MANDIBULAR DISTRACION OSTEOGENESIS OF DENTOFACIAL GROWTH ABNORMALITIES CAUSED BY JUVENILE IDIOPATHIC ARTHRITIS

P. Frid1, T.Brox1*, K.Sandvik2, M.Schultz2, Mats Larsson2, T.K.Pedersen3,4, E.Nordal5, S.Hellem6, S.E.Nørholt3

1Department of Otorhinolaryngology and Division of Oral and Maxillofacial Surgery, University Hospital North Norway and Public Dental Service Competence Centre of Northern Norway and Department of Clinical Medicine, Faculty of Health Sciences, University of Tromso, Norway, 2 Section of Orthodontics, Public Dental Service Competence Centre of Northern Norway, 3Department of Oral and Maxillofacial Surgery, Aarhus University Hospital, Denmark, 4 Section of Orthodontics, Aarhus University, 5Department of clinical medicine (IKM) and Department of Pediatrics, University Hospital North-Norway, 6Department of clinical dentistry, University of Bergen

**Background:** Juvenile Idiopathic Arthritis (JIA) is the most common rheumatic disease in childhood. This chronic arthritis of unknown origin with onset <16 years of age has a reported yearly incidence of 22 per 100 000 children in Northern Norway. Temporomandibular joint (TMJ) arthritis occurs in up to 80% of children with JIA and may lead to reduced mouth opening, pain and dentofacial growth abnormalities. In some patients, there is a need for surgical jaw correction.

**Aims:** 1, To describe patients treated for mandibular micrognathia using the distraction osteogenesis modality at our center 2, To assess treatment results in terms of stability and function.

**Material and methods:** This is a retrospective case-series of patients who underwent mandibular distraction osteogenesis due to micrognathia at the University Hospital of North-Norway and Public Dental Service Competence Centre of North-Norway in the period of 2010-2016. Two patients had an established diagnosis of JIA, while four were diagnosed to have JIA based on the clinical history, examination, and imaging indicating previous TMJ arthritis, according to the International League of Associations for Rheumatology (ILAR) criteria. Demographics and surgical procedures were collected from patient records after informed consent. Assessment of treatment stability and function were registered from cephalograms and patient records before surgery (T1), 3-6 months after surgery (T2) and at median 40 months (range 8-77 months) after surgery (T3).

**Results:** Of the six patients included, five were female and median age at time of surgery was 20 years (range 16-38 years). The surgical modalities applied for in these patients were at first stage surgery: bilateral ramus distraction osteogenesis (N=6). At second stage surgery: removal of distraction osteogenesis device together with genioplasty (N=6). At third stage surgery genioplasty (N=1), bimaxillary surgery (Le Fort 1 osteotomy and bilateral sagittal split osteotomy (N=1)). From T2 to T3 the SNB angle increased with mean 1.45 degrees, and vertical overbite decreased with mean 0.25mm. Max opening at T2 were mean 39.5mm and at T3 mean 42.5mm.

**Conclusion:** Mandibular distraction osteogenesis as a surgical treatment modality for correction of mandibular micrognathia among JIA patients in Tromsø, seems to be effective in terms of treatment stability and safe in terms of function.