

Management of a case of osteoma of coronoid: A rare case report

ABSTRACT

Coronoid process osteoma is an extremely unusual and slow growing tumor which causes functional limitations of the temporomandibular joint. Till december 2014 only 7 cases have been reported worldwide. This case report is about a 40 year old male patient with osteoma of left coronoid process. Treatment plan constitutes of surgical resection of the mass and post operative physiotherapy.

Keywords: Coronoidectomy, osteoma, pseudoankylosis

INTRODUCTION

Extrinsic joint pathologies constitute one of the chief causes of restricted mandibular movements. Trauma, infection, ankylosis, and arthritis are few etiological factors that lead to progressive functional limitation of the temporomandibular joint. Coronoid process osteoma is an extremely unusual and slow-growing tumor that can lead to restriction of mandibular movements. The first case of compact osteoma of the coronoid process of mandible was reported by Lewars in 1959. Osteomas comprise histologically normal membranous bone varying from insignificant thickening to large masses affecting the skeletal system largely. They are predominantly restricted to the craniofacial skeleton,^[1] and the most common sites include the paranasal sinuses and the mandible. True osteomas of the jaws may arise centrally or subperiosteally or in a peripheral location and might be either cancellous or compact in nature.^[2,3] The cause of osteoma in the maxillofacial region is reported to be reactive bone hyperplasia or advanced bone ossification. Coronoid osteomas are largely asymptomatic and are nontender until their size and position incommodes with functioning. The present report describes one such case. Aspects dealing with the differential diagnosis, treatment, surgical access, possible complications, and outcomes have been elucidated. Until December 2014, only seven authors have described this rare entity in scientific literature [Table 1].

CASE REPORT

A 40-year-old male reported to us with a complaint of progressive restriction in mouth opening for 1 month. The restriction in mouth opening had gradually increased to the present state [Figure 1a]. There was no history of associated maxillofacial trauma, infections, or any surgical procedures. The patient presented with mild facial asymmetry toward the left with an accentuated prominence over the left malar region. Temporomandibular joint examination showed restriction of translatory and lateral excursive movements.

On intraoral examination, a tender, ill-defined bony mass could be palpated in the coronoid process of the ipsilateral side.

D. SAIKRISHNA, ASUTOSH DAS¹, CHHAYA JHA¹

Department of Oral and Maxillofacial Surgery, JSS Dental College and Hospital, Mysore, Karnataka, ¹Department of Oral and Maxillofacial Surgery, Kalinga Institute of Dental Sciences, Bhubaneswar, Odisha, India

Address for correspondence: Dr. Asutosh Das, Department of Oral and Maxillofacial Surgery, Kalinga Institute of Dental Sciences, Bhubaneswar, Odisha, India.
E-mail: asutoshd@gmail.com

Received: 26 October 2019, **Revised:** 08 May 2020, **Accepted:** 04 August 2020, **Published:** 15 July 2021

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Saikrishna D, Das A, Jha C. Management of a case of osteoma of coronoid: A rare case report. Natl J Maxillofac Surg 2021;12:276-9.


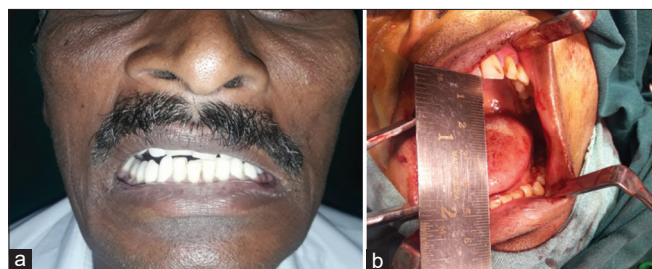
Access this article online	
Website: www.njms.in	Quick Response Code 
DOI: 10.4103/njms.NJMS_68_19	

Table 1: Courtesy: Table form of published cases on coronoid osteoma till date, da Costa Araújo et al.^[7]

Authors	Gender age (years)	Affected side	Clinical aspects	Mouth opening (before) (mm)	Mouth opening (after) (mm)	Image exams	Access type	Lesion dimension (cm)
Lewars, 1959	Male, 15	Right	Lockjaw, edema in zygomatic region	3	12	X ray Tomography	extraoral	3*1.25*1.5
Ord et al., 1983	Female, 40	Left	lockjaw, edema, paresthesia, fracture of zygomatic arch	Not mentioned	Not mentioned	X ray	Extraoral	4*3.5*2
Plezia, 1984	Female, 26	Right	lockjaw, edema	Not mentioned	Not mentioned	Xray	Intraoral	Not mentioned
Wesley et al., 1987	Female, 12	Bilateral	Garden's syndrome	12	32	X ray Tomography	Not mentioned	Not mentioned
Kurita et al., 1991	Female, 40	Right	lockjaw, edema, fracture of zygomatic arch	17	30	Tomography	Extraoral	5*3*2
Chen et al., 1998	Female, 28	Right	lockjaw	11	28	X ray Tomography	Extraoral	3*2*1.5
Vashishth et al., 2013	Female, 26	Not mentioned	Lockjaw, chewing difficulty, deviation on opening to the right side	20	35	X ray Tomography	Intraoral	2.5*3*3
Araujo et al., 2013	Female, 45	Right	Lockjaw, Fracture of zygomatic arch, edema	8	25	Tomography	Intra and Extraoral	3.5*4*2.5

**Figure 1: (a) Diminished preoperative mouth opening. (b) Intraoperative adequate mouth opening**

Noncontrast computed tomography (NCCT) face sections revealed a well-defined radiopaque lesion with a surrounding radiolucent rim, noted in relation to the lateral side of the left maxillary sinus and zygomatic buttress region [Figure 2a]. Sagittal section of the NCCT revealed an altered anatomy of the coronoid process having similar density to that of the normal bone with a radiopaque “horse head-” or “mushroom-”shaped mass encroaching the left infratemporal region [Figure 2b]. The axial section represented an oval mass impinging on the adjacent arch [Figure 2c].

On the basis of clinical and radiographic features, as well as the slow progressive nature, a provisional diagnosis of a benign osseous neoplasm of the coronoid process of the left side was given.

The procedure planned was left coronoidectomy under general anesthesia. The tumor mass was reached through hemiconoral approach along with lateral swing osteotomy of the left zygomatic arch. Osteotomy of the coronoid process and tumor mass was performed at the level of sigmoid notch.

Intraoperatively, the mouth opening improved and was recorded as 30 mm, following which contralateral coronoidectomy was carried out intraorally, thereby increasing the mouth opening to 45 mm. Zygomatic arch repositioning and stabilization was done using titanium miniplate and screws [Figure 1b].

The resected bony mass had a mixed nodular and smooth surface, measuring about 4 cm × 3 cm × 2 cm [Figure 3].

Microscopic examination of the specimen revealed a dense lamellar bone with marrow space and trabeculae lined by periosteum. Unlike osteochondroma, it lacked the typical cartilaginous cap [Figure 4].

The postoperative recovery was uneventful with no facial nerve deficits. No occlusal discrepancy was observed and the mouth opening was found to be 35 mm 1 month later. The patient was advised to continue aggressive physiotherapy and regular follow-up.

DISCUSSION

Osteoma is a benign tumor which arises from the proliferation of compact or cancellous bone, which leads to hypomobility of the mandible. It can reach a significant size, causing an increase in volume, facial asymmetry, limited mouth opening, and fracture of zygomatic complex in some cases. Central type, peripheral type, and extraskeletal type are the three variants based on the origin.^[4] A central osteoma arises from the endosteum, while the periosteum gives rise to the peripheral variant. An extraskeletal soft-tissue osteoma is of muscular origin.^[5] Coronoid osteomas lead to limitation

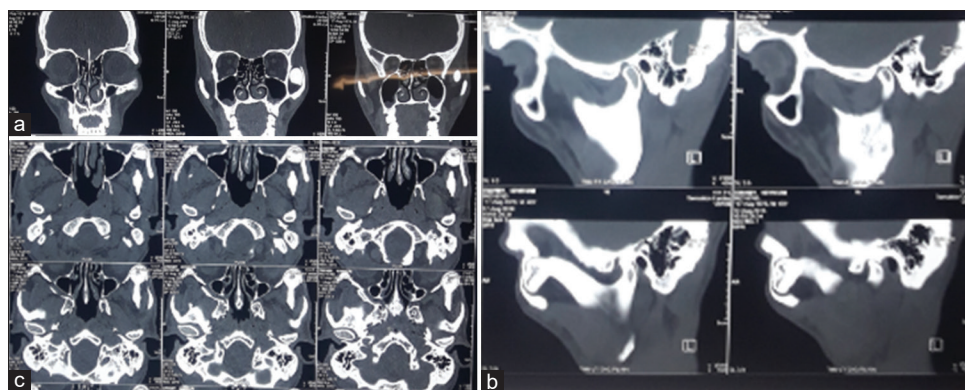


Figure 2: (a) Coronal section of computed tomography face suggestive of a round mass in the left malar region. (b) Sagittal section of noncontrast computed tomography face showing typical horsehead- or mushroom-shaped mass encroaching the left infratemporal region. Note the similarity in the density of the lesion to that of the normal bone. (c) Axial section of the noncontrast computed tomography face showing oval mass impinging on the adjacent arch of the left side



Figure 3: Resected specimen

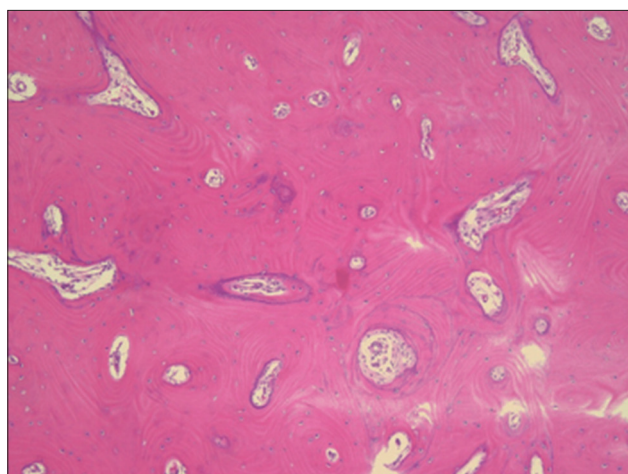


Figure 4: Dense lamellar bone with marrow space and trabeculae lined with periosteum can be seen under microscope

of mandibular movements and might lead to pathological fractures of the zygomatic arch. Reports of pseudo-ankylosis are also present in such cases. They can occur at any age but are predominantly associated with young adult males.

Osteoma is most common in the fourth and fifth decades, but lesions are reported from 10 to 79 years. They are usually solitary. However, Gardner's syndrome is associated with multiple such tumors.

Osteochondromas of the coronoid process have been reported in literature by Shackelford and Brown in 1943.^[6]

The etiology is unknown, however it might be associated with aberrant activity of the surrounding periosteum. An endochondral ossification may occur around a foci of such metaplastic cartilage, leading to the formation of exostoses.

Another supporting theory is that it may arise post trauma, wherein a hematoma may undergo fibrosis and lead to the formation of chondrocytes. Histopathological evaluation of osteoma reveal absence of cartilaginous cap which can be attributed to shifting of the growth to the juxtaposition of new bone rather than that of endochondral ossification.

Coronoid hyperplasia can also be a striking differential to our diagnosis as it may occur as a reactive bone hyperplasia secondary to endocrine stimulus, trauma, increased temporalis activity, or genetic influences. Another differential to restricted mouth opening is Jacob's disease, which differs from the osteoid osteoma owing to the histopathological evidence of regions of endochondral ossifications enclosed by hyaline cartilage.^[7]

Histopathological evaluation, therefore, is a key tool in establishing a diagnosis in such cases.

Kersher *et al.* reported a theory presuming that osteomas of the coronoid process are the sequelae of osteochondromas after total ossification of cartilage. Exhibition of cellular pleomorphism of chondrocytes and disturbances in

endochondral ossification are suggestive of neoplastic nature. Hence, they have been correctly categorized as tumors by several authors.

Facial asymmetry is the most common presentation of such patients owing to the lack of other symptoms apart from functional limitations, if any. Continuous growth might push the cortices of zygoma, resulting in an evident malar bulge and leading to the resorption of zygoma, which is followed by remodeling into a state of pseudo-ankylosis, resulting in trismus.

The aim of treatment is to restore the function, that is, optimal mandibular movements and chewing. Depending on the size, location, and type of restriction, surgery can be performed using a submandibular, coronal, retromandibular, preauricular, or intraoral access. It may accompany myotomy of masseter and temporalis muscles to relieve the limited range of motion as the facial musculature gets adapted to the existing scenario. Surgical excision of the osseous mass is the preferred treatment for patients with functional impairment. The coronoid process can be approached extraorally, intraorally, or using a combination of both. However, extraoral approach is preferred for larger coronoid process lesions. Osteomas of the coronoid process have a satisfactory prognosis, with no recurrence. The procedure involved is carried out with utmost care to avoid severing of the facial nerve. The intraoral approach involves an incision from the superior limit of the coronoid process to the retromolar trigone region with exploration of the entire anterior mandibular ramus. This procedure offers safety in terms of associated nerve damages and extraoral scars. However, the accessibility is compromised.

Postoperative mouth opening exercises, physiotherapy, and regular follow-up of treated cases are advocated. The present

report is a pursuit to draw the attention of clinicians to such rare cases, where trismus is among the clinical findings. Such a case, if diagnosed and managed effectively, will result in impressive functional and esthetic outcomes.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the legal guardian has given his consent for images and other clinical information to be reported in the journal. The guardian understands that names and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Manjunatha BS, Nagarajappa D. Osteoid osteoma. *Indian J Dent Res* 2009;20:514-5.
2. Kutluhan A, Salviz M, Bozdemir K, Değer HM, Culha I, Ozveren MF. Middle turbinate osteoma extending into anterior cranial fossa. *Auris Nasus Larynx* 2009;36:702-4.
3. Ogbureke KU, Nashed MN, Ayoub AF. Huge peripheral osteoma of the mandible: A case report and review of the literature. *Pathol Res Pract* 2007;203:185-8.
4. Frölich MA. Mandibular osteoma: A case of impossible rigid laryngoscopy. *Anesthesiology* 2000;92:261-2.
5. Nah KS. Osteomas of the craniofacial region. *Imaging Sci Dent* 2011;41:107-13.
6. Shackelford Rt, Brown WH. Restricted jaw motion due to osteochondroma of the coronoid process. *J Bone Joint Surg Am* 1949;31A: 107-14.
7. da Costa Araújo FA, Melo Barbalho JC, de Farias ON Jr., de Vasconcellos RJ, do Egito Vasconcelos BC. Pseudo-ankylosis caused by osteoma of the coronoid process. *Ann Maxillofac Surg* 2014;4:208-10.