Outcomes and analysis when utilizing a minimal incision lefort III osteotomy and rigid external distraction on syndromic patients with obstructive sleep apnea

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Abstract:

Objectives: Lefort III distraction is an effective tool to address midface hypoplasia and obstructive sleep apnea in syndromic patients. Conventional osteotomies require extensive dissection and devascularization of the segments. This may affect stability, growth and lead to increased morbidity. The authors report a minimally invasive approach with transconjunctival osteotomies and external rigid distractors to minimize morbidity, improve stability and airway patency in a syndromic population.

Design: From 2004 to 2013, 12 syndromic patients with proven obstructive sleep apnea and failed conservative management underwent Lefort III osteotomies through extended transconjunctival and 1 cm vestibular incisions. Ages ranged from 3-15 yrs. Osteotomies were performed with the Sonopet Ultrasonic Aspirator (Stryker) and subsequent rigid external device (KLS-Martin) fixation. Distraction was performed at 2 mm a day and discontinued when airway was deemed improved by direct microlaryngoscopy. Linear bone movements were measured by weekly cephalographs.

Results: 2-D cephalometrics were used to assess pre-operative and post-operative midface movement up to 2 years following surgery. The average pre and post-operative posterior airway space (PAS) increase in distance is 8.99+ 5.4 mm (43.5 %). The average pre and post-operative menton to hyoid (Me-Hy) increase in distance was 19.72 + 9.8 mm (47.9%). The average SNA angle increase is 13.4 + 7.5 degrees post-distraction. Average blood loss was 295mL. Comparative outcome data will be presented regarding operative cost, ICU and overall hospital stay, blood loss, transfusion rates, decannulation rates and peri-operative complications.

Conclusion: Drawbacks of LeFort III distraction relate to extensive degloving during hardware placement and osteotomy. We developed a transconjunctival approach to address these issues utilizing ultrasonic osteotomy and limited dissection. Early outcomes appear to be superior to open procedures with improved stability and decreased morbidity.