(CS-005) Using Non-Contact Near Infrared Spectroscopy Studies To Evaluate The Effectiveness Of Hyperbaric Oxygen Therapy Using The Marx Protocol

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INTRODUCTION:

Hyperbaric oxygen therapy has been used to treat and/or prevent osteoradionecrosis of the mandible using the Marx Protocol prior to tooth extraction. The established protocol implementing 20 initial hyperbaric oxygen treatments at 2.4 ATA followed by 10 additional sessions of hyperbaric oxygen therapy after tooth extraction has been routinely used.

PATIENT HISTORY

The patient is a 50 year old male with a significant past medical history of head and neck cancer (tonsillar CA) status post radiation/chemo in 2014. The patient received a total of 1200 cGy in 6 fractions. The patient states he has lost many teeth in the past year and is following up with the VA dentistry department in addition to civilian dentistry (for a second opinion).

The patient is being considered for dental implants but will require the Marx protocol to optimize the chances of healing of planned tooth extractions.

METHODS:

Non-Contact Near Infrared Spectroscopy imaging was taken of the patient's face (both outside and inside of the mouth) as well as the anterior neck before and after hyperbaric oxygen therapy. Following tooth extraction after 20 sessions of hyperbaric oxygen therapy, non-contact near infrared spectroscopy imaging was also taken of the gum.

HBO TREATMENT COURSE DETAILS

Treatment Course Number..... 1
Treatment Name/Title ..... HBOT
Total Treatments Ordered..... 30
Indication ..... Osteoradionecrosis
Ordering Physician ..... Alonso, Misael
HBO Treatment Start Date..... 11/2/2022
HBO Treatment End Date..... 1/18/2023
HBO Discharge Outcome ..... Good/Improved

HBO TREATMENT DETAILS

Treatment Number..... 30
Treatment Length..... 120 (minutes)
Chamber Type ..... Monoplace
Treatment Protocol ..... 2.4 ATA x 90 minutes w/100% oxygen, and two 5 minute air breaks

RESULTS:

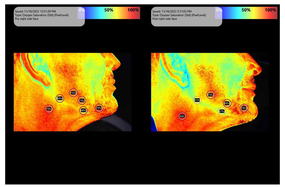
Non-Contact Near Infrared Spectroscopy showed improvement of microcirculation and oxygenation of the soft tissues of the gums after hyperbaric oxygen therapy.

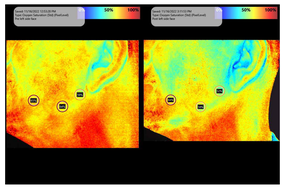
DISCUSSION:

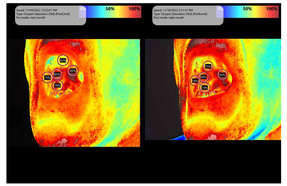
This expands how non-contact near infrared spectroscopy can be used to objectively measure the effectiveness of hyperbaric oxygen therapy with head and neck cancer patients that have been treated with radiation.

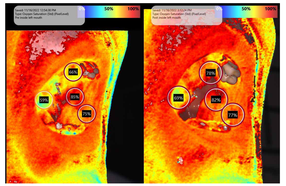
11-16-2022

INITIAL HYPERBARIC OXYGEN THERAPY


Right Side of Face


Left Side Face


Inside Right Mouth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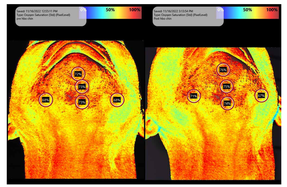
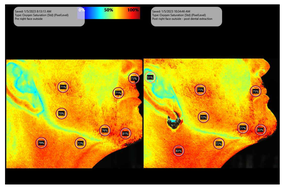

Neck

01-05-2023

TOOTH EXTRACTION AFTER 20 SESSIONS OF HYPERBARIC OXYGEN THERAPY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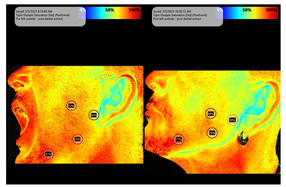
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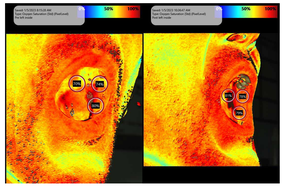
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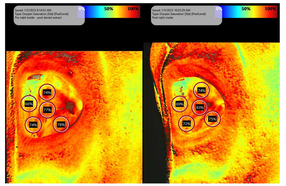
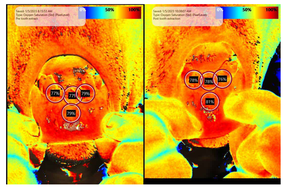
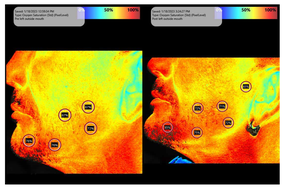

Right Inside Mouth

Hemoglobin View Tooth Extraction


Tooth Extraction

01-18-2023

LAST DAY OF HYPERBARIC OXYGEN THERAPY AFTER 10 MORE SESSIONS OF HYPERBARIC OXYGEN THERAPY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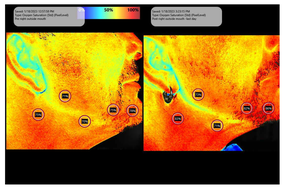
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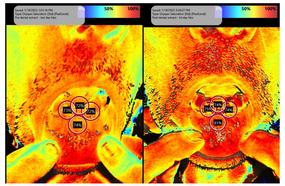
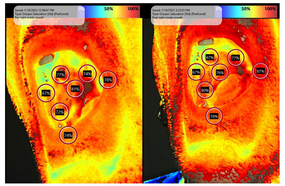

Tooth Extraction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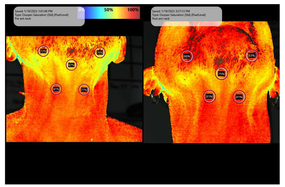
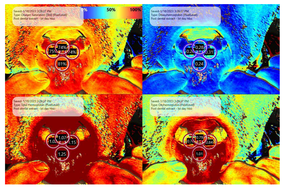

Neck


Hemoglobin View Last HBO