

surgery on these values and in fact the number of desaturation events is significantly reduced. No clinical adverse respiratory or airway occurrences requiring intervention were noted in the OSA group. Despite the potential challenges of airway swelling related to intubation, facial swelling, MMF, and opioid use, MMA for OSA patients did not worsen, and in some respects improved overall oxygen saturation data compared with preop.

References

Riley RW, Powell NB, et al: Obstructive sleep apnea surgery: Risk management and complications. *Otolaryngol Head Neck Surg* 117:648, 1997

Terris DJ, Fincher EF, et al: Conservation of resources: Indications for intensive care unit monitoring after upper airway surgery on patients with obstructive sleep apnea. *Laryngoscope* 108:784, 1998

Biodegradable Bone Plates and Screws for Orthognathic Surgery: Five Year Experience

Timothy A. Turvey, DDS, CD 7450 UNC, Chapel Hill, NC 27599-7450

Statement of the Problem: Polylactate bone plates and screws represent a new technology with applications to oral and maxillofacial surgery. The major appeals are adequate strength to permit bone healing followed by biodegradation and excretion of the product. Complications include material breakage and exaggerated inflammatory response associated with biodegradation. The author has placed these materials in more than 300 patients over 5 years for a variety of applications including orthognathic/craniofacial, facial trauma, and stabilization of bone grafts to the facial skeleton. This abstract will focus on analysis of the experience with the orthognathic/craniofacial patients.

Materials and Methods: The products of 3 manufacturers have been used. Demographic data and an analysis of usage, and complications are determined by retrospective review of records. Variables such as systemic disease, age, gender, site of placement, patient size, manufacturer, etc, are tested for association with complications.

Method of Data Analysis: The majority of experience has been 2 vendors (Bionx and Inion). Minimal experience is with another (Macropore). The mean age of the population is 23.28 ± 12.05 years. The range is 7-62 years, and 70 percent of the populations are women. Of the 258 orthognathic/craniofacial patients, 175 had the material used to stabilize Le Fort I or higher level osteotomies. Also, 328 sagittal osteotomies, 87 genioplasties and 52 other mandibular osteotomies were stabilized, and 102 patients had simultaneous mobilization of the maxilla and mandible.

Results: Complications consisted of material breakage requiring replacement or an intense inflammatory response requiring removal. The failure rate was 7 percent with 3 percent for material breakage and 4 percent because of inflammation. All material failure occurred in

the mandible either at sagittal osteotomy sites or at the genioplasty sites. All intense inflammatory changes were observed at maxillary osteotomy sites where the quantity of material used is greatest and the overlying tissue is the thinnest. No association between material failure or inflammation was observed with the variables other than patient size (greater than 200 lb). Of the patients treated, 93 percent had successful outcomes, and 7 percent required another surgery to replace broken hardware or because of an intense inflammatory response. Also, 98 percent of the patients who were offered this technology desired its use.

Conclusion: Polylactate bone plates and screws are promising technology with high patient appeal that have been used successfully in an orthognathic/craniofacial surgery population. The complication rate (7 percent) is acceptable and with improved delivery systems and instrumentation the technology will become popular.

References

Haers PE, Sailer HF: Biodegradable self reinforced poly-L/DL lactide plates and screws in bimaxillary orthognathic surgery short term skeletal stability and material related failures. *J Craniofac Surg* 26:363, 1998

Turvey TA, Tejera TJ, Proffit WR: The use of self reinforced biodegradable bone plates and screws in orthognathic surgery. *J Oral Maxillofac Surg* 60:59, 2002

Funding Source: NIDCRDE05215.

Surgical Placement of Skeletal Devices for Orthodontic Anchorage: Report of Preliminary Surgical Experiences

John S. Won, DDS, MD, 222 Old Fayetteville Road, C302, Carrboro, NC 27510 (Ruiz R)

Statement of the Problem: The use of skeletal fixation devices to provide orthodontic anchorage has been proposed within the orthodontic and surgical literature. Bone-borne devices provide increased anchorage allowing the orthodontist to carry out movements that were previously thought to be difficult or impossible. Current indications include extensive mesial and distal movement of teeth, molar uprighting, tooth intrusion, and applications for dentofacial orthopedics in growing patients. Previous authors have described the use of intermaxillary fixation (IMF) screws and rigid internal fixation plates as adjuncts that provide additional orthodontic anchorage which is not tooth borne. More recently, bone plates and screws with specialized fixtures are being developed specifically for these applications. Most of the published data regarding the application of skeletal anchorage devices to orthodontics are limited to case reports. This abstract summarizes our preliminary surgical experiences in the treatment of 19 patients (13 female, 6 male) undergoing placement of bone anchorage devices. The surgical technique is described and a review of perioperative considerations and complications is presented.