Unilateral coronoid hyperplasia treated by coronoidectomy using a transzygomatic approach

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ABSTRACT

Coronoid hyperplasia is a rare disorder, which effectively is a mechanical problem associated with limited mouth opening. In some cases, enlarged coronoid pushes the zygoma forward causing facial asymmetry. This article looks at the case of a 15-year-old boy reporting in OPD of Government College of Dentistry, Indore, with chief complaint of facial asymmetry. Transzygomatic approach was taken to get proper access to the enlarged coronoid. Coronoidectomy was performed which significantly reduced facial asymmetry. Postoperative healing was uneventful and recurrence was not reported.

Key words: Coronoid hyperplasia, facial asymmetry, transzygomatic approach

INTRODUCTION

Coronoid hyperplasia is a rare condition which is macroscopically characterized by an increase in the dimensions of the coronoid process, resulting from an abnormal bony elongation of histologically normal bone. The most obvious clinical feature of this condition is reduced mouth opening associated with facial asymmetry. It generally occurs at puberty and continues over years. In addition to restricted opening, protrusion and lateral excursions may also be affected. The cause of restricted mandibular movement is widely accepted to be an impingement of elongated coronoid process to the posterior aspect of the zygomatic bone, or to the inside of the zygomatic arch, at the mouth opening. Unilateral coronoid hyperplasia is usually due to a trauma or a pathologic condition and is associated with facial asymmetry, more frequently seen in women with histologic chondromatous or neoplastic changes most similar to osteochondroma. However, others consider enlargement of the coronoid process to be a hyperplastic process rather than a true neoplasm. The primary clinical feature of coronoid enlargement is limitation of opening. Shira and Lister reported the appearance of bony enlargement of the zygoma on the affected side as demonstrated on a submentovertex radiograph. A thorough clinical history should include information about the onset and progression of pain and other subjective symptoms. In the case of coronoid hyperplasia, computed tomography (CT) is fundamental for a correct differential diagnosis. CT also allows surgical planning due to its accuracy to detect coronoid process volume and morphology. The following is a report of a case of unilateral coronoid enlargement with restricted opening as well as an obvious zygomatic asymmetry.

CASE REPORT

A 15-year-old male with no medical history of interest reported to the out-patient department of Government College of Dentistry, Indore, with the chief complaint of facial asymmetry [Figure 1].

The patient mentioned asymptomatic difficulty in opening his mouth. On examination, he was found to have a reduced mouth opening, with limited lateral and
protrusive jaw movements and no hypertrophy of the masseter muscles [Figure 2].

A CT scan was carried out with three-dimensional reconstruction (3D CT), showing unilateral hyperplasia of the coronoid process and contact between said process and the zygomatic arch, limiting mouth opening movement [Figures 3 and 4].

Due to massive anteroposterior extent of coronoid, transzygomatic approach was considered. A hemicoronal incision ending in a preauricular extension up to the lobule of the ear was made through the skin, subcutaneous tissue, and galea. In the temporal region, this incision was up to superficial layer of the temporal fascia. At the root of the zygomatic arch, the superficial layer of temporalis fascia was incised anterosuperiorly at a 45° angle. The periosteum was incised to expose the zygomatic arch [Figure 5].

Two plates were adapted, bridging the osteotomy site on the zygomatic arch. The arch was osteotomized, temporalis muscle was stripped off the coronoid, and the process exposed adequately. An osteotomy cut was taken on the coronoid and the enlarged coronoid stump was removed [Figure 6].

Zygomatic arch was repositioned in its proper anatomic position and fixation was performed with titanium plates [Figure 7].

The wound was then closed in layers. Postoperative healing was uneventful. The patient reported after 6 months with adequate mouth opening and marked reduction in facial asymmetry [Figures 8 and 9].

**DISCUSSION**

Elongation of the coronoid process of the mandible was described for the first time in 1853 by Von
Langenbeck in 1899, Jacob described a synovial joint formation between an elongated coronoid process and the homolateral zygomatic bone. Several approaches are advised by different authors for performing coronoidectomy, such as intraoral approach, submandibular approach, and coronal approach.

Since the coronoid was very large anteroposteriorly, we planned a transzygomatic approach.\cite{7}

It can be difficult to establish the best time to administer treatment in infants or preadolescents, although most authors agree that except in patients with very severe limitation of the mouth opening, it is best to perform the operation once the growth process has finished in order to avoid recurrence, deformity, or even restricted movement. Obtaining a satisfactory outcome will depend largely on proper postoperative rehabilitation. Active physiotherapy is to be commenced immediately after surgery and continued for at least 6 months for satisfactory results. Postoperative cases of limitation of mouth opening caused by fibrosis, secondary to incorrect reorganization of a hematoma at the site of operation, and even recurrence in the growth of the coronoid process have been described.\cite{8}
**CONCLUSION**

Coronoid process hyperplasia as one the causes of mandibular hypomobility is largely underdiagnosed as it is a very rare entity, but a thorough clinical and radiological examination can help to rationalize the line of management and the ultimate clinical outcome. A case of unilateral coronoid enlargement is presented here. In addition to limited mouth opening, facial asymmetry was also a clinical finding. In case of massive anteroposterior extension of the coronoid, coronoidectomy with transzygomatic approach followed by active immediate physiotherapy gives satisfactory results.

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