



ISOLATED BILATERAL ZYGOMATIC ARCH FRACTURE; AN UNUSAL CASE

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ABSTRACT... Zygomatic fractures are the most common facial fractures or second in frequency after the nasal fractures. The high incidence of zygomatic fractures probably relates to its prominent position in the facial skeleton hence it is frequently exposed to fractures. This case report presents an isolated bilateral zygomatic arch fracture that was been reduced by Gille's temporal approach and stabilized using foley's balloon catheter. This study highlights the importance of early diagnosis and timely treatment to reduce the morbities.

Key words: Zygomatic arch fractures ,Zygoma, Stabilization techniques, Foley's balloon catheter

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INTRODUCTION

The zygoma plays an important role in facial contour since the shape of the face is influenced largely by the underlying osseous structure. Disruption of the zygomatic position has a great functional significance as it creates impairment of ocular and mandibular function. Therefore, the zygomatic injuries have to be properly diagnosed and adequately treated for both cosmetic and functional reasons¹.

Most frequently fractures of the zygomatic arch are the result of fractures of the entire zygomatic complex (ZMC). However, isolated bilateral fractures of the arches without other injuries do occur when a force is applied directly from the lateral aspect of the midface. Though the incidence varies, isolated zygomatic arch fractures constitute fewer than 10% of zygomatic injuries. The necessity for treatment of these injuries is based on clinical detection of cosmetic or functional disturbances².

CASE REPORT

A 31-year-old male patient presented to Maxillofacial OPD with complaint of difficulty in opening the mouth after he met road traffic

accident. Patient remains admitted in peripheral hospital for 10 days due to head injury. According to the patient, he collided with another motorbike and was not wearing helmet at the time of accident. On examination, depressions were found on the right and left preauricular region. He had bruises on bilateral zygomatic arch area. Palpation over the zygomatic arch area bilaterally revealed step deformity and tenderness. Patient had restricted mouth opening and his inter incisal distance was found to be, <5 mm (fig-1).

The patient was subjected to routine investigations and radiographs like PNS view and submentovertex view (fig-2). A diagnosis of bilateral isolated zygomatic arch fracture were made based on clinical examination and radiographs.

The patient was operated under general anaesthesia. Reduction of the zygomatic arch fractures were done by Gille's temporal approach using Rowe's zygomatic elevator. Foley's catheters were placed extraorally, over temporo-zygomatic region (fig-3) and a marking was done on the Foley's catheter to know the depth of insertion. Now the catheters are inserted up to the

marking through the temporal incision so that it lies below the reduced zygomatic arch in the temporal space. The catheters were inflated using 5 ml of normal saline. The Foley's catheters were secured to the temporal regions with sutures and extra oral wound dressings were given. After 1 week, the catheters were deflated and removed. The temporal skin incisions were closed with sutures. Postoperatively mouth opening was >35mm (fig-4). Patient was advised and demonstrated for mouth exercise with wooden spatula for 15 days and review after 02 month. There was excellent mouth opening.

DISCUSSION

Zygoma is the second most common site of facial bone fracture. The vast majority of zygomatic fractures occur in men in their third decade of life. The incidence of isolated bilateral zygomatic fractures has not been reported secondary to RTA apart from one such report of a bilateral zygomatic arch fracture. In 1994, Covington et al reviewed 259 patients with zygomatic fractures and found that zygomaticomaxillary complex fractures occurred in 78.8% of patients, isolated orbital rim fractures occurred in 10.8% of patients, and isolated arch fractures occurred in 10.4% of patients. Isolated arch fractures, 59.3% were



Fig-1.



Fig-3.



Fig-2.



Fig-4.

displaced or comminuted¹.

The exact mechanism of how bilateral zygomatic arch fractures alone occur after road traffic accident is difficult to explain but can be attributed to two separate impacts with two trajectories of forces occurring as the patient was thrown out of the vehicle². In our case, the right side was more displaced than the left, probably due to the fact that the first impact on the right was more forceful than the impact on the left. When bilateral fractures occur, it is more difficult to assess the symmetry of reduction, in contrast to unilateral fractures where an unaffected side may be used as a clinical guide for symmetry. It is always better to reduce and fix the side that is less displaced and then fix the more displaced fragment for better orientation and symmetry³. In this case, the occlusion was not disturbed, and there was no maxillary mobility of left maxillary fracture, whereas bilateral zygomatic arch fractures were seen. The factors to consider in reduction were to anatomically reduce the zygomatic arch for symmetry, function, and free movement of the condyles⁴.

Treatment of ZMC fractures requires utmost care as it has both cosmetic and functional significance. Isolated fractures of the zygomatic arch characteristically result in a V-shaped indentation of the lateral aspect of the face. There may be only one definite line of fracture, with bending or green stick fractures in two other areas to produce a W-type configuration of the arch and a V-shaped cosmetic deformity. Occasionally, three definite lines of fractures producing two free segments may occur⁵.

The most commonly practiced surgical technique in fractured zygomatic arch is indirect reduction without fixation. The indirect reduction is done through various approaches like Gille's temporal approach, upper buccal sulcus approach, and Keen's lateral coronoid approach. The need for stabilizing zygomatic arch fractures varies with the location of the injury, the number of fractures, and the displacement of the segments^{6,7}.

When considering a temporary support to the

reduced zygomatic arch, different types of materials have been used as external devices. The use of an acrylic plate tied over zygomatic arch, wooden tongue blade, tampons, silicone nasogastric tubes, extra skeletal pins and custom made splints etc., have been reported by various authors⁸. But when there is an associated depressed zygomatic arch fracture, the support is necessary from medio-lateral or postero-lateral aspect. To overcome this problem, Jarabak in 1959 introduced the Foley's catheter through oroantral approach and stabilized the zygomatic arch. Gutman et al. in 1965 reported the use of Foley catheter in the treatment of zygomatic bone fractures. Podoshin and Fradis popularized the procedure of using Foley's catheter below the zygomatic arch through the Gille's temporal approach. Maron and Glover reported the use of Foley's catheter in the treatment of tripod fractures⁹.

The technique of stabilization of the reduced zygomatic arch using Foley's catheter was followed in this case as it is simple and relatively easy with minimal or no complications¹⁰. Also, the armamentarium required for this technique, Foley's catheter are readily available¹¹. Undoubtedly, the patient had difficulty in mandibular movements during the initial postoperative period because of the placement of the catheter in the infra temporal fossa that prevented the coronoid to move freely. The only suspected complication in this technique is the chance of retrograde infection which can be avoided by following aseptic technique and use of good antibiotic regimen¹².

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