3]. No analgesics or antibiotics were prescribed after the procedure. The excised lesion was sent for histopathological analysis.



**Figure 3:** No bleeding, no suturing at laser excision site

The patient was called for review on the 1st day post-operative, healing had initiated with no complications. Patient did not experience any discomfort or pain. Complete healing of the site was observed with no recurrence after 1 year review [Fig: 4]. the patient was co-operative for other dental procedures with no signs of fear.



**Figure 4:** Completely healed site with no recurrence after 1 year

## DISCUSSION

In the presented case report, a male patient aged 24 years with a traumatic experience of dental procedure had reported with a growth in the right buccal mucosa, correlating the history, clinical findings of the growth it was provisionally diagnosed as Traumatic fibroma in posterior buccal mucosa in relation to 47.

The history of traumatic experience of previous dental treatment and behavioural finding assessed with MDAS. **The Modified Dental anxiety scale** was opted in this patient since it is considered to

be valid, reliable, brief, accessible, and is performed easily (Reddy, R. S. *et al.*,2015). The patient was diagnosed with Dental anxiety with score of 20. The **“4 S” principle** was implemented in this case. This is based on eliminating four of the primary sensory triggers for dental anxiety when in the dental setting: sight (air-turbine drill, needles), sounds (drilling), sensations (high-frequency vibrations [the annoyance factor]), and smells (Roberts, J. F. *et al.*,2010).

The patient was given **Positive reinforcement** and **Diode laser treatment** modality were suggested since the patient was fearful and anxious about surgical procedures and was advised with soft tissue laser procedure for the excision of lesion.

**Positive reinforcement** is an effective technique to bring change desired behaviors and aids in eliminating recurrence of those behaviors. Reinforcers include positive voice modulation, facial expression, verbal praise, and appropriate physical demonstrations of affection by all members of the dental team. These should be individualized, frequently provided, and varied over time (Roberts, J. F. *et al.*, 2010).

**Diode lasers** are soft tissue lasers with wavelengths ranging from 635 -980 nm. These types of lasers can be useful in soft tissue surgery as it has various advantages over scalpel surgeries such as hemostasis, reduced pain and inflammation, reduced or no edema, can perform without local anesthesia infiltration or block, but the use of topical anesthesia is necessary. This newer technology can be used in patients with dental anxiety (Walsh, LJ. 2003).

The patient had underwent laser excision of the lesion with 940 nm of Diode laser which was then histopathologically confirmed as fibrous hyperplasia and finally diagnosed as focal fibrous hyperplasia due to trauma. During the procedure the patient did not experience any pain or discomfort and only minimal bleeding was observed. Post-operative review was done right from the first day till the 2nd week. The patient did not complain of any discomfort post-operative, no edema, with complete satisfactory healing by the 21st day. The patient was then recalled at the 6th month and after one year for review. No history of recurrence was observed. The patient was very cooperative for further dental procedures.

## CONCLUSION

Diode laser in the present case has been observed to be boon in comparison to other treatment modalities, considering that the patient was very comfortable with no pain, no bleeding and no suture lowering the anxiety level of the patient. Patient was very cooperative during the review after 1 year and also showed no sign of anxiety for other dental procedures. It can be concluded that **Positive reinforcement** and

**Diode laser (940nm) therapy** together can be highly effective treatment modality which could be considered in relation to patient with anxiety to surgical and dental procedures.

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