



A New Method of Synchronous Distraction Osteogenesis of the Maxilla and Mandible

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초 록

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편측 왜소증의 얼굴을 상하악과 하악 모두 신장할 필요가 있는 경우 하악을 신장하여 상악도 신장시키는 방법을 최근 소개한 바 있으나 본 논문에서는 오히려 상악을 신장시킬 때 하악도 같이 신장시키는 방법을 개발하여 좋은 결과를 얻었다. 두 명의 편측안면 왜소증 환자에서 양악 동시에 골 신장술을 시행하였다. Ortiz Monasterio의 방법과 달리 상악은 구내 르포트씨 제일 골절단술을 시행하였고, 하악은 구내 시상분할 골 절단술을 이용하여 골신장시 저항을 최소한으로 줄이려 하였다. 편방향 구내 골 신장기와 스프린트를 이용하여 양악 골신장술을 시행하였다. 5일의 잠재기 후 매일 1mm의 골신장을 시행하였고 6주에서 8주간의 경화기를 둔 후, 골 신장기와 스프린트를 제거 하였다. 골신장 길이는 각각 13mm와 15mm이었고, 특이할 만한 부작용은 관찰되지 않았다. 이에 본 교실에서는 상악신장을 바탕으로 양악을 신장시키는 새로운 술식을 보고하는 바이다.

Keywords: distraction osteogenesis, maxilla, mandible

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Introduction

In the field of osteodistraction of the craniofacial skeleton, Synder et al (1973) were the first to introduce elongation of the mandible in a dog experimental model using external device. McCarthy (1992) et al introduced unilateral mandibular elongation in patients with hemifacial microsomia which is reported or mandibular hypoplasia. Molina

and Ortiz (1995) reported a series of cases of mandibular elongation using the corticotomy of the external surface of the mandible. Recently, Cohen (1999) introduced an intraoral distraction device to avoid external scarring. In hemifacial microsomia, the mandibular length elongation produces inevitable changes in dental occlusion. These occlusal changes can be quickly corrected orthodontically in children, but not in adults. To solve this problem, Ortiz

Monasterio et al (1997) introduced simultaneous distraction of the mandible and maxilla using an incomplete Le Fort I osteotomy on the maxilla.

In contrast to the Ortiz Monasterio's technique, we performed a complete Le Fort I osteotomy and Intraoral Vertico-Sagittal Ramus Osteotomy

Patients and Methods

Two patients with hemifacial microsomia were

treated by bimaxillary distraction osteogenesis in the Department of Oral and Maxillofacial Surgery of Seoul National University Hospital in 2002. A 7-year-old female with left hemifacial microsomia and 5-year-old male with right hemifacial microsomia. Ceph P-A/Lat, a panoramic view were taken preoperatively and postoperatively.

Distance from the horizontal plane at the level of the frontozygomatic suture, the zygomatic arch to the occlusal plane and length of the both ramus length

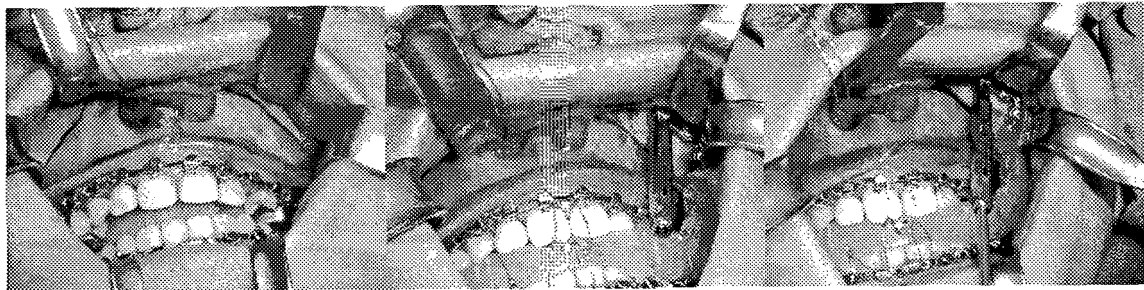


Fig.1 Complete Le Fort I osteotomy and distraction device application

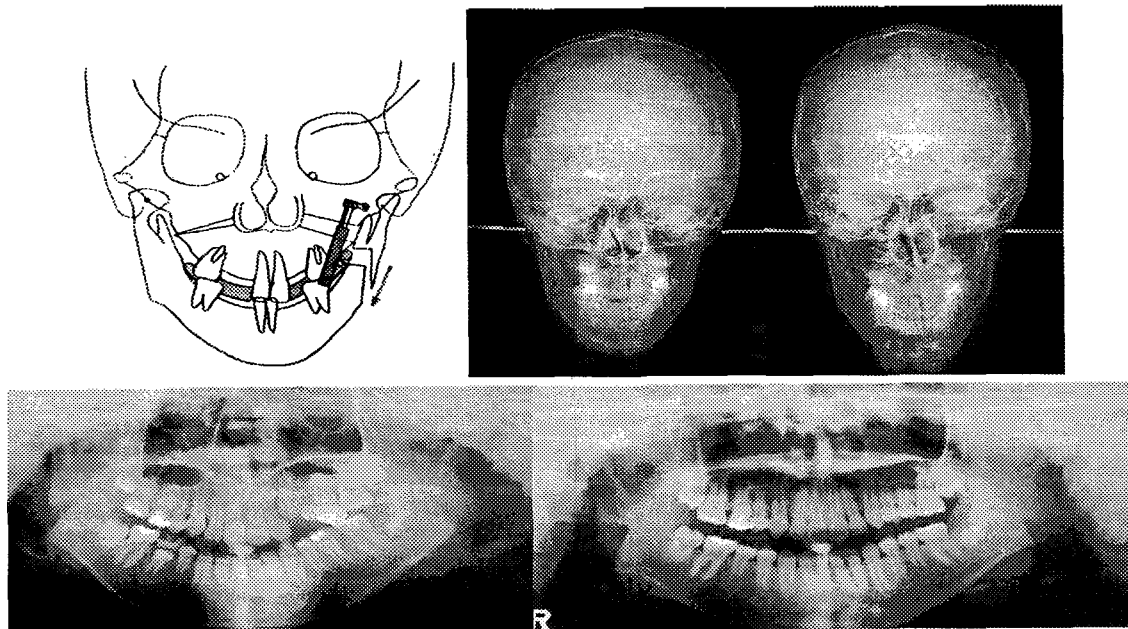


Fig.2 Case 1: 7-year old girl with left hemifacial microsomia



Fig. 3 Case 1

Right pictures are pre-op and left are post-op M-photo

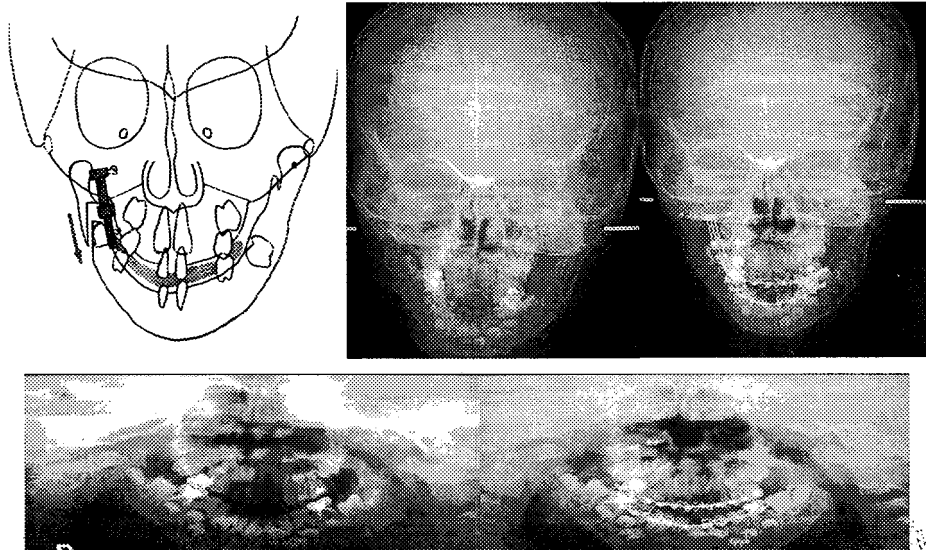


Fig. 4 Case 2: 5-year old boy with right hemifacial microsomia

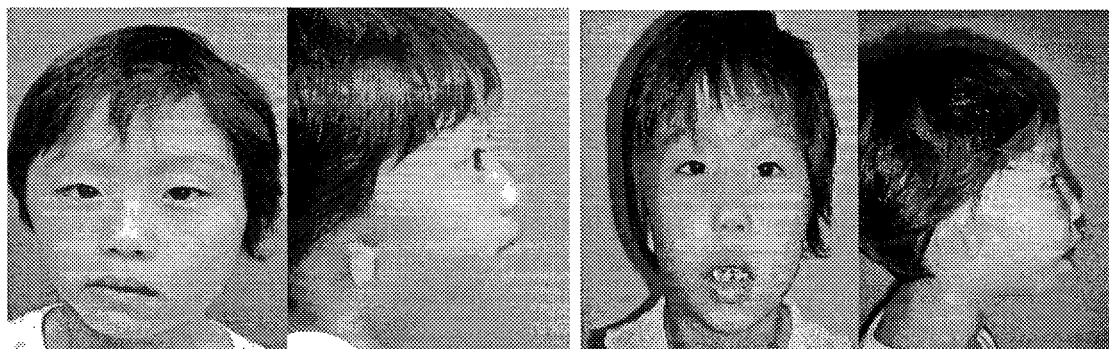


Fig. 5 Case 2

Right pictures are pre-op and left are post-op M-photo

and midline of maxilla and mandible were measured and recorded on the ceph PA. With a reciprocating saw, a complete horizontal osteotomy was made between the piriform aperture and the maxillary tuberosity and with curved chisel, both pterygomaxillary junction were freed. At mandible, Intraoral Vertico-Sagittal Ramus Osteotomy was done at affected area.

Intraoral unidirectional distraction device (Martin Co.) and surgical wafer were used to perform bimaxillary distraction. After a latent period of 5days, distraction was performed at a rate 1mm per day. After a consolidation period of 6-8 weeks, the wafer and distraction device were removed. The distraction distance(13 and 15mm) were obtained using one intraoral distraction device without complication.

Discussion

All the patients showed no complication, there was no infection, also any reoperation.

The patients with allogenic cranial bone grafting shows good initial stability, decrease of donor site morbidity and relapse tendency like autogenous bone grafting : The mean advancement was 4.97mm (SD 1.26) in group 1 and 5.03mm (SD 0.77) in group 2, as measured on the SN perpendicular line by IS. The mean relapse was 0.63mm (SD 0.43) in group 1 and 0.65mm (SD 0.35) in group 2 respectively. There was no statistical difference between both allogenic and

autogenic group by Mann-Whitney U test ($p = 0.907$). And more relapse in Le Fort I and II combined surgery was observed, which was estimated to relapse of Le Fort I osteotomy.

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