

the vector. One distraction rod fractured but without negative consequences. To correct the oblique plane of occlusion it is desirable to create a posterior vertical open bite on the distraction side. This occurred only in one patient. We consider it necessary to place an orthodontic bite block on the other side either pre- or post-operatively to cant the occlusal plane. The follow-up was too short to draw conclusions about the future requirement for bimaxillary osteotomies.

O.091 Changes in the condyle and disc in response to distraction osteogenesis of the minipig mandible

P. Thurmüller¹, M.J. Troulis², A. Rosenberg³, L.B. Kaban².
¹Department of Oral and Maxillofacial Plastic Surgery, Knappschaftskrankenhaus Ruhr University, Bochum, Germany;
²Department of Oral and Maxillofacial Surgery, Massachusetts General Hospital, Harvard School of Dental Medicine, Boston, MA, USA; ³Department of Pathology, Massachusetts General Hospital, Harvard School of Dental Medicine, and Harvard Medical School, Boston, MA 02114, USA

Introduction: Distraction osteogenesis (DO) is a commonly used technique for mandibular lengthening, but changes in the temporomandibular joint have not been well documented. The purpose of this study was to evaluate the effect of DO, at varying rates, on the mandibular condyle and articular disc.

Material and Methods: Semiburied distractors were placed via submandibular incisions in 15 minipigs. Two unoperated animals served as controls. The protocol consisted of 0 day latency and rates of 1, 2, or 4 mm/d for a 12-mm gap. After the animals were killed (0, 24, or 90 days), ipsilateral and contralateral condyles and discs were harvested and evaluated to determine changes in (1) condylar form and size, (2) condylar surface, and (3) the articular disc. Gross changes were correlated with histologic findings.

Results: Articular surfaces of the condyles in control animals were smooth, with no degenerative changes. In animals undergoing distraction, ipsilateral condyles showed increasing changes in morphology and AP dimension, and also in surface contour irregularities as the DO rate increased. These changes were present, but to a lesser degree, in the contralateral condyles. Articular discs of both ipsilateral and contralateral sides showed variable thinning at the medial aspect at end DO. After 90 days, changes in the condyles and discs were reduced by remodelling except in the 4 mm/d DO groups.

Conclusions: Results of this preliminary study indicates that morphologic changes occur in condyles and discs after unilateral mandibular DO. These changes are more severe at faster distraction rates (4 mm/d) and tend to resolve during neutral fixation when a rate of 1 mm/d is used.

O.092 Preliminary report of a new bone born transversal distractor of the maxilla (Smile®)

G. Van Hemelen, D. Simon, J. Defrancq, N. Nadjmi. *Department of Cranio-Maxillo-Facial Surgery, Eeuwfeestkliniek, Antwerp, Belgium*

Introduction and Objectives: We present a new bone-born maxillary distraction device.

Materials and Methods: The distractor we present has been given the name 'Smile Distractor'. The distractor set comes in five different lengths. Two additional small distractors are included in the set for exceptionally narrow palatal vaults.

Results: From August 2003 till December 2005, the Smile Distractor was placed in 42 consecutive patients by two surgeons with no or minor complications. The Smile Distractor is housed on the palate for at least 4 months but preferably 6 months. Gradually the "teething troubles" of surgery, device and material were eliminated and the design and instruments were refined. Since 2005, we can present the device as fully matured with no hidden problems.

The preliminary report of a prospective study is discussed, concerning the bone-anchorage system of the distractor.

Conclusion: The Smile Distractor is simple in design, small in dimension, safe and reliable in use.

It is hygienic and universal in its application. A palate as narrow as 12 mm – bone to bone – can receive it, as well as flat wide cleft palates. The Smile Distractor has a bone-based design with no need for bone screw fixation.

It is easy to apply, to activate twice daily and to remove. Most important there is an excellent patient compliance referring to hygiene and comfort.

O.092bis Endoscopic treatment of condylar fractures of the mandible – Evolution in treatment

G.M. Liberatore, F. Delitala, F. Guidetti, G. Zorzan. *Azienda Ospedaliera Universitaria Pisana, U.O. Chirurgia Maxillo-Facciale – dir. Dott. Giampaolo Ubiglia, Via Paradisa, 2, Cisanello, 56124 Pisa, Italy*

Introduction: the authors in this paper would like to demonstrate a new surgical technique for the reduction and rigid fixation of subcondylar fractures of the mandible. According to literature this type of fractures would need an external open approach and internal rigid fixation. Surgical approach is indicated especially in those cases in which a severe dislocation of the condyle is evident or for comminuted fractures.

Materials and Methods: from 2003 in our Unit of Maxillo-Facial surgery of the Hospital of Pisa we introduced a new surgical technique for the reduction and the "external fixation" for subcondylar fractures in 20 patients. We decided to join together an endoscopic intraoral approach and the use of an external fixator. We used angled endoscopes 45 and 70 with also the aid of angled instruments used for Functional Endoscopy of Paranasal Sinuses (F.E.S.S.) and Xenon light.

Discussion: closed treatments of dislocated condylar fracture may lead to unsatisfying results and a limited function of the TMJ because of shortening of the ascending ramus, producing open bite deformity or malocclusion. The indication for open or closed reduction of dislocation condylar fracture is controversial in our field because open reduction may cause damage of the facial nerve and visible scar. Minimally invasive endoscopic procedures have been described for various indications in maxillo-facial surgery. In all our series of 20 patients the anatomic reduction and post-operative function were satisfactory in 17 cases. In three cases this result was not achieved due to the delay of time between the accident and the surgery (more than 15 days) and the dislocation of the condyle was more than 90 degree.

Conclusion: With the introduction of the intraoral endoscopic technique described in adjunction to the use of an external fixator we were able to minimize the risk of complications, perform an early mobilization of the TMJ and avoid the use of maxillo-mandibular fixation. Intensive training in endoscopic techniques and handling of the instruments is mandatory before the transoral approach for treatment of condylar fracture is performed.