Case Report

Chondrosarcoma Of Mandibular Parasymphysis

Dr.Kokila G¹, Dr. Jyothi Mahadesh², Dr.Laxmidevi BL³
¹Reader, ²Professor & Head, ³Lecturer, Department of Oral and Maxillofacial Pathology, Sri Siddhartha Dental College and Hospital, Tumkur.

Abstract

A case of chondrosarcoma occurring in mandibular left parasymphysis region of an 18 year old female patient is presented. The case emphasizes the possibility of well differentiated chondrosarcoma being diagnosed as a benign lesion on incision biopsy. The lesion also showed divergence of roots in relation to the growth rather than resorption as presented in the literature.

Key words : chondrosarcoma, mandible, parasymphysis, jaws.

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Introduction

Chondrosarcomas is a malignant tumor characterized by formation of cartilage, but not bone, by tumor cells (¹). Commonly occurs in pelvic girdle, chest wall and scapula (²). Involvement of jaws is not common, apparently rarer in the mandible than in maxilla (³, ⁴) with maxilla involved twice as frequently as mandible. Involvement of jaw was only 3% of all chondrosarcomas in Mayo clinic series (⁵). In mandible often occurs at molar region and less so in ramus, condyle, coronoid process or symphysis (⁶, ²).

Tumor progression in chondrosarcoma is slow with strong propensity to local recurrence after surgical removal. The recurrent chondrosarcomas usually show rapid and aggressive growth (⁴). Unlike high grade
Chondrosarcoma of long bones presenting with excruciating pain, the chondrosarcomas of head and neck region tend to be painless on presentation. Even though some authors believe there is no sex predilection (1), some say it is more common in males, with male to female ratio of 2:1(7). Chondrosarcoma can occur at any age between 10 to 80 years (7), but most cases are seen between third to fifth decades of life (2).

This report presents a case of well differentiated chondrosarcoma arising in mandibular parasymphysis region.

**Case report**

A female patient aged 18 years presented with chief complaint of a swelling in the anterior part of lower jaw which was of 2 months duration. There was no associated pain or paresthesia. The patient had a swelling on left mandibular parasymphysis region measuring 5cm X 3cm with ill-defined margins. The swelling was hard in consistency and skin over the swelling was intact with normal colour. Intra oral examination revealed a swelling on facial surface of mandible, which extended from 31 to 35 measuring 5cm X 2.5cm. The swelling was non-tender, with ill-defined margins, sessile, not movable and the mucosa over the swelling was intact and blanched.

![Fig.1. Panoramic radiograph showing mixed radio opaque-radiolucent lesion in left mandibular parasymphysis region between 34 and 35](image-url)

Panoramic radiograph (fig.1) showed a mixed radio opaque-radiolucent lesion in the left mandibular parasymphysis region between 34 and 35, measuring approximately 4cm x 3cm in size,
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roughly triangular in shape with the base at the lower border of mandible. The area showed multiple radio-opaque islands in a background of generalized rarefaction. Root apices of 32, 33 and 34 were displaced medially, with widening of periodontal ligament space on medial aspect of 35 and distal aspect of 34. Radiographic features were suggestive of bone tumor. Radiographic differential diagnosis included- chondroma, chondrosarcoma, osteosarcoma, fibrous dysplasia, central fibroma with calcification and osteoblastic metastatic carcinoma.

An incision biopsy of the lesion on examination showed presence of sheets of normal appearing cartilagenous area favoring chondroma (fig.2). But one area of the biopsy showed the cells with mild atypia (fig.3), so possibility of malignancy was suspected. Conservative surgical excision was done and tissue was submitted for histopathologic examination.

Fig.2. Incision biopsy showing presence of sheets of normal appearing cartilagenous tissue

Fig.3. Area of the incision biopsy which showed the cells with mild atypia.

Surgically excised tissue consisted of a single tumor mass and surrounding soft tissue extending from 44 to 35 and in surgical diagnosis neuroma and chondroma were considered. The tumor mass was composed of firm tissue which measured 5.5cm X 3.5cm X 3cm having brownish
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colour with relatively smooth surface (fig.4).

Fig.4. Tumor mass

The tissue was cut with consistency of cartilage, with cut surface showing whitish appearance. Multiple sections were also processed from the surrounding soft tissue (fig.5) which was submitted for histopathologic examination.

Fig.5. Surrounding soft tissue

Histological examination of excision biopsy showed sheets of chondrocytes in hyalinized matrix separated by fibrous strands. In few areas chondrocytes showed variable pleomorphism and hyperchromatism with crowding. Hypercellularity and nuclear pleomorphism were common features, with cellularity being conspicuous in close relation to the fibrous septa which presumably served as support for nutrient vessels (fig.6).

Fig.6. Sheets of cartilage matrix separated by fibrous septa.

Areas distant from the septa, cellularity was less marked, but pleomorphism and hyperchromatism were present. The submitted surrounding tissue on examination showed areas of
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Chondroid tissue infiltration in between the adjacent muscle and bone (fig.7 & 8).

Fig.7. Surrounding tissue showing areas of chondroid tissue infiltration in between the adjacent muscle

Few giant chondrocytes (fig.9) were also noted. Case was diagnosed as Well differentiated chondrosarcoma. The patient was referred for radiation therapy.

Fig.8. Surrounding tissue showing areas of chondroid tissue infiltration in between the adjacent bone

Fig.9. Giant chondrocytes

Discussion

The chondrosarcoma is recognized as a separate entity since 1930, when Phemister stated that sarcomas of bone that contained cartilage were chondrosarcomas (2). Later in 1939 Ewing supported this concept and said that chondrosarcoma and osteogenic sarcomas were distinct lesions (2). Then in 1942 Lichtenstein and Jaffe (8) defined chondrosarcoma as developing from full-fledged cartilage and never shows neoplastic osteoid tissue and bone developing directly from a sarcomatous stroma.

Chondrosarcomas are classified by Evans and
coworkers\(^{(9)}\) as grade I, II and III on the basis of mitotic rate, cellularity and nuclear size. The histological variants of chondrosarcoma being - conventional chondrosarcomas, clear cell chondrosarcomas, myxoid chondrosarcomas, dedifferentiated chondrosarcomas and mesenchymal chondrosarcomas.

Most common symptom of chondrosarcoma is painless, enlarging mass which can manifest as cortical expansion with resorption and exfoliation of tooth\(^{(2)}\). In our case too chief complaint is of an enlarging mass but with no resorption of root, instead there was displacement of associated tooth roots. The peak age of incidence is third to fifth decade of life\(^{(2)}\), but our case the patient was little younger being in second decade of her life. The case on examination of incision biopsy was considered to be chondroma on histological grounds. But as one area of the biopsy showed the cells with mild atypia, possibility of malignancy was suspected. True to the reports that the radiograph may fail to demonstrate the actual extent of the lesion\(^{(2)}\), our case too showed extension beyond radiographic margins on surgical exploration.

Malignant cartilaginous tumours are far more common than benign cartilaginous tumours\(^{(7)}\). Many authors say that it may be impossible to differentiate between a well differentiated chondrosarcoma from a chondroma\(^{(2, 10, 11)}\). The diagnosis of chondrosarcoma of the jaws is often difficult due to indistinct boundaries between benign and malignant chondromatous tumours. Differentiation between the two may ultimately rest with the clinical course of the tumour. Some have even recommended that all cartilagenous tumours of craniofacial region should be widely excised even if they are histologically benign, as it is
reported that cartilage forming neoplasms of the jaw are twice likely to be malignant than benign. The microscopic examination of cartilage tumours commonly leads to an improper diagnosis, if insufficient tissue is available for study. Often multiple biopsies from different sites are needed to establish malignant nature of the lesion (2). This is since different areas of chondrosarcoma may show considerable variation in histological characteristics. Tumours whose histological distinction from chondrosarcoma is difficult and important are chondroma and chondroblastic osteosarcoma. Chondroma predominantly occurs in small bones and extremely rare in jaws and facial bones. So, any cartilagenous tumor in an adult which increases in size or causes pain should be regarded with the utmost suspicion (6). In addition careful examination of the biopsy will reveal subtle differences between benign and malignant cartilage cells. Hyperchromatism is a striking characteristic of the tumor cells, which partly is attributable to abnormally large nuclei. Lichtenstein and Jaffe (8) (1943) regarded the appearance of plump nuclei, more than an occasional cell with two or more nuclei and giant cartilage cell with large single or multiple nuclei or with clumps of chromatin as features indicative of malignancy in cartilaginous tumors. It is stressed that histological appearance need not be “crudely and obviously sarcomatous to indicate chondrosarcoma”. Our case too, later on examination of excision biopsy proved the suspicion of malignancy and was diagnosed to be well differentiated chondrosarcoma.

In 1974, Fu and Perzin (11) described three prognostic factors: location and extent of the lesion, adequacy of surgical therapy, and degree of differentiation of the tumor. 5 year survival rate of
chondrosarcoma is found to be 40-60%, some cases showing local recurrence 10 to 20 years later. Therefore the cases should be closely monitored for life long after surgery \(^{(2)}\). Our case showed presence of tumour invasion into the adjacent tissue, which could indicate a poor prognosis, but the patient was lost for the follow up.

References
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Address for correspondence

Dr. G.Kokila.
Reader, Dept. Oral and Maxillofacial Pathology,
Sri Siddhartha Dental College and Hospital,
Agalakote, Tumkur -572107, Karnataka, India.
E-mail: drkoks@rediffmail.com