

### PATIENT HISTORY

A 45-year-old female was referred to my office in January 2017 for evaluation of constant infection in the mandible and a “hole in her tissue”. The patient indicated that pus will extrude from both the front and back tissues when she applies pressure. There was no pain reported. The patient had been prescribed amoxicillin and CHX rinse in June 2016 by her general dentist but had no significant improvement. A naturopath put her on an ozone rinse in October 2016 for 2 months, but the swelling remained.

The patient had a history of breast cancer that spread to the bone and had full-head radiation for brain cancer in October 2016. Medications included Xgeva (Denosumab) injections 2x/year, with her last injection in October 2016. She was previously prescribed several breast cancer medications, but at the time of the examination was only taking Aleve (Naproxen).

After clinical examination, the patient was diagnosed with possible Drug-Induced or Radiation-Induced Osteonecrosis with generalized moderate-to-severe periodontitis. The periodontal examination was completed in April 2017, allowing for clearance of Xgeva from the patient’s system to allow for treatment. Swelling was still present and bone exposures were noted (Fig 1). Probing depths around tooth 30 were 6,6,10 | 5,3,6 with heavy BOP and class 2 mobility; probing depths around tooth 29 were 10,9,6 | 8,3,3 also with heavy BOP and class 2 mobility. The LANAP protocol was recommended to treat the periodontitis due to its less invasive nature and to aid in clearing up the infections.

### TREATMENT APPROACH

Full-mouth LANAP protocol with the PerioLase<sup>®</sup> MVP-7<sup>™</sup> Nd:YAG dental laser and treatment of abscesses were performed in April 2017 and proceeded with no complications. Post-operative appointments at one week and 4 weeks showed reduction in swelling and that the pain under her jaw was gone. However, there was increased bone exposure on the LRQ, potentially due to the reduction of swelling and the thin tissue initially covering the area (Fig 2). There was no pain reported in the area.

Further biostimulation on a regular basis in the area was agreed upon to see if we could resolve bone exposure. At each appointment, healing of tissues post-LANAP protocol was continually evaluated and intraoral biostimulation with the PerioLase<sup>®</sup> MVP-7<sup>™</sup> (100 us/3W/20 Hz) was performed on the exposed bone.

**Fig. 1: Pre-op clinical photo**



**Fig. 2: Post-LANAP treatment, increased bone exposure**



**Fig. 3: 9 months post-LANAP surgery after biostimulation regimen**

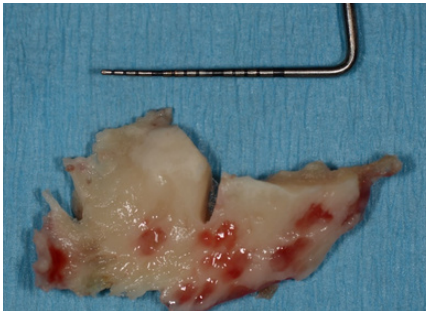


### TREATMENT APPROACH CONT.

Four sessions were scheduled 1-2 weeks apart with average joules of 1000 per session. No bone reduction was performed, and no resolution was noted. After consultation with Neal Lehrman, DDS, MS, joules were increased to 5000 for one session with bone reduction prior to biostimulation. Seven sessions were scheduled with bone reduction and then biostimulation between 2500-3000J. At each subsequent appointment, more bone was removed and tissue was noted growing behind the bone that was being sequestered. There were a total of 12 sessions over 9 months, during which time periodontal maintenance was also performed.

It was determined at the last session that a flap surgery was required to remove the final piece of necrotic bone that was trapped under the lingual gingiva (Fig 3). The surgery was performed in May 2018 and the final piece of necrotic bone was removed and healing proceeded within normal limits. (Fig 4).

**Fig. 4: Removed necrotic bone**



**Fig. 5: 18 month post-LANAP**



### RESULTS

The LRQ healed very well with new tissue taking the place of the necrotic bone (Fig 5). There was severe recession on the lingual, but no mobility or discomfort was noted. Periodontal probing at approximately 13 months showed a decrease in pocket depths to maintainable levels. Probing depths around tooth 30 were 4,3,3 | 8,3,3 with BOP but no mobility. Probing depths around tooth 29 were 3,3,3 | 3,2,5 with BOP but no mobility. The patient was kept on a 3-month periodontal maintenance schedule. In addition, there has been no recurrence of any osteonecrosis as of June 2022.

The use of biostimulation and removal of necrotic bone in a conservative manner contributed to the success of the treatment and the maintenance of the entire dentition, rather than extensive and expensive traumatic surgery with possible hyperbaric oxygen treatment.



### ABOUT THE AUTHOR: ALLEN HONIGMAN, DDS, MS

Dr. Allen Honigman, a board-certified periodontist originally from Ottawa, Ontario in Canada, currently is an Assistant Professor in Periodontics at Rutgers School of Dental Medicine. He received his Masters degree in Microbiology and Immunology from Idaho State University, Doctorate of Dental Surgery from UTHSCSA and completed periodontic specialty training at UCLA.

Dr. Honigman has practiced in the US and Guam; serving as a dental director for Pacificare in Guam. He was awarded "Clinical Faculty of the Year" by the dental students while Director for Undergraduate Periodontic Clinical Education at Case Western Reserve University in Cleveland, Ohio. He is a certified instructor for the Institute of Advanced Laser Dentistry.