

Transfacial Reduction of an Isolated Zygomatic Arch Fracture with a Wire

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Introduction

Zygomatic bone is relatively small but structurally significant. It transmits the pressure applied to zygomatic region to three different areas the maxilla, the frontal, and the temporal bone. With the temporal bone it forms the arch. This is significant in maintaining the facial contour. Fracture of arch accounts for 5% of total facial fractures leads to insight appearance. The first description of a surgical reduction of a zygoma fracture by Duverney in 1751. Many approaches have been tried, and transoral approach was introduced by Keen, later modified by Goldthwaite and Quinn. These procedures have overcome the disadvantages like avoiding incision on face which lead to scar formation. In this article we describe a minimally invasive technique for reduction of mesially displaced zygomatic arch fracture with a stainless-steel wire.

Technique

The patient is draped fractured areas are outlined on the skin with a marker (Figure 1). The fractures site is identified by palpation. A 24-gauge stainless steel wire with (Figure 2) the curved awl is passed under the zygomatic arch from below, exiting through the skin above the arch (Figure 3). The wire is then passed under the fragment, pulled outside motion while the patient's head is positioned. The fragment is reduced in an appropriate position, followed by a click. Symmetry of the arch and the aesthetic result are checked. To avoid the relapse a finger splint is used, and the wire is wrapped around it. Finally, two circumferential wires are tied over a short piece of a finger splint on the skin over the fracture. The post operative radiograph has been taken to evaluate the fracture is reduced in normal position. The patient is advised not to apply any pressure on the fractured area. The wire and finger splint is removed after 3 weeks. A submento-vertex radiograph is then taken to check the position of fracture fragment.



Figure 1: The malar prominence, the arch and the corresponding fractured area outlined with a marking pen on the skin.



Figure 2: A 24-gauge stainless steel wire passed through the skin just below the zygomatic arch.



Figure 3: Wire is pulled to reduce zygoma.



Figure 4: A postoperative radiograph showing the proper position of the zygomatic arch.

The transfacial technique by stainless steel wire is quick, simple, and effective method in reduction of isolated, depressed fractures of the zygomatic arch. This method has no scar on face. However, excessive tension by the wire on face may lead to necrosis of skin, hence this must be avoided. There is no swelling of the overlying soft tissue, and there is little or no risk of infection or neurovascular injury. this technique is indicated for isolated fractures of the zygomatic arch. But may also be used for comminuted fractures.

The surgeon can move the wires laterally and medially to obtain a satisfactory position. It is most effective method if it is done in 4 or 5 days of the injury, either in local anesthesia, with or without sedation, in the emergency department or clinic. It provides excellent reduction with fewer complications than other techniques [1-4].

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