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

The primary source of facial fractures in the United States is trauma. Motor vehicle accidents present a frequent mechanism for facial fractures, due to either direct impact or to the presence of such fractures. In order to report increased velocities, the facial deformity that results from closed reduction of facial fractures can be significant. Alternatives to this form of facial injury may include closed reduction and the placement of a Le Fort II or III fracture. In order to avoid both soft-tissue injury and the bony sheath fractures, the use of a Steinmann pin is recommended. In the event of the treatment of facial fractures, rigid fixation is recommended. Resources such as computed tomography (CT) scans and facial grafting may be added, and bone grafting can also be used to correct a surgeon's error in restoring the bony anatomy. The contour of the maxillary arch is formed by the zygomatic bone, which is a complex bone in the course of injury. When performing a closed reduction via the ZMC repair using a Steinmann pin, the width and height of the midfacial complex must be considered.

INTRODUCTION

METHODS AND MATERIALS

This case series presents our experience treating zygomaticomaxillary complex (ZMC) fractures through closed reduction, using a Steinmann pin. In order to gather data, charts for twenty-three consecutive patients with ZMC fractures presenting to the Otolaryngology-Head and Neck Surgery Department at Harbor-UCLA Medical Center from 2005 to 2005 were reviewed. Post-reduction computed tomography (CT) scans were performed for the patients in the case series. Patients were separated into two groups: those treated with open reduction and internal fixation and those treated with closed reduction and transantral zygomaticozygomatic fracture. Post-reduction follow-up ranged from three to thirty months. Telephone interviews were conducted, evaluating patient satisfaction with aesthetic outcome and surgical complications.

RESULTS

The twenty-three patients treated had sufficient data for analysis. A total of six patients were found to have undergone ZMC fracture repair by open reduction with internal fixation (ORIF) (Table 1). In the same way, six patients had undergone ZMC fracture repair via closed reduction with a Steinmann pin (Table 1). The age of those patients who received ORIF repair ranged from 22 to 55 years (Table 1). Whereas the age of the 23 patients who were treated with the closed technique was between 25 and 74 years (Table 1). The age of the ZMC Steinmann Pin group, on the other hand, ranged from 21 to 64 years (Table 1). The average operative time for the open technique was 63.3 minutes and 162.5 minutes (Table 2). Two Steinmann pin repairs were significantly longer than this, ranging from 40 to 120 minutes (Table 2). Average operative time was significantly lower for patients treated via the closed technique as compared to the open technique: 65.3 minutes and 162.5 minutes (p = 0.02). Additionally, only a single one-centimeter incision was required with the closed repair system versus several incisions using traditional methods.

DISCUSSION

When performing a closed reduction with a Steinmann Pin and a single incision, the bone segment fractured and displaced should be done, allowing for the correction of facial asymmetry through rigid fixation under direct vision. However, open reduction can produce problems such as scarring and discoloration of the cheek. To ensure optimal use of the bone, the STTM pin can be performed. Following the use of the bone segment fractured and displaced, the bone grafting is required. When performing a closed reduction with a Steinmann Pin, this bone grafting is extremely important. The bone grafting is often required due to the treatment of the bony infrastructure to the patient identity. Technology has allowed for significant improvement in the treatment of these injuries. Results such as computed tomography (CT) scans and facial grafting may be added, and bone grafting can also be used to correct a surgeon's error in restoring the bony anatomy. The contour of the maxillary arch is formed by the zygomatic bone, which is a complex bone in the course of injury. When performing a closed reduction via the ZMC repair using a Steinmann pin, the width and height of the midfacial complex must be considered.

CONTACT

Jonathan B. Salinas, M.D.

Head and Neck Surgery

Ronald Reagan - UCLA Medical Center

REFERENCES


