SMART DENTAL UPDATES

Volume 3| Issue 35|2022

Dear Doctor,

Greetings from Micro Labs Limited. We are happy to bring you **"SMART DENTAL UPDATES"** which contain latest and interesting news in the field of Dentistry.

This issue contains:

- Magnetic resonance imaging evaluation of temporomandibular joint effusion with limitation of mouth opening following arthroscopic lysis and lavages.
- A randomised controlled trial with a 5-year follow-up on the three-dimensional assessment of palatal area changes after posterior crossbite correction with tooth-borne and tooth bone-borne rapid maxillary expansion.
- A retrospective cross-sectional study of the assessment and aesthetic impact of a long-term vertical discrepancy between a single anterior maxillary implant-supported crown and adjacent teeth.
- A Rare Case of Mandibular Third Molar Concrescence and Supernumerary Fourth Molar

Should you need any article or information feel free to contact us at medicalservices@microlabs.in

Magnetic resonance imaging evaluation of temporomandibular joint effusion with limitation of mouth opening following arthroscopic lysis and lavages

Introduction:

TMJ effusion appears on T2-weighted magnetic resonance (MR) images as an accumulation of increased signal. TMJ effusion has been identified as an important clinical sign of TMJ disorder in patients; however, the clinical significance of TMJ effusion remains unknown. TMJ arthroscopic surgery may affect the relationship between TMJ effusion and pain. An earlier study, however, found that TMJ effusion on MR imaging could not be used to predict treatment outcomes after arthroscopic surgery. When evaluating outcomes after surgery, this issue may be complicated by the absence of important clinical symptoms, such as limitation of mouth opening. This thought prompted the authors to investigate the relationship between mouth opening limitation and TMJ effusion after arthroscopic surgery in order to learn more about the causes of TMJ effusion. The goal of this study was to look at the relationship between mouth opening limitation and TMJ effusion in patients who had arthroscopic surgery and were referred to us for MR imaging. [1]

Methods:

The authors looked at 88 joints from 86 TMJ patients who had lysis and lavage in the superior space of the TMJ. Before and after surgery, the patients were referred for magnetic resonance imaging (MR). Based on the presence of TMJ effusion, the joints were divided into two groups. Chi-square tests were used to compare the distributions of these two groups. The alpha value was set at 0.05.

Results:

The time between the initial MRI and the arthroscopic examination ranged from 2 to 387 days, with a median of 34 days, and the time between the arthroscopic examination and the follow-up MRI ranged from 42 to 2875 days, with a median of 225 days. Before surgery, the average mouth opening was 29.7 mm (S.D. 7.9 mm, median 28.0 mm) and after surgery, it was 43.0 mm (S.D. 6.3 mm, median 43.5 mm). Following surgery, the number of joints with limited mouth opening was significantly reduced. After surgery, there were significantly fewer joints with effusion than before. A comparison of TMJ effusion before and after surgery revealed that effusion disappeared in 20 joints, reappeared in 4, and remained unchanged in 11. However, the prevalence of effusion in TMJs with and without limitation of mouth opening was nearly identical.

Discussion:

TMJ effusion is the pathological accumulation of TMJ fluid in the joint spaces. This condition is characterised by increased signal on T2-weighted MR images. Previous articles focused on the relationship between joint effusion and clinical symptoms to determine the significance of TMJ effusion. MR imaging can be used to differentiate effusion from synovitis in the knee joint. The frequency of joint effusion on MR images for various TMJ states, such as normal disc position, internal derangement, and

osteoarthritis, was determined by studies that considered images to show joint effusion if more than one line of high signal was present in the upper or lower joint spaces on T2-weighted images.

On the other hand, significant improvements in arthroscopic findings and MR imaging must be noted over time. The use of arthroscopic surgery for the TMJ, which allows joint pain related to pathological conditions, such as adhesion in the joint space, to be reduced, was a significant milestone in the development of treatments for TMJ pain and dysfunction. A previous study found that changes in the level of joint effusion were unrelated to patients' clinical conditions when comparing MR imaging before and after TMJ arthroscopic lysis and lavage.

Fig. 1

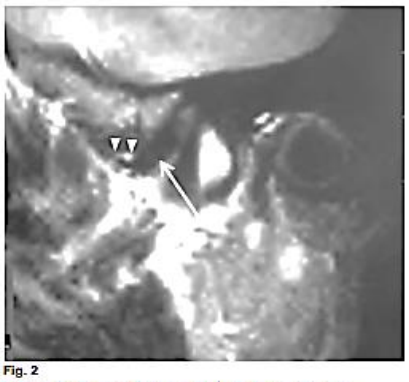

Fig. 2

Fig. 1 A corrected sagittal T2*-weighted image shows a TMJ from a 25-year-old female with limitation of mouth opening after arthroscopic surgery. She still has pain in the TMJ, and her maximal inter-incisal distance is 30 mm. The disc is located anterior to the condyle (while arrow). TMJ effusion is evident in the upper joint space (arrow heads); this phenomenon was also observed prior to arthroscopic surgery.
Fig. 2 A corrected sagittal T2*-weighted image shows a TMJ from a 32-year-old female without limitation of mouth opening after arthroscopic surgery. She has pain in the TMJ; however, her maximal inter-incisal distance is 50 mm. The disc is located anterior to the condyle (while arrow). TMJ effusion is evident in the upper joint space (arrow heads); this phenomenon was also observed prior to arthroscopic surgery.

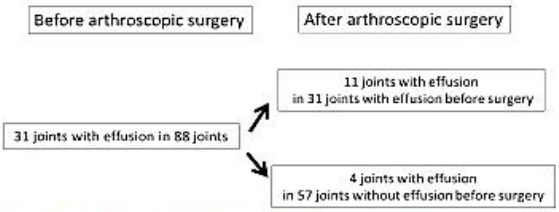

Fig. 3 Changes in joints with effusion before and after arthroscopic surgery

Given the foregoing, TMJ effusion may become a predictor of outcomes following arthroscopic surgery. This study found no evidence of joint effusion in MR imaging as a predictor for evaluating joints in patients with mouth opening limitation after arthroscopic surgery. However, there were significantly fewer joints with effusion after arthroscopic surgery than before surgery in this study. It has been suggested that it is the result of arthroscopic surgery and arthrocentesis. The restriction of mouth opening improved, but TMJ effusion persisted. TMJ effusion may be a pooling of synovial fluid with no direct relationship to inflammation.

TMJ effusion may be a pooling of synovial fluid with no direct relationship to inflammation. When anterior disc displacement occurs, the authors hypothesise that joint fluid naturally accumulates in a vacant space, the upper joint space located in the lateral recess. However, it has been reported that asymptomatic joints with effusion should be followed up on because they may be candidates for intracapsular disorders, so the authors thought it was necessary to perform MR studies in the follow-up after treatment. [2]

Conclusion:

The amount of temporomandibular joint effusion decreased after surgery, but the effusion did not completely disappear even after clinical symptoms improved. It has been proposed that joint effusion naturally accumulates in a vacant space, the upper joint space in the lateral recess.

Even after clinical symptoms improved, the amount of joint effusion in the temporomandibular joint decreased after surgery. It was proposed that the joint effusion naturally accumulates in a vacant space, namely the upper joint space in the lateral recess.

1. Igarashi C, Kobayashi K. Magnetic resonance imaging assessment of temporomandibular joint effusion with limitation of mouth opening after arthroscopic lysis and lavages. Asian Pacific Journal of Dentistry. 2022;22(1):1-4.

2. Hosgor H. The relationship between temporomandibular joint effusion and pain in patients with internal derangement. Journal of Cranio-Maxillofacial Surgery. 2019 Jun 1;47(6):940-4.

A randomised controlled trial with a 5-year follow-up on the three-dimensional assessment of palatal area changes after posterior crossbite correction with tooth-borne and tooth bone-borne rapid maxillary expansion.

Introduction:

Posterior functional crossbite is one of the most common malocclusions in young adolescents, with prevalence rates ranging from 8% to 22% reported in the literature. The underlying cause is thought to be a constricted maxilla, which forces the mandible to be displaced laterally upon closure due to occlusal interferences, resulting in stunted growth and development on the constricted side if left untreated. [1] When an adolescent has a maxillary constriction with posterior crossbite, the treatment goal is maxillary expansion to correct the skeletal discrepancy and restore normal growth and development. Heavy forces enable skeletal maxillary expansion by opening the midpalatal suture while causing hyalinization around the supporting teeth to minimise tooth movement, according to the rapid maxillary expansion principle. However, tooth-borne (TB) devices may lack the anchorage required to maintain long-term sutural expansion, and adverse effects such as dental tipping and thinning of the buccal bone plate of supporting teeth have been reported. [2] In all three planes, a three-dimensional (3D) evaluation can describe palatal morphology and treatment changes. Cone-beam computed tomography has been used in some studies to accurately describe skeletal and dental changes. However, in growing children, it is preferable to avoid repeated ionising radiation exposure. [3] The study's goal was to evaluate and compare three-dimensional treatment changes in palatal surface area and volume using either tooth-borne (TB) or tooth bone-borne (TBB) rapid maxillary expanders, as well as to compare the long-term effects of the two devices and the incidence of relapse between the groups.

Methods:

A total of 52 consecutive patients who met the eligibility criteria were recruited and assigned to either the TB or TBB groups, with a mean age of 9.3 years (standard deviation [SD], 1.3). (SD, 1.2). Before, immediately after, one year after, and five years after expansion, study casts were taken. Digitized study casts were superimposed and evaluated. Participants were randomly assigned to blocks of varying sizes in a 1:1 ratio using the concealed allocation principle.

Results:

Changes in palatal volume, palatal surface area, and palatal projection area within and between groups up to 5 years after expansion followed the same pattern and revealed no statistically significant differences between groups. Relapse occurred in 15% of the patients. Open-bite and a Class III growth pattern appeared to be prognostic factors for treatment stability.

Discussion:

Most previous studies assessed the immediate effects of various RME devices and rarely assessed the long-term effects and treatment stability. The findings of this longitudinal RCT revealed that palatal volume, palatal surface area, and palatal projection area followed the same pattern within and between groups up to 5 years after expansion and did not show any statistically significant differences between groups. The decrease in

palatal surface and projection area in both groups during the 5-year follow-up coincided with some moderate relapse by a magnitude of about 5% and 13%, respectively. The palatal volume increase of approximately 6% in both groups during the 5-year follow-up period could logically be attributed to the slight growth and enlargement of palatal volume in patients aged 9 to 14 years in both groups.

Relapse occurred in about 15% of the patients and was unrelated to the design of the RME device. It appeared that open-bite and a Class III growth pattern could be regarded as prognosis-decreasing factors in terms of treatment stability. By chance, five patients with an open bite or a Class III growth pattern were assigned to the TBB group.

Even with a stringent randomization procedure, this could occur. Excluding these five patients with an abnormal growth pattern, the incidence of relapse was very low and evenly distributed across the groups. Despite adequate occlusal outcomes after expansion, two patients, one from each group, relapsed. The causes of relapse in these two patients were obscure.

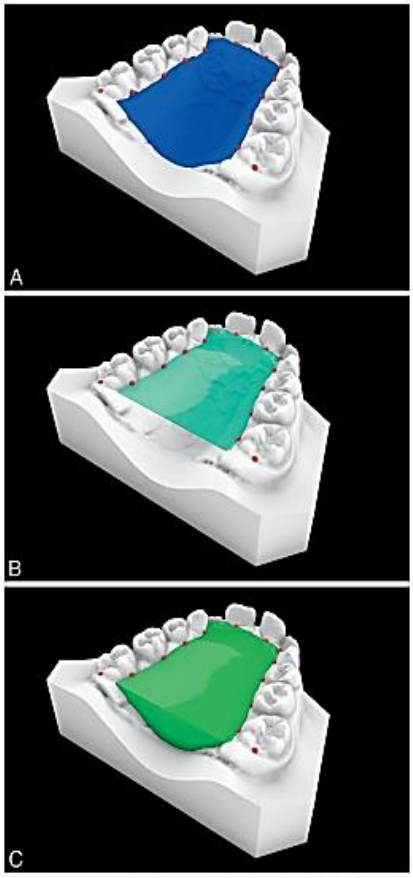

Figure 1. (A) Palatal surface area. (B) Palatal projection plane. (C) Palatal volume.

An earlier study with the same population as the current report found no clinically significant differences in skeletal and dental expansion, alveolar bending, and molar tipping between patients treated with TB-RME and TBB-RME designs in the early mixed dentition. The midpalatal suture was not used in these young patients, and maxillary complex expansion appeared to respond equally well in both groups. As a result, the use of a hybrid RME in children under the age of 10 may not be justified. The hybrid design is also slightly more expensive than the conventional TB design13, and in a cost-benefit context, it appears to be wiser to use the TB device due to the groups' similar immediate and long-term outcomes. [4]

Conclusion:

Changes in palatal volume, palatal surface area, and palatal projection area within and between groups followed the same pattern and did not show any statistically significant differences between groups up to 5 years after expansion. Relapse occurred in about 15% of the patients and was unrelated to the design of the RME device. It appears that open-bite and a Class III growth pattern could be regarded as prognosis-decreasing factors in terms of treatment stability. It appears to be also wiser to use the TB device in children with posterior crossbite in the early mixed dentition due to the groups' similar immediate and long-term outcomes

There were no significant differences in palatal volume, palatal shell area, or palatal projection area between the TB and TBB groups immediately after expansion, or at 1 year and 5 years after expansion, implying that the two devices produced the same immediate and long-term results.

Reference:

1. Malmvind D, Golež A, Magnuson A, Ovsenik M, Bazargani F. Three-dimensional assessment of palatal area changes after posterior crossbite correction with tooth-borne and tooth bone–borne rapid maxillary expansion: A randomized controlled trial with 5-year follow-up. The Angle Orthodontist. 2022 Sep;92(5):589-97.
2. Quinzi V, Rossi O, Paglia L, Marzo G, Caprioglio A. Paediatric Orthodontics Part 2: Periodontal effects of maxillary expansion.
3. Benn DK, Vig PS. Estimation of x-ray radiation related cancers in US dental offices: Is it worth the risk?. Oral surgery, oral medicine, oral pathology and oral radiology. 2021 Nov 1;132(5):597-608.
4. Bazargani F, Lund H, Magnuson A, Ludwig B. Skeletal and dentoalveolar effects using tooth-borne and tooth-bone-borne RME appliances: a randomized controlled trial with 1-year follow-up. European Journal of Orthodontics. 2021 Jun;43(3):245-53.

A retrospective cross-sectional study of the assessment and aesthetic impact of a long-term vertical discrepancy between a single anterior maxillary implant-supported crown and adjacent teeth.

Introduction:
An implant-supported crown is frequently used to replace a missing anterior maxillary permanent tooth in adults. Because of the infraocclusion that occurs at the implant site due to the vertical development of the alveolar process and the continuous eruption of the adjacent teeth, this treatment is not recommended for growing patients. [1] The amount of continuous eruption may be controlled by facial morphology and intraocclusal forces. [2] Despite the large number of implants placed over the last three decades, many of them as single implants in the anterior maxillary region, the impact of vertical discrepancy on patients' aesthetic perception of their smile some years after implant placement has not been reported. The purpose of this retrospective observational study was to quantify the vertical disparity between implant supported crowns and adjacent teeth in the anterior region in patients who had been treated for at least 8 years. The aesthetic impact of this discrepancy was also assessed, as was the patients' awareness of the situation.

Methods:
The study included 23 adults who had been evaluated at least 8 years after receiving an implantsupported central or lateral single toothfixed partial denture. Patients received their crowns at an average age of 47.8 years (range: 18.9–65.8). By comparing initial and followup periapical radiographs with the implant as a stable structure, the vertical discrepancy was calculated. A questionnaire was used to assess the patients' satisfaction with their anterior teeth condition and awareness of the potential vertical problem. The objective measurement of the vertical discrepancy was related to the aesthetic outcome and patient awareness.

Results:
The implant had a 0.62 mm mean infraocclusion (range: 0.15–1.63 mm). The vertical disparity was unrelated to the patient's gender, age at implant placement, or time between the initial and recall radiographs. Patients were generally pleased with their smile's longterm aesthetic outcome (mean: 3.9 on a 1-5 scale, 1 unsatisfied, and 5 completely satisfied). Eight of the 23 patients noticed the implant infraocclusion, and four of them considered the problem severe enough to want to improve the situation. The amount of vertical disparity was unrelated to the patient's perception of the disparity or the pink aesthetic score.

Discussion:
The current study found that all patients enrolled in the study and followed for an average of 12.5 years had a vertical discrepancy between the implant-supported crown and adjacent teeth in the maxillary anterior region. The average value of this difference was 0.62 mm, with a wide range between individuals (0.15–1.63 mm). The findings are consistent with the results of another study, which calculated a mean implant infraposition of 0.58 mm (range: 0.33–0.85 mm). [3]

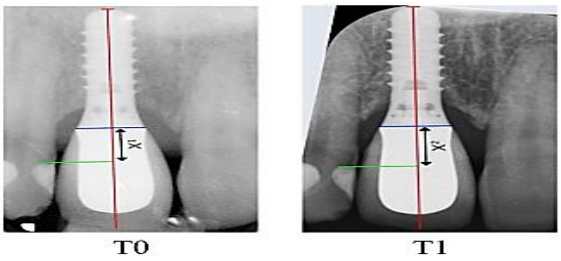

FIGURE 1 Radiograph taken at prosthesis placement (reference T0) and at the long-term control (T1). The implant length was measured on each radiograph and compared to that given by the manufacturer for internal calibration. Reproducible landmark (green) on the adjacent teeth was selected on T0 and T1 radiographs. The projection of the T0 landmark (green) on the long axis of the implant only (red) and not the crown established the baseline distance X1. The same measurement was made on the T1 image. X2 was then subtracted to X1 to determine the amount of vertical discrepancy between T0 and T1.

FIGURE 2 Female patient with a single implant-supported crown replacing the 21 with an important vertical discrepancy (0.9 mm) after an 11-year follow-up who is fully satisfied with the aesthetic outcome of the treatment and did not perceive any changes during time.

The age of the patients at implant placement was not associated with the severity of the infraocclusion in this study. A previously published study found a difference in the severity of the infraocclusion between a young (30 year) group and a more mature group (>30 year), but the measurements were done solely on the final photographs and were not measured on the absolute vertical discrepancy but evaluated as a percentage of the crown size. Individuals with anterior upper region implants were generally pleased with the treatment outcome at the long-term follow-up. Despite the replaced tooth, the majority of them were satisfied with the long term result (Q1, mean: 3.9) and thought their smile was aesthetically pleasing in comparison to the general population.

Surprisingly, the measured magnitude of the vertical disparity was not related to the perception of a less attractive smile. These outcomes are consistent with recent findings from a study that discovered no VAS score differences between groups of patients with severe Infraposition can be severe (>1 mm) or mild (1 mm). [2]

The patient had a large vertical discrepancy (0.9 mm) and was unaware of the problem, whereas other subjects with less vertical discrepancy were unhappy with their situation. Because the problem evolves gradually, changes may not be visible at first. When asked specifically if they had noticed vertical changes over time, 35% discovered that the vertical position of the anterior teeth had changed, and 17% desired to change this vertical mismatch. These findings are consistent with the findings of another study, which found very similar results (29% awareness and 18% of patients who could benefit from retreatment). [4]

The age at implant placement did not predict higher patient satisfaction or lower awareness of the vertical discrepancy in the current study. These findings contrast with those of, who discovered that older patients perceived the longterm outcomes of their implantsupported restorations more positively. [5] These findings may have been underpowered to detect similar findings.

Conclusion:

Infraocclusion was observed in all implantsupported crowns studied since a mean of 12.5 years after implant restoration. The average measured vertical discrepancy was 0.62 mm. Gender or location of the replaced anterior tooth had no effect on the amount of vertical discrepancy (central or lateral incisor). Furthermore, the age of the patients at the time of implant placement, as well as the time between initial and recall recordings, were not related to the severity of the infraocclusion. Despite the presence of an implantsupported crown in the anterior maxilla, the smile aesthetics were generally

satisfactory. A minority of patients (35%) had noticed the implant infraocclusion, and 17% thought the aesthetic defect was severe enough to warrant correction.

Longterm infraocclusion of implantsupported crowns in the anterior region is possible. The amount of vertical disparity was not affected by the patient's gender or age. Patients were generally pleased with the restoration's aesthetic outcome. The amount of vertical discrepancy, at least in the range we measured, was not perceived as a complication by the patients.

Reference:

1. Sauvin G, Nurdin N, Bischof M, Kiliaridis S. Assessment and aesthetic impact of a long-term vertical discrepancy between the single anterior maxillary implant-supported crown and adjacent teeth: A retrospective cross-sectional study. Clinical and experimental dental research. 2022 Aug 27.
2. Winitsky N, Naimi-Akbar A, Nedelcu R, Jemt T, Smedberg JI. 3-D tooth movement adjacent to single anterior implants and esthetic outcome. A 14-to 20-year follow-up study. Clinical Oral Implants Research. 2021 Nov;32(11):1328-40.
3. Papageorgiou SN, Eliades T, Hämmerle CH. Frequency of infraposition and missing contact points in implant-supported restorations within natural dentitions over time: A systematic review with meta-analysis. Clinical oral implants research. 2018 Oct;29:309-25.
4. Cocchetto R, Pradies G, Celletti R, Canullo L. Continuous craniofacial growth in adult patients treated with dental implants in the anterior maxilla. Clinical implant dentistry and related research. 2019 Aug;21(4):627-34.
5. Huanca Ghislanzoni L, Jonasson G, Kiliaridis S. Continuous eruption of maxillary teeth and changes in clinical crown length: A 10-year longitudinal study in adult women. Clinical implant dentistry and related research. 2017 Dec;19(6):1082-9.

A Rare Case of Mandibular Third Molar Concrescence and Supernumerary Fourth Molar

Introduction:

Developmental tooth abnormalities are caused by abnormal gene regulation from ectodermal and mesenchymal tissues. They are broadly classified morphologically as gemination, fusion, concrescence, syndontia, and double teeth. [1] A previous study discovered that tooth development is dependent on the interaction between the dental epithelium and the underlying ectomesenchyme for depth profiling phenotypes for these abnormalities. [2] In clinical applications, it is critical to establish a normative diagnosis so that appropriate treatment can be provided as soon as possible. This case reported a rare presentation in which concrescence was observed in a third molar and a supernumerary fourth molar of the mandible, and it will provide a kind of standardised diagnosis code and acceptable therapeutic strategy through appropriate treatment.

Case Report:

A 21-year-old man extracted his right upper wisdom tooth in another hospital a year ago and discovered his third molar combination with fourth molar in the left mandibular after a cone-beam computed tomography diagnosis (CBCT). He presented to the Department of Oral and Maxillofacial Surgery complaining of pain when chewing with the lower left posterior tooth. His medical history revealed no serious health issues or traumas. His family members stated that they had no dental problems. Intraoral examination revealed gingivitis and a class I molar relationship. There was no evidence of wisdom teeth eruption, bleeding, or purulent secretion in the mouth.

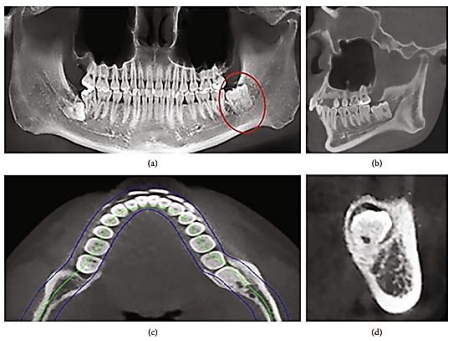

Figure 1: Preoperative CBCT examination. (a) A fourth molar in the mandible left third molar distal; (b–d) the relationship between roots and mandibular canal in coronal, transversal, and sagittal planes

Teeth 38# and 39# were vertical median impaction in the left mandibular region, with a concrescence between an impacted third molar and a supernumerary fourth molar (Figure 1). They shared a similar shape but a self-governed root canal system. Furthermore, tooth 48# was impacted at the horizontal-low level (Figure 1). Based on the patient's general condition and CBCT examination, a comprehensive assessment of the risk of surgery was performed. The assessment criteria were based on the Chinese Stomatological Association's assessment of the risk factors for lower

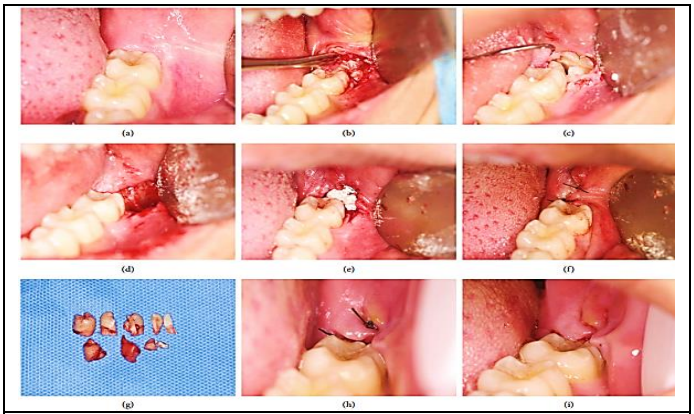

Figure 2: Surgery process and follow-up. (a) No wisdom teeth erupting, bleeding, or purulent secretion in the mouth. (b–f) Teeth extraction and alveolar reconstruction. (g) The fragment of teeth. (h, i) Removed stitches without severe complication and the defect of the alveolar socket healed well.

alveolar nerve injury associated with mandibular third molar extraction.

The temporary inferior alveolar nerve injury (IANI) score of the patient was divided into four levels, permanent IANI was scored as four points, and the surgical risk of this case was classified as high. During surgery, a gingival sulcus incision was made from the mesial side of the mandibular second molar near the buccal tip to the mesial surface of the mandibular second molar near the buccal tip, and then the incision was extended 45° obliquely to the mandibular ramus, which helped to reduce postoperative swelling and pain and thus aided postoperative recovery.

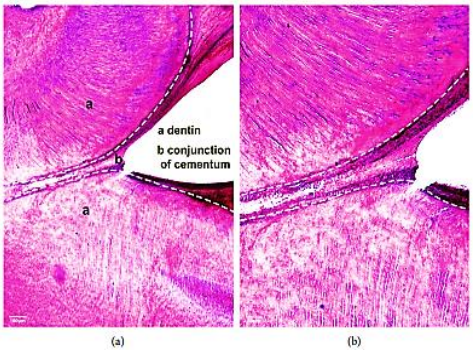

Figure 3: Photomicrographs of histological sections stained with the hematoxylin–eosine stain exhibiting the point of cementum fusion, revealing a real concrescence. Images obtained using (a) a 10x microscope and (b) a 20x microscope

A mucoperiosteal flap was prepared and raised before performing ostectomy and odontomy with a handpiece (Figure S1) and sterile saline irrigation. Third and fourth molars were extracted. The procedure went off without a hitch, with only minor bleeding and no exposure of the inferior alveolar nerve. The sutures were removed after 7 days with no complications. The above-mentioned envelope flap incision design significantly reduced postoperative swelling. One week after the operation, we could see soft tissue coverage of the 37# distal gingival without obvious swelling in the intraoral photograph.

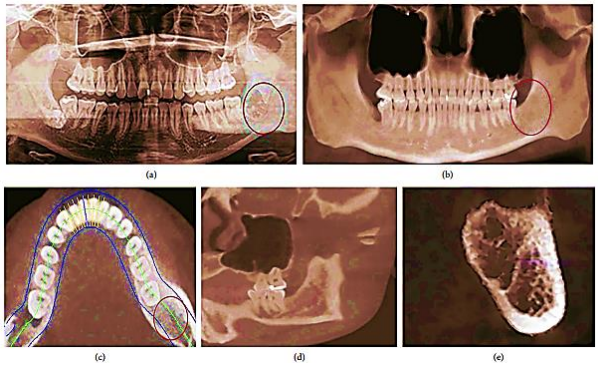

Figure 4: (a) Immediate postoperative panoramic examination showed the empty tooth socket; (b) after six months, CBCT examination showed good bone formation, and the alveolar bone healed well. (c) Transverse section shows increased bone density in empty alveolar bone; (d, e) Coronal and sagittal plane shows increased height of the alveolar bone.

Oral clinical examination revealed no numbness, paresthesia, pain, or loss of touch in the left lower lip or jaw. In addition, there is no numbness in the ipsilateral half tongue. To determine which odontogenic tissues were involved in the affected teeth, histological sections were used. Histological examination revealed cementum fusion between the mandibular third molar and supernumerary fourth molar, which is indicative of concrescence (Figure 3). After 6 months, there was no swelling in the distal mucosa of the 37#, and the distal periodontal attachment of the 37# was in good condition. A CBCT scan revealed increased bone density (Figure 4).

Discussion:

Concrescence can occur during the formation of the root or after the radicular phase of development is complete. Different degrees of union of cementum, dentine, and enamel are possible at different stages of tooth development, and the cause of tooth development abnormalities is hyperactivity of odontogenic epithelium; failure of the process of degeneration of the residual dental lamina cells leads to further reaction and over-proliferation, eventually resulting in supernumerary teeth. [3]

Concrescence is a type of fusion in which the union is in the cementum alone without confluence of the underlying dentine. Teeth fusion is a condition in which two separate tooth buds have a joined crown that resembles a bifid crown. In this case, a CBCT radiograph revealed that the roots of 38# and 39# appeared to be connected, but their

dentin was separated and their root canal system was independent. Histological examination revealed cementum fusion between the mandibular third and supernumerary fourth molars. In conclusion, concrescence of teeth (38# and 39#) was identified. The distal of 37# was found to have minor bone defects. According to these findings, a surgical treatment option for tooth concrescence was provided. [4]

Conclusion:

In this case, the impacted teeth occasionally caused pericoronitis and may have caused absorption and destruction of the distal neck bone in 37#. Furthermore, the patient had a subjective willingness to be extracted. To preserve the bone in the distal second molar, we extracted the 38# with 39# and reconstructed the alveolar with artificial bone material. Six months after treatment, the defected alveolar socket appeared well-healed on CBCT. Rare case reports of successful surgical division of concrescent teeth, or selected shaping with or without placement of full crowns, have been published in the literature. This case report is unusual in the mandible in that concrescence was observed between a third molar and a supernumerary fourth molar with space-occupying bone filling materials, restoring the massive bone defect after extraction, and it will serve as a reference for the management of similar cases of supernumerary fourth molars.

This case report described a rare presentation in which concrescence was observed in the mandible between a third and a supernumerary fourth molar, which was diagnosed using cone-beam CT and histological examination.

Reference:

1. Wang J, Wang E, Yang X, Yuan L, Li Z, Zhang J, Zhang B. A Rare Case of Concrescence of Mandibular Third Molar and Supernumerary Fourth Molar. Case Reports in Dentistry.;2022.
2. Nakamura T, Jimenez-Rojo L, Koyama E, Pacifici M, de Vega S, Iwamoto M, Fukumoto S, Unda F, Yamada Y. Epiprofin regulates enamel formation and tooth morphogenesis by controlling epithelial-mesenchymal interactions during tooth development. Journal of Bone and Mineral Research. 2017 Mar;32(3):601-10.
3. Y. Wu, Y. Ke, C. Siyu, H. Nengwen, and W. Liao, "Supernumerar teeth and its theranostics," International Journal of Stomatology,2020; 47(3):311–317
4. Kumar S, Sharma VK, Gupta P, Chaturvedi TP. Management of non-syndromic multiple impacted supernumerary teeth: a rare case report. Indian Journal of Scientific Research. 2018;8(2):165-8.