Osteochondroma of the Mandibular Condyle : A Case Report

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Abstract

Osteochondroma of the mandibular condyle is extremely rare and may cause signs and symptoms like those seen in patients with temperomandibular joint dysfunction. Differentiation between osteochondroma and condylar hyperplasia is not possible on histological grounds alone, but the radiographic and intra-operative findings together are usually sufficient to establish a definite diagnosis.

Introduction

Osteochondroma is one of the most common benign tumours of the axial skeleton, but is rarely found in the facial bones. When present, the tumour is most often reported to affect the mandibular coronoid process. Osteochondroma of the mandibular condyle is an extremely rare entity, when present in the areas of mandibular condyle, it usually leads to facial asymmetry and changes in the condylar morphology. The clinical signs and symptoms may resemble those seen in patients with temporomandibular joint dysfunction. The aim of this article is to describe briefly the presenting symptoms and the atypical location of a case of true Osteochondromas of the mandible.[1,2]

Case Report

A 38 year old man presented with a complaint of gradually developing facial asymmetry and deviation of the chin towards the left side since 4 years (fig.1). He also complained of pain in the right pre-auricular region since 1 year. Patient first noted gradually developing deviation of the mandible to the left side since 4 yrs, pain started since 1 year, is intermittent, non-radiating, chronic in nature and was relieved by taking analgesics.

Clinical examination at that time revealed that the mandibular dental midline had shifted 6mm to the left (fig.2). Mild bulge was noted in the right pre-auricular area, mouth opening was 48mm. The mandible deviated towards the left side on closing, Posterior cross bite was noted on the left side, clicking and restriction of the movements of the TMJ on the right side was not appreciated .

Panaromic radiographic examination showed an irregularly shaped lesion in association with the right condylar head. The axial computed tomography scan (CT) showed a protruding mass from the right condyle pointing in the anteriomedial direction, coronal scan showed a localized globular swelling of varying density fused with the right condylar neck(fig.3a,fig3b). Three dimensional (3D) CT confirmed the anteriomedial extension of the bony mass (fig.3c). Due to it's slow growth a benign osteoma or osteocondroma were considered likely.

The TMJ was accessed by the retromandibular approach under general anaesthesia (fig.4a). The surgical treatment plan called for radical resection of the whole condyle till the subcondylar level followed with tumour excision on the table with inclusion of one third of normal condyle (fig.4b). Condyle reshaping and immediately repositioning in the glenoid fossa followed by fixation of the condylar neck into its position with 2mm, 4 hole with gap titanium plate and screws. Intra-operatively about 15mm of the tumour mass in length was excised and the condyle reshaped and was replaced back into position with help of plates and screws as previously planned (fig.4c, fig.4d). Intermaxillary fixation was used for 1 week followed by physiotherapy. Position of the condyle was confirmed by orthopant-omograph (OPG)(fig.4e).

Post operative course was uneventful with a painless range of movements slowly increasing to normal limits (opening >40mm) in 6 weeks. The deviation of the mandible and posterior cross bite also improved and the patient has been free of recurrence since more than one year (fig.5a, fig.5b).

Histological examination showed a fibrous tissue in the outer layer, below which was a cartilaginous layer with abundant chondrocytes and an innermost layer of cancellous and compact bone, fibro cellular and fatty marrow was also seen. It was reported as suggestive of osteoch-ondroma .

Discussion

Osteochondroma is one of the most common benign condylar tumours together with chondroma and osteoma. However, this tumour is most frequently found on the metaphyses of long bones (femur, tibia, etc) and is unusual on the skull[3]. Osteo-chondromas are not common in the mandibular condylar region. The mean age of discovery is 42 years with a female preponderance. The left condyle is more likely to be affected[4]. The most revealing feature is slowly changing occlusion, progressive facial asymmetry, limited and often painful mandibular movements.[1]

Pathogenesis is still unclear whether it is a developmental, neoplastic or a reparative lesion.

The most acceptable view,of the pathogenesis is the metaplastic change of the periosteum and/or the osteochondral layer in the condyle, leading to production of cartilage that subsequently ossifies. The tumour is thought to develop in and from tendinous attachment of muscles[1]. Other acceptable views are focal accumulation of cells having cartilaginous potential at tendinous insertion as described by Greshikter and Copeland or periosteum which has pluripotent cells to develop osteoblasts and chondroblasts as described by Lichenstein[5].

Several methods have been suggested for the treatment of condylar osteo-chondromas. These include resection through condylectomy, condylectomy with reconstruction, or selected tumour removal

with condylectomy[1,6,7]. When considering treatment it is crucial to determine if the condition is in a residual or inactive state or not. This can be judged either with repeated occlusal assessments or with imaging where bone scintigraphy may be the best. If the condition is inactive and without TMJ symptoms the reasons for surgical intervention are cosmetic or related to a masticatory dysfunction. If an active growth is noticed in the child and the asymmetry is large, a subtotal condylectomy is usually performed. If an active growth occurs in the adult patient the treatment may include both condylectomy and orthognathic surgery. A problem after such a condylectomy may be a lateral open bite on the contralateral side unless some kind of reconstruction is performed. A costochondral graft may be used but has disadvantages. An alternative method may be to perform a vertical osteotomy of the ramus and advance it superiorly to form a new condyle underneath the disc as described by Sergio[3].Instead of a free graft a locally derived bone graft attached to the medial pterygoid muscle is utilized.

A. B. Holmlund et al presents data on a 5-year clinical and radiographic follow-up on five patients surgically treated with the above mentioned method. No patient showed recurrence of growth at the 5-year follow-up and mandibular function and occlusion was normalized in all patients[7]. Serigo in his article has discussed about the several reconstructive options depending on the resulting defect after resection of the condyle namely free costochondral grafting, free flaps, orthognathic surgery, prosthesis, and sliding osteotomy[3].

In this case the surgical excision was dictated by the site and the extent of the lesion. The inclusion of one-third of the normal condyle served as a safety margin to avoid the possibility of recurrence and subsequent anterior open bite. Mild resorption was noted in one year of follow-up as observed by[6,8]. Hillerup recommended that condyle should not be detached from lateral pterygoid muscle to avoid resorption[6]. In this case however it was only possible to resect the tumour by detaching the mass and reshaping the condylar head on the table.

References

1. R.Koole, M.H.Steenks et al. Osteochondroma of the mandibular condyle: A case report. Int.J.Oral maxillofac.surg.1996; 25:203-205.
2. I.Peroz, H.J.Scholman, B. Hell. Osteochondroma of the mandibular condyle: A case report. Int.J.Oral maxillofac.surg.2002; 31: 455-456.
3. Sergio Gonzalez-Otero, Carlos Navarro-Cuellar et al. Osteochondroma of the mandibular condyle: resection and reconstruction using vertical sliding osteotomy of the mandibular ramus. Med Oral Patol Oral Cir Bucal. 2009 Apr 1; 14 (4):E194-7.
4. Gaines RE, Lee MB, Crocker D J. osteochondroma of the mandibular condyle: case report and review of literature. J.oral maxillofac. surg.1992; 50: 899-903.
5. Karasu HA, Ortakoglu K, Okcu KM, Gunhan O. Osteochondroma of the mandibular condyle: report of a case and review of the literature. Mil Med 2005; 170: 797801
6. K. Kurita, N. Ogi, N. V. Echiverre, K. Yoshida. Osteochondroma of the mandibular condyle: A case report. Int.J.Oral maxillofac.surg. 1999; 28: 380-382.
7. A. B. Holmlund, G. W. Gynther, F. P. Reinholt: Surgical treatment of osteochondroma of the mandibular condyle in the adult A 5-year follow-up. Int. J.oral Maxillofacial. Surg. 2004; 33: 549553.
8. Boyne PJ. Free grafting of traumatically displaced or resected mandibular condyles. J.oral maxillofac.surg. 1989:47:228-32.

Legends

Fig.1: Clinical photograph showing deviated chin towards left on rest.
Fig.2: Intra-oral photograph showing the midline shift with cross bite on left side.
Fig.3a: Axial CT showing the lesion in the right condyle pointing towards anteriomedial direction.
Fig.3b: Coronal CT showing localized globular swelling of varying density fused with the right condylar neck.
Fib.3c: 3DCT showing anteriomedial extension of the lesion.
Fig.4a: Resected condylar head with tumour mass.
Fig.4b: Attached tumour to the right condyle on table.
Fig.4c: Excised tumour.
Fig 4d: Stabilization of condyle with plate and screws.
Fig 4e: Post operative radiograph showing the condyle in position
Fig 5a: post operative photograph showing improvement in asymmetry.
Fig.5b: post operative intra-oral photograph showing reduced cross bite.


Fig. 1


Fig. 2

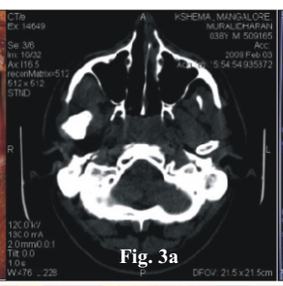
Fig. 3a


Fig. 3b


Fig. 3c

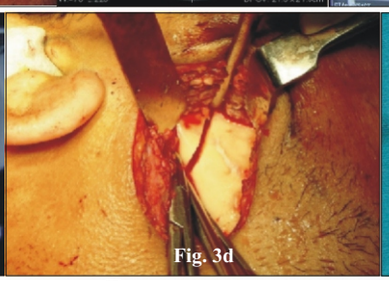
Fig. 3d


Fig. 4a

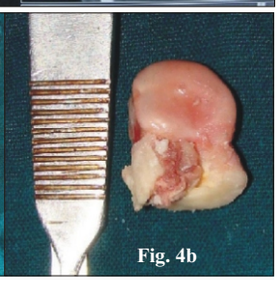
Fig. 4b


Fig. 4c


Fig. 4d

Fig. 5a


Fig. 5b