Case Report
Fibrosarcoma of Mandible: A Case Report

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Fibrosarcoma is a malignant mesenchymal neoplasm of fibroblasts that rarely affects the oral cavity and can cause local recurrences or metastasis. In this paper, a case of fibrosarcoma in the posterior area of mandible in a 44-year-old woman is described. Clinical examination revealed a growth on right mandibular third molar region extending on the buccal and the lingual side. There was history of extraction of posterior teeth. Radiologically, there was a diffuse bone loss. Microscopically, the tumor showed an intense proliferation of fibroblasts of variable size and shape. These cells were arranged in parallel bands and partly crossing each other. The cells exhibited increased mitotic activity and nuclear pleomorphism. Immunohistochemically the cells showed immunoreactivity only for vimentin while they exhibited negativity towards S-100 protein, cytokeratin cocktail, HMB-45, desmin, smooth muscle actin, and epithelial membrane antigen (EMA). Based on findings the final diagnosis of fibrosarcoma was made.

1. Introduction

Soft tissue sarcomas are rare in the oral and maxillofacial region and account for less than 1% of the cancers. At one time, fibrosarcoma was the most common soft tissue sarcoma. With the introduction of electron microscopy and immunohistochemistry, it became evident that many previously diagnosed fibrosarcomas were other spindle cell malignant lesions. Fibrosarcoma is defined as a malignant spindle cell tumor showing a herringbone or interlacing fascicular pattern without expression of other connective tissue cell markers. Fibrosarcoma is a malignant neoplasm of the fibroblastic origin. It has been reported in association with several conditions, such as Paget’s disease and fibrous dysplasia and postradiotherapy. Fibrosarcoma of head and neck area represents 5% of all malignant intraosseous tumors. It can occur in any location but mainly affects long bone particularly, and its occurrence in craniofacial region is about 15%, mandible being the most common site. Although fibrosarcoma has been reported in all groups, it is most commonly seen in the 3rd and 6th decades of life [1]. The patient classically presents with pain, with or without swelling. In oral cavity, loosening of teeth may be apparent. This paper describes a case of fibrosarcoma of the mandible.

2. Case Report

A 44-year-old female was referred to the Department of oral Pathology, Government dental College and Hospital, Mumbai. She complained of a painful swelling in the right side of mouth (Figure 1). The patient also claimed that her right-sided wisdom tooth was extracted about 15 days back due to mobility. Since then she has been experiencing pain in the posterior area of the mandible associated with swelling. Paresthesia was evident in the right lower lip. The patient’s medical history was noncontributory. On intraoral examination, large ulceroproliferative mass was observed in the right-side posterior mandible (nos. 46, 47, and 48). The lesion was soft to firm and measured about 4 cm × 3 cm (Figure 2).

Radiological examinations with lateral oblique radiograph (Figure 3) showed osteolytic areas with ill-defined borders located in the right mandibular angle and ramus. An incisional biopsy was performed, and on microscopic examination fascicles of spindle-shaped cell with areas of collagen fibers were observed (Figure 4). The cells exhibited hyperchromatic nuclei and increased nuclear cytoplasmic ratio (Figure 5). The microscopic aspect of the investigations led on to the diagnosis of fibrosarcoma. Further,
immunohistochemistry analysis showed a positive reaction for vimentin (Figure 6), but not for S-100 protein, cytokeratin cocktail, HMB-45, Desmin, smooth muscle actin, and epithelial membrane antigen (EMA). Upon confirmation of the presence of fibrosarcoma, the patient was referred to higher centres for further evaluation and treatment. The patient did not report for followup.

3. Discussion

Fibrosarcoma is malignant mesenchymal tumor of fibroblast. Although it can occur in any location, the bone extremities are the most commonly affected site. Primary fibrosarcomas are rare in mandible which is common site in jaws (Table 1). It is often difficult to determine whether the lesion primarily developed in the soft tissue or intraosseously in the head and neck. Intraosseous fibrosarcomas may develop endosteally or possibly periosteally, the latter affecting bone by spread from adjacent soft tissue to present a clinical and radiographic appearance of primary bone lesion [2]. However, others accept that the fibrosarcoma of bone as a distinctive lesion can arise in preexisting benign lesions such as ameloblastic fibroma, chronic osteomyelitis, Paget’s disease, fibrous dysplasia, and giant-cell tumor of bone [3].

A fibrosarcoma arising in the region of a dental extraction has been reported [4] in past. Usually primary intraosseous fibrosarcoma is asymptomatic and appears as slow growing mass which was not in our case. It was associated with mobility of adjacent teeth and ulceration of overlying mucosa. Pain and paresthesia are usually late symptoms indicating nerve involvement.

Radiographically, fibrosarcoma often appears as a purely osteolytic lesion without calcification and with poorly defined, irregular margins if it has arouse intraosseously. There is usually destruction of the cortical plates without expansion [5], and the lesion may be misdiagnosed as an odontogenic abscess or cyst. The roots of adjacent teeth may or may not show resorption [5].
Table 1: Cases of primary fibrosarcoma of mandible reported in the literature.

| Author                        | Year | No. | Site            | Treatment          | Recurrence | Followup |
|-------------------------------|------|-----|-----------------|-------------------|------------|----------|
| Gosau et al.                  | 2008 | 01  | Mandible (1)    | Surgery           | No         | 3 yrs    |
| Orhan et al.                  | 2007 | 01  | Mandible (1)    | Surgery + RT + CT | NA         | NA       |
| Borges Soares et al.          | 2006 | 01  | Mandible (1)    | Radical surgery   | No         | 1 yrs 9 months |
| Pereira et al.                | 2005 | 01  | Mandible        | Radical surgery   | No         | 36 months|
| Yamaguchi et al.              | 2003 | 03  | Mandible (3)    | Surgery           | No         | 9 yrs    |
| L. Lo Muzio et al.            | 1998 | 01  | Mandible        | Radical surgery   | No         | 4 yrs    |
| Lillenget al.                 | 1997 | 01  | Mandible        | Surgery + RT      | Local + lung | 21 yrs |
| Sadoff and Rubin et al.       | 1990 | 01  | Mandible        | Surgery           | Local      | NA       |
| Moloy et al.                  | 1989 | 01  | Mandible        | Surgery           | Local + regional | 6 months |
| Taconis and van Russel et al. | 1886 | 14  | Mandible (10)   | Surgery + RT      | Local + Lung | NA       |
| Handlers et al.               | 1985 | 01  | Mandible        | Surgery + RT + CT | Local      | 15 months |
| Zachariades and Papanicolau et al. | 1985 | 01  | NA              | NA                | NA        | NA       |
| Slootweg and Mulles et al.    | 1984 | 07  | Mandible (5)    | NA                | NA        | NA       |
| Lam et al.                    | 1979 | 03  | NA              | NA                | NA        | NA       |
| Ferulito et al.               | 1979 | 01  | Mandible        | NA                | NA        | NA       |
| Looser and Kuehn et al.       | 1976 | 04  | Mandible (4)    | Surgery           | NA        | NA       |
| Jeffreeteard price et al.     | 1976 | 07  | Mandible (4)    | NA                | NA        | NA       |
| Huvos and Higinbotham et al.  | 1975 | 12  | Mandible (10)   | NA                | NA        | NA       |
| Haidar et al.                 | 1975 | 01  | Mandible        | NA                | NA        | NA       |
| Van Blarcom et al.            | 1971 | 13  | Mandible (13)   | NA                | NA        | NA       |
| Jochimsen and Grage et al.    | 1971 | 01  | Mandible        | NA                | NA        | NA       |
| Monaly Uwanati and J.V.Tupkari et al. | 2011 | 01  | Mandible        | NA                | NA        | NA       |

Figure 5: Spindle shaped cell showing nuclear pleomorphism (40x).

The classical fibrosarcoma has been characterized microscopically by uniform spindle cells distributed in interlacing fascicles with herring bone growth pattern. In the present case, the lesion classically composed of pleomorphic spindle-shaped cells arranged as bands or interweaving fascicles with variable collagen and collagen reticulin production and degree of anaplasia. Mitosis may be sparse or plentiful. The integral vascularity of fibrosarcoma with lack of proper endothelial lining has been emphasized as a differential point.

In differential diagnosis, reactive fibromatosis, fibroblastic osteogenic sarcoma, pseudosarcomatous fasciitis, and cellular alveolar sarcoma must be excluded. The positive immunostaining for vimentin, together with negativity for muscular immunomarkers, will help establishing the diagnosis of the fibrosarcoma.

The treatment of choice is surgical resection with a wide margin. The need for adjuvant radiotherapy and/or chemotherapy is still unclear and is normally indicated in high-grade tumors because these tumors may present subclinical or microscopic metastases at the time of diagnosis. In addition, prophylactic neck dissection is controversial. In Our case, details of treatment and follow up information of the patient were not available as patient did not undergo

Figure 6: Neoplastic cells displaying intense immunoreactivity for vimentin (40x).
the treatment of surgical resection, chemotherapy, and radiotherapy. The overall survival rate at 10 years may vary from 21.8% to 83%, and clinical stage, histological grade of malignancy, and local recurrences are the most important prognostic factors.

In recent years, the fibrosarcoma of head and neck area has been increasingly reported but still there are paucity of reports of fibrosarcoma of head and neck region. Hence, it should be included in differential diagnosis, especially in cases of rapidly growing lesions in the mouth.

Conflict of Interests

The authors declared that there is no conflict of interest.

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