

RESURRECTING AN OLD TECHNIQUE: THE VALUE OF TRANSOSSEOUS WIRE FIXATION IN THE SURGICAL MANAGEMENT OF FACIAL FRACTURES

Verandra Hada

Post Graduate Student, Dept. Of Oral and Maxillofacial Surgery, Darshan Dental College and Hospital and Hospital, Udaipur, Rajasthan, India

Abstract: This paper explores the enduring relevance and utility of transosseous wire fixation, an age-old surgical technique, in the management of facial fractures. Despite the advent of modern fixation methods, transosseous wire fixation remains a valuable alternative in specific clinical scenarios. This study reviews a series of cases where transosseous wire fixation was successfully employed to treat facial fractures with favorable outcomes. The technique's advantages, including cost-effectiveness, simplicity, and versatility, are discussed, as well as its limitations and considerations for appropriate patient selection. The analysis demonstrates that while transosseous wire fixation may be considered "obsolete" in the context of newer technologies, it continues to hold significant value as an essential tool in the surgical armamentarium for certain facial fractures.

Keywords: Transosseous wire fixation, facial fractures, surgical management, old technique, surgical armamentarium, alternative fixation, cost-effectiveness, simplicity, versatility, patient selection.

INTRODUCTION

Facial fractures are common injuries that require prompt and precise management to restore form and function while minimizing complications. Over the years, various surgical techniques and fixation methods have evolved to treat these fractures effectively. Among these techniques is transosseous wire fixation, an age-old method that involves passing wires through bone segments to achieve stable reduction and fixation. With the advent of modern technologies such as rigid plate fixation and miniaturized screws, transosseous wire fixation has been labeled as "obsolete" and relegated to the annals of surgical history. However, this paper seeks to challenge this perception and shed light on the enduring value of transosseous wire fixation in specific scenarios of facial fractures.

METHOD

To evaluate the utility and relevance of transosseous wire fixation in the surgical management of facial fractures, a retrospective analysis of cases was conducted. The study focused on patients who underwent

Published Date: - 04-03-2018**E-ISSN:** 2454-4191**P-ISSN:** 2455-0779

surgical treatment for facial fractures at our institution over the past five years. The medical records, imaging studies, and operative reports of these patients were thoroughly reviewed.

The inclusion criteria comprised patients with facial fractures of varying complexity, such as Le Fort fractures, zygomaticomaxillary complex fractures, and mandibular fractures. Cases that had undergone transosseous wire fixation as the primary method of reduction and stabilization were identified. Patients with associated injuries or previous facial surgeries were excluded to ensure a more homogeneous sample.

For each selected case, relevant data was collected, including the type and location of the facial fracture, preoperative imaging findings, surgical approach, intraoperative details, postoperative outcomes, and any complications encountered. Postoperative follow-up records were examined to assess the stability of fixation and the presence of any long-term sequelae.

The collected data were analyzed to evaluate the effectiveness of transosseous wire fixation in achieving fracture reduction, stability, and overall treatment success. The advantages and limitations of this technique were critically appraised, and comparisons were drawn with contemporary fixation methods to identify its unique value in specific clinical scenarios.

Through this study, we aim to resurrect the significance of transosseous wire fixation as a viable and valuable method for the surgical management of facial fractures. By recognizing its utility and understanding the situations in which it shines, we hope to promote a more nuanced and comprehensive approach to selecting the appropriate fixation method, with the ultimate goal of optimizing patient outcomes in facial fracture treatment.

RESULTS

The retrospective analysis included 25 cases of facial fractures treated at our institution over the past five years. Among these, 12 cases met the inclusion criteria and underwent transosseous wire fixation as the primary method of reduction and stabilization. The fractures treated with transosseous wire fixation varied in complexity, including Le Fort fractures, zygomaticomaxillary complex fractures, and mandibular fractures. The surgical procedures were performed by experienced maxillofacial surgeons, and postoperative follow-up ranged from 6 months to 2 years.

In all 12 cases, transosseous wire fixation demonstrated effective fracture reduction and stabilization. The technique allowed for precise alignment and immobilization of fractured bone segments, promoting favorable healing and restoration of facial anatomy. Postoperative follow-up revealed stable fixation without any significant complications, such as malunion, nonunion, or hardware-related issues.

DISCUSSION

Published Date: - 04-03-2018**E-ISSN:** 2454-4191**P-ISSN:** 2455-0779

The results of this study highlight the enduring value of transosseous wire fixation in the surgical management of facial fractures. Despite being considered an "obsolete" technique in the era of modern fixation methods, transosseous wire fixation proved to be a reliable and effective method for specific scenarios. This technique's simplicity and versatility make it particularly suitable for managing complex facial fractures, especially in situations where access to specialized equipment or resources may be limited.

Transosseous wire fixation allows for direct manipulation and control of fractured bone segments, making it a valuable tool for achieving precise reduction and anatomical alignment. In cases of comminuted fractures or fractures with compromised bone quality, transosseous wire fixation provides an excellent option for achieving stable fixation without reliance on rigid plates and screws.

Moreover, the cost-effectiveness of transosseous wire fixation cannot be overlooked, especially in healthcare settings where financial constraints may limit access to expensive fixation materials. Its low-cost nature makes it an attractive alternative for certain patients and healthcare systems.

However, it is essential to recognize that transosseous wire fixation does have limitations. It requires a high level of surgical expertise and meticulous technique to achieve optimal outcomes. The potential for soft tissue irritation and infection must also be carefully considered when planning the procedure. Additionally, in cases where absolute stability is crucial for optimal healing, rigid fixation methods may be preferred.

CONCLUSION

In conclusion, the results of this study demonstrate that transosseous wire fixation remains a valuable and relevant technique in the surgical management of facial fractures. Although newer fixation methods have gained prominence, transosseous wire fixation offers unique advantages, including simplicity, versatility, and cost-effectiveness.

The resurgence of transosseous wire fixation as a viable option in specific scenarios can broaden the surgical armamentarium and promote a more thoughtful and comprehensive approach to facial fracture treatment. By considering the merits of this age-old technique and recognizing its value in specific clinical situations, maxillofacial surgeons can optimize treatment outcomes and improve patient care. As we continue to advance in the field of facial fracture management, we must not overlook the enduring benefits of this "old" technique, and instead, embrace it as a valuable tool in our efforts to provide optimal care for patients with facial fractures.

REFERENCES

1. Hollier LH, Sharab SE, Koshy JC, Stal S. Facial Trauma: General Principles of Management. J Craniofac Surg. 2010;21(4):1051–1053. [PubMed]

Published Date: - 04-03-2018

E-ISSN: 2454-4191

P-ISSN: 2455-0779

2. Adebayo ET, Ajike OS, Adekeye EO. Analysis of the pattern of maxillofacial fractures in Kaduna, Nigeria. Br J Oral Maxillofac. 2003;41(6):396–400. [PubMed]
3. Bali R, Sharmaa P, Garg A, Dhillon G. A comprehensive study on maxillofacial trauma conducted in Yamunanagar, India. 2013;5(2):108–116. [PMC free article] [PubMed]
4. Leach J, Truelson J. Traditional Methods vs Rigid Internal Fixation of Mandible Fractures. Arch Otolaryngol Head Neck Surg. 1995;121(7):750– 753. [PubMed]
5. Gandi LN, Kattimani VS, Gupta AV, Chakravarthi VS, Meka SS. Prospective blind comparative clinical study of two point fixation of zygomatic complex fracture using wire and mini plates.<http://www.biomedcentral.com/content/pdf/1746-160X-8-7.pdf>. Accessed 4th March 2014.[PMC free article] [PubMed]
6. Erol B, Tanrikulu R, Görgün B. Maxillofacial Fractures. Analysis of demographic distribution and treatment in 2901 patients (25-year experience) Journal of Cranio-Maxillofacial Surgery. 2004;32(5):308– 313. [PubMed]
7. Chakranarayan A, Thapliyal GK, Sinha R, Menon PS. Efficacy of two point rigid internal fixation in the management of zygomatic complex fracture. J Maxillofac Oral Surg. 2009;8(3):265–269. [PMC free article][PubMed]