

*Joshi A. An investigation of post-operative morbidity following chin graft surgery. British Dental Journal 2004;196:215-218.*

**Purpose:** To describe the morbidity at the donor site following harvesting of chin bone for ridge augmentation.

**Materials and Methods:** This was a prospective study on 27 consecutive patients in OMFS department, Manchester University. The patient pool was 13 male, 14 female with an age range from 15-64 years. The most common site of augmentation was the upper anterior. The patients were seen at one week, 1,3, 12 months post-surgically. For all patients, following vestibular incision and reflection of full thickness flaps, the osseous cuts were made 5mm apical to the apices of the anterior teeth and 5 mm coronal to the lower border of the mandible. BioOss was used to fill the donor site and covered with Bio-Gide. The suturing was done in two layers, first the periosteum and the muscle layer and then the overlying mucosa. Pressure dressing to the patient's chin, antibiotics and analgesics followed the procedure. At the mentioned post-ops the contour of the chin, sensibility of the chin and lower lip, and the lower teeth were examined.

**Findings and Conclusions:** Of the 27 patients, 9 (33%) experienced morbidity. 5 patients experienced woodiness/numbness of the lower anterior teeth at the first week and at 12 months, 2 still had no sensitivity of lower anterior teeth. 2 patients experienced pain the area till 3 months post-op. Two patients experienced paraesthesia of gingivae, chin, and lower lip that resolved in 3 months. No patients complained of change in the contour of chin. 85.2% went ahead with successful implant placement. 4 patients experienced resorption of the graft when they were seen 6 months and 14 months after graft placement.

While the chin graft is an excellent option for ridge augmentation due to its intra-membranous source, ease of access, no cutaneous scar, and shorter healing period, the patient needs to be informed and warned of possible temporary loss of sensitivity in the chin, gingivae, teeth adjoining the area. It may also be prudent to place the initial osseous cut 8 mm rather than 5 mm apical to the apices of anterior teeth.

*Wadu SG, Penhall B, Townsend GC. Morphological variability of the human inferior alveolar nerve. Clinical Anat 1997;10:82-7. (19 Refs)*

**Purpose:** To investigate the morphological arrangement of the human IAN and its possible variations, as well as the relationship between its radiographic appearance and actual anatomical presentation, with particular attention focused in the canine/incisor region.

**Materials and Methods:** 20 dry mandibles and 9 cadaver mandibles were obtained from the University of Adelaide and used for both a radiographic study, as well as a clinical dissection. Mandibles were radiographed in three directions to obtain images from the left side, the midline area, and the right side. After radiographs, the nine cadaver mandibles were decalcified and then dissected from the lingual surface to isolate the IAN and its fine branches. Each dissection was sketched and radiographed serially.

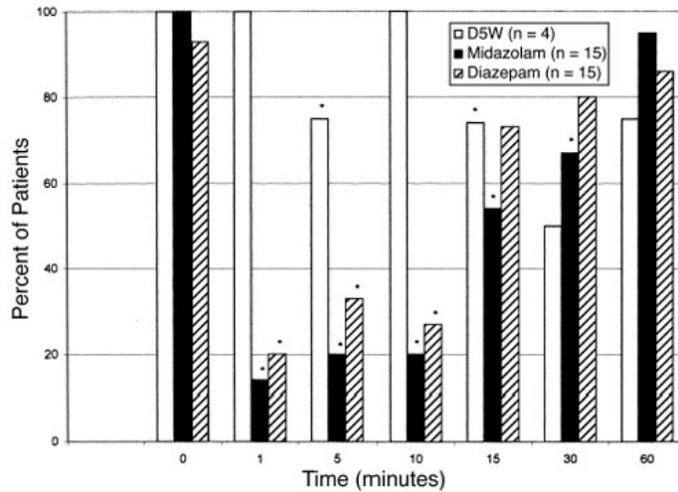
**Findings and Conclusions:** Four different patterns of the mandibular canal (MC) were identified from the series of 27 radiographed mandibles. They were as follows: 1) (3 mandibles)-radiolucent ribbon bordered by two continuous radiopaque lines; 2) (8 mandibles)-a continuous radiolucent inferior border with an identifiable superior border displaying occasional disruptions; 3) (12 mandibles)-occasional traces of a superior border and with a largely intact inferior border also with frequent disruptions; 4) (4 mandibles)-no clear radiographic evidence of any border superior or inferior of the MC. Despite these four patterns, there appeared to be no consistency in the radiographic patterns and upon clinical evaluation using dissection the findings varied greatly from the predictions made from the radiographs. After entering the mandibular canal, a molar branch left the IAN and traveled obliquely forward to innervate the root apices of the molar and sometimes second premolar teeth. In that same molar region the main trunk of the IAN divided into two distinct branches before the anatomical mental foramen. These parallel nerve fibers, the mental and incisive branches, coursed forward to supply teeth in the premolar and incisor regions, respectively. Nerves supplying the premolar were inconsistent in their origin but appeared to form two distinct patterns: 1) innervated by a plexus from the common trunk of the IAN, with additional branches from the mental and incisive and molar nerves; 2) fibers arising from the main nerve trunk, (fibers from the IAN trunk immediately before the mental and incisive branches divided) and (main trunk supplied 2<sup>nd</sup> premolar and incisive nerve trunk supplied 1<sup>st</sup> premolar). Canine received consistent innervation from a branch from the descending part of the incisive nerve. In 5/6 dentate specimens' small terminal branches of the incisive nerve crossed the midline to innervate contra lateral incisors (predominately right side to left). Cross innervation was not apparent in edentulous specimens. In severely resorbed mandibles, the molar and incisive branches were clearly identifiable, the premolar branches were not. Likewise, the inferior alveolar artery (the chief vascular supply in a dentate individual) could not be identified due to atrophy with the resultant blood supply derived from minor vessels.

*Staretz L, Otomo-Corgel J, Lin J. Effects of intravenous midazolam and diazepam on patient response, percentage of oxygen saturation and hemodynamic factors during periodontal surgery. J Perio 2004;75:1319-26.(44 Refs)*

**Purpose:** To compare the effects of midazolam and diazepam on patient recall, psychomotor response, hemodynamic parameters, and percent oxygen saturation in periodontal surgical patients.

**Materials and Methods:** 17 periodontal surgery patients, aged 22-71 years (median 40 years), weighing 132-204 lbs.(mean 166lbs.) classified as either ASA 1 or 2. Study design constituted a randomized, double-masked, cross-over approach. Surgeries consisted of tissue flaps, debridement, Sc/Rp, w/without osseous recontouring, and bone grafting. Patients underwent 2-3 surgeries with IV sedation and were randomized to receive an individual drug at each of the 2 surgeries, or an addition of a placebo(D5W: dextrose 5% in water) as a treatment alternative if undergoing 3 surgeries. Hemodynamic parameters(O<sup>2</sup> saturation, heart rate, blood pressure) and clinical conditions were continuously monitored by a pulse oximeter during surgeries and drug effects were considered significant on any individual parameter when measured values exceeded baseline by two standard deviations. All sedations were performed by a trained second party, and were performed such that patients maintained protective airway reflexes and were always able to respond to verbal commands. Sedations were performed and drugs titrated to a 3+ sedation level selected as the clinical endpoint. This was defined as the state in which the subjects demonstrated obvious disassociation from their immediate environment. Drug dosages were not to exceed a max. total of 10 mg. of midazolam or 20mg. of diazepam. This individual dose and any intrasurgery complaints by patients was recorded. Recall testing using common objects presented presurgery (baseline) and at various time increments during the sedation. Psychomotor testing was performed using the perceptual speed test (PST).

**Findings and Conclusions:** 15 patients completed the study. Monitoring of patients under the influence of each drug ranged from 90-210 minutes (median 142) and included recall and recovery testing. Average titrated dosages of midazolam and diazepam were 3.3 mg and 12.1 mg, respectively (mean difference 8.8 mg). It took on average 3.7 times more diazepam to reach the same therapeutic dose as midazolam. Hemodynamic values showed no significant difference between individual drugs, but it was noted that pulse rate showed a substantial increase from baseline, this effect was noted generally within the first 15-30 minutes and occurred with both drugs. Recall testing showed no significant difference in overall percentage of objects recalled with either drug. Average recall scores were 59%, 52%, and 82% for diazepam, midazolam, and placebo, respectively. There was a significant effect on recall looking individually at each drug versus baseline as recorded in the following graph:



Recovery testing revealed a statistically significant ( $P=0.03$ ), 15 minute difference recovery period necessary for patients on diazepam. The PST distance recovery time showed midazolam to have a +23 minute increase ( statistically significant) time requirement over diazepam. It appears that midazolam allows a greater degree of amnesic effect (greater degree of deterioration and therefore longer required time to return accuracy within test limits) but with similar rates of recovery. Overall, both drugs offer similar effects but with some subtle advantages and disadvantages that were not fully evaluated in this article.

*Santana RB, Uzel MI, Gusman H, Gunaydin Y, Jones JA, Leone CW. Morphometric analysis of the furcation anatomy of mandibular molars. J Periodontol 2004;75:824-29.*

**Purpose:** This study examined mandibular molar anatomy to determine the bucco-lingual width of the furcation compared to bucco-lingual measurements of the CEJ at the level of root separation on both the mesial and distal roots, to allow future improvement in the diagnosis of furcation involvement and increase the predictability of GTR procedures involving furcations.

**Materials and Methods:** 100 extracted permanent human mandibular molars (50 first molars and 50 second molars) without periodontal therapy, caries, or restorations extending to the CEJ or furcation entrance were measured at four horizontal bucco-lingual positions. The four points of interest were marked on the root surfaces before measurements were taken. 1)The width of the CEJ was measured in the bucco-lingual direction. 2)The furcation entrance (FE) was measured at the furcation roof at the point of separation of the mesial and distal roots. 3)The mesial root width (MRW) and 4) distal root width (DRW) was measured. Measurements were performed by a single investigator under direct light and with a Iwansson gauge. Measurements were recorded to the nearest 0.10 mm. Duplicate measurements were performed for every tooth and averaged.

**Findings and Conclusions:** Mandibular first molars at 99% confidence interval: CEJ(8.51-8.86mm), FE (5.36-5.70), MRW(8.36-8.77) and DRW(7.72-8.22). The FE was significantly smaller than the CEJ, MRW, and DRW measurements. The DRW measurement was also significantly smaller than the CEJ and MRW measurement. Mandibular second molars at 99% confidence interval: CEJ(8.05-8.75mm), FE(5.27-5.96), MRW(7.48-8.42), and DRW(6.71-7.71). The FE was significantly smaller than the CEJ, MRW, and DRW measurements. The DRW measurement was significantly smaller than the CEJ and MRW measurements and the MRW measurements were significantly smaller than the CEJ measurements. Mandibular first molars were significantly larger in dimension than second molars. However, the dimensions of FE were not significantly different between the first and second molars. The measurements show that the bucco-lingual width of the furcation roof(FE) is smaller than the width at the CEJ, MRW, and DRW and located more internally. The results suggest that 4.30 to 6.90 mm of horizontal attachment loss in the interradicular periodontium may result in communication between the buccal and lingual furcation entrances. Accurate identification of the horizontal width of the furcation roof can help to determine diagnosis, classification, prognosis, and response to treatment in the furcation.

**Rodriguez-Pato RB. Root resorption in chronic periodontitis: A morphometric study. J Periodontol 2004;75:1027-32. (24 Refs)**

**Purpose:** To verify the influence of the severity of periodontitis on radicular resorption, correlating the histologic findings with the different levels of disease

**Materials and Methods:** 66 teeth (18 incisors, 23 premolars, and 25 molars) diagnosed with different levels of chronic periodontitis were included in the study. None had the history of periodontal therapy, nor did they show any sign of restoration or pulpal injury. The study population consisted of 48 patients aged between 36 and 88 years (mean age: 61.8 years), and 64.6% of the patients were females. Three groups were identified based on periapical radiographs taken prior to extraction: (1) group 1, slight periodontitis: teeth with bone loss of no more than one-third of the normal alveolar bone height (n=15), (2) group 2, moderate periodontitis: teeth with bone loss between one-third and two-thirds (N=20), (3) group 3, severe periodontitis: teeth with bone loss of more than two-thirds (N=31). Probing depth and attachment loss were measured to confirm the above classification. Each tooth was divided in half in a mesio-distal direction, and prepared for the histological and histometric examination under a light microscope. Percentages of area and volume resorbed on each third of all teeth were calculated.

**Findings and Conclusions:** 80.3% (53) of the teeth from 37 (77.08%) patients exhibited resorption. The number of patients with resorption increased with the severity of periodontitis: group 1: 41.67%, group 2: 86.67%, and group 3: 90.48%. The predominant location of resorption in all teeth was the apical one-third: group 1: 40%, group 2: 75%, and group 3: 83.87% respectively. Invasion of dentin was noted in 24.53% of the teeth with resorption, and the number increased with the severity of periodontitis: group 1: 0, group 2: 2 (5.88%), and group 3: 13 (41.38%). In group 3, the invaded dentin occurred on the gingival third mostly (83.33%). In group 1, the average length of resorption was 295.65 $\mu\text{m}$  and the average area, 11,212.45 $\mu\text{m}^2$ . In group 2, these measurements were 519.09 $\mu\text{m}$  and 25,678.102 $\mu\text{m}^2$ . In group 3, the measurements were 675.97 $\mu\text{m}$  and 36,925.06 $\mu\text{m}^2$ . Except for the resorbed volume on the apical third, the other resorption percentages were higher in group 3, and smaller in the group 1. However, the location of the largest resorption percentages varied among three groups: group 1: middle third, group 2: apical third, and group 3: gingival third. In conclusion, based on the results of this study, a strong relationship between the severity of periodontitis and the percentages of resorption existed.