

## **Use of Low Level Laser Therapy for the Treatment of Acute Necrotizing Ulcerative Gingivitis**

17-year-old F came with the dental clinic in Attawapiskat, Ontario

CC: "gum infection very painful can't eat/can't talk Especially at lower left...but everywhere"

HPI: Started feeling pain on Monday, went to a the local hospital clinic was given Rx: Amoxicillin 500mg with no resolution.

Medical Hx: patient denies

Medication: Patient denies

Social Hx: smoking 1ppd for 3 years, Alcohol: socially

Clinical Exam:

Extra-oral: No facial asymmetries, no LAD, patient reported dysphagia due to pain, guarded trismus. Forced maximum opening 45mm

Intra-Oral:

Generalized erythematous gingiva. Purulent discharge when pressure applied to sulcuses. Oral

Hygiene: very poor. Generalized heavy accumulations of plaque, calculus and food debris.

38 signs of peri-coronitis and purulent discharge when pressure applied.

Gingiva appeared to slough off when wiped with cotton roll.

Working Diagnosis:

Acute Necrotizing Ulcerative Gingivitis

Tx Rendered:

1. Full mouth debridement
2. Excision of operculum at 38 for symptomatic relief
3. Rx Amoxicillin 500 mg and Metronidazole 400mg, Peridex rinse
4. Removed sloughed gingiva using cotton roll and Hydrogen Peroxide
5. f/u with dentists in Moose Factory

Introduction:

- Acute necrotizing Ulcerative Gingivitis (ANUG): an ulcerative gingival disease characterized by pain, bleeding, malodour, and necrosis of interdental papilla.

- Papilla is “punched-out”
- Low grade fever and malaise are usually seen.
- Necrosis and ulceration are present on the marginal gingiva with different degrees of gingival papillary destruction
- Fusiform bacillus and spirochetes are often isolated from gingival ulcers, and ANUG patients often demonstrate an anaerobic flora.
- Pain is the hallmark of ANUG
- Conventional treatment is to eliminate the acute inflammation:
  - reducing dental plaque by gross debridement
  - removing necrotic tissue
  - abx recommended: amoxicillin and metronidazole
  - improved oral hygiene and follow-up

#### Low-level laser therapy (LLLT)

- application of light to increase tissue healing, reduce inflammation and pain management
- LLLT is used frequently in dentistry
  - Surgical and non surgical periodontal treatment, hypersensitive dentine, bone healing therapy, traumatic ulcers, HSV, mucositis, and much more
- LLLT’s application has shown biostimulative effects in literature
  - LLLT is indicated in cases where there is pain and tissue healing
  - Pain reduction is one of the reported effects of Low level laser therapy.

#### Case Report:

##### ANUG case treated with adjunct use of LLLT

- 34 year old healthy male. Social history: heavy smoker
- Clinical and radiographic exam
  - clinical attachment loss and poor oral hygiene
- Clinical Diagnosis: Acute Necrotizing Ulcerative Gingivitis
- TX rendered:
  - Pseudomembrane removed with hydrogen peroxide and cotton roll
  - 500 mg amoxicillin and 400 mg metronidazole 3 times a day for 5 days
  - Chlorhexidine 0.2% mouthwash twice a day
  - Patient was brought back for scaling and root planning
  - Low level laser therapy was performed at 2, 3, 5, and 9 days as an adjunct
    - 980 nm diode laser, set to 0.4 W, energy density was  $9 \text{ J/cm}^2$ , for 60

seconds. Did not contact but very close to the tissue, distance was approximately 1-2 mm, using LLLT tips

- After LLLT, there were no adverse effects.
- Spontaneous relief of pain and was carefully followed up until complete healing
- no complications documented

## Discussion

- ANUG is a painful inflammatory gingival disease
- Pain, interdental necrosis, and gingival bleeding
- Treatment includes alleviation of the acute inflammation by performing gross debridement and necrotic tissue
- The use of low level laser therapy in the treatment of several diseases, especially in dentistry has increased in recent years. It has been shown in literature that LLLT stimulates wound healing
- LLLT as an adjunct to conventional NUG treatment reduces the use of analgesic, anti-inflammatory drugs, and accelerated healing
- The use of LLLT in adjunct to NUG treatment can be used with the aim of reducing pain and accelerating wound healing
- More research is needed to determine the true efficacy of this treatment modality

Reference:

Özberk, Seda Sevinç et al. "Adjunct Use of Low-Level Laser Therapy on the Treatment of Necrotizing Ulcerative Gingivitis: A Case Report" *Journal of lasers in medical sciences* vol. 9,1 (2018): 73-75.