TREATMENT OF ZYGOMATIC COMPLEX FRACTURES WITH STEINMANN PINS

Jonathan B. Salinas, M.D.; Darshni Vira, M.D.; David Hu, M.D.; Maie St John M.D., Ph.D.
Division of Head and Neck Surgery
Ronald Reagan - UCLA Medical Center

INTRODUCTION

The primary source of facial fractures in the United States is trauma. Motor vehicle accidents present a frequent mechanism for facial trauma resulting from midfacial fractures. We use the facial anatomy that allows for a complete understanding of the facial skeleton. There are cases in which the facial skeleton can be partially or completely absent from trauma. This is due to the significant changes in the perception of how a patient feels, interacts and is perceived by others. The aesthetic and functional outcomes of facial fractures are evaluated based on quality of life and the patient's perception of the results. The aim of this study is to evaluate the outcomes of patients with midfacial fractures, including the use of Steinmann pins for treatment.

METHODS AND MATERIALS

Case series. Charts for 23 consecutive patients with ZMC fractures presented to the Otolaryngology-HNS Department at Harbor-UCLA Medical Center from 2005 to 2009 were reviewed. Postoperative CT scans were analyzed for postoperative symmetry. Patients were separated into two groups; those treated with closed reduction and external fixation and those treated with open reduction and internal fixation. Postoperative CT scans were reviewed for evidence of rotational and transaxial deformities. Postoperative follow up ranged from three to six months. The whole patient was followed up to ensure patient satisfaction with aesthetic outcome and surgical complications.

RESULTS

Of the twenty-three patients, twelve patients had sufficient data for analysis. Average operative time for the Steinmann pin repairs ranged from 40 to 120 minutes (Table 2). Whereas the age of patients that underwent closed reduction ranged from 18 to 68 years (Table 1). The operative time of the ORIF repairs ranged from 62 to 313 minutes (Table 2). Average operative time was significantly lower for ORIF repairs versus Steinmann pin repairs (Table 3). Two-tailed t-test demonstrated a statistically significant result (p = 0.02). Additionally, only a single one-centimeter incision was required with the closed-repair system versus several incisions using traditional methods.

DISCUSSION

Analysis of the operative time indicates a significant reduction in the time required to perform the closed reduction and external fixation repair using a Steinmann pin technique as compared to the ORIF technique. The average operative time by approximately 60%, reducing exposure to general anesthesia. This is particularly helpful in geriatric patients with facial trauma.

REFERENCES


Figure 1. Postoperative photographs 9 months after ZMC fracture repair using ORIF and Steinmann Pin.

Figure 2. Frontal View. B: Right Oblique View. C: Basal View

Figure 3. Computerized tomography scans of patients in Figure 1. Scans show the postoperative changes (White Arrow) before (A) and after (B) the ZMC Repair using Steinmann Pin.