



Difficulty of Arch Reduction with Gillies Temporal Approach in a Coronoid Hyperplasia Case

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Abstract

Introduction Bilateral coronoid hyperplasia is an abnormal elongation of the mandibular coronoid process which is rare in occurrence and causes progressive but slow reduction in mouth opening. In case of reduction in zygomatic arch fracture by Gillies temporal approach, the presence of bilateral coronoid hyperplasia can be a possible factor for hindrance and improper reduction.

Material and methods We propose a technical note to overcome this hindrance caused by the coronoid hyperplasia and propose tips and tricks to successful reduction in zygomatic arch.

Results Adequate reduction in the zygomatic arch and pretrauma mouth opening was achieved.

Conclusion Manual repositioning of the mandible during Gillies temporal approach along with ultrasound guidance leads to a satisfactory outcome.

Keywords Coronoid Hyperplasia · Zygomatic Arch · Gillies Temporal Approach

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Coronoid hyperplasia was first described by Langenbeck in the year 1853 [1]. Mandibular coronoid process hyperplasia (CPH) is rare in occurrence and causes progressive but slow reduction of mouth opening [2]. It is defined as an abnormal elongation of the mandibular coronoid process consisting of histologically normal bone [2]. This causes impingement of the coronoid process on the body or arch of the zygomatic bone during mouth opening. Movements of hyperplastic coronoid process interfere with the medial or temporal surface of the zygomatic bone. With the progressive growth of the coronoid process the infratemporal space needed for rotation and translation of mandible is reduced that in turn reduces the ranges of mouth opening [3, 4]. The etiology of CPH is not completely clear. However, several factors have been attributed to temporalis muscle hyperactivity, trauma, hormonal factors, genetics, and familial factors [3].

A 32-year-old patient reported 4 days after a history of an alleged road traffic accident with reduced mouth opening of only 6 mm. Patient reported that prior to accident he used to open his mouth wide approximately three fingers breadth. Radiological investigation revealed isolated left-side zygomatic arch fracture with the bilateral elongated coronoid process. He was scheduled for a closed reduction of the arch by Gillies temporal approach under general anesthesia. A Rowe's modification of Bristow's elevator was placed between the superficial layer of deep temporal fascia and temporalis muscle and advanced to reach the medial surface of the arch. However, a lateral movement was elicited in the mandible. This was due to the fact the proper positioning of the elevator was hindered due to the enlarged coronoid process between the temporal bone and the arch. This was countered by lateralizing the mandible by one surgeon creating space medial to the zygomatic arch. Simultaneously the elevator repositioned by another

surgeon medial to the arch outward force was applied to reduce the arch with a click. The reduction was confirmed by USG. Mouth opening was assessed and found satisfactory. Postoperative mouth opening was assessed and found to be 32 mm.

In patients with coronoid hyperplasia, mouth opening is normally restricted. Thus, before treating a zygomatic arch fracture in such patient we must know of the patient's pretrauma mouth opening. This will help us to properly assess the mouth opening postoperatively. Therefore, in cases of zygomatic arch fracture in patients with coronoid hyperplasia, a modification by manually lateralizing the mandible to the contralateral/unaffected side in addition to the standard Gillies approach will help in the unhindered reduction of the arch.

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LEFT LATERAL VIEW



WORMS EYE VIEW



RIGHT LATERAL VIEW