

Chondrosarcoma, A 30 Year Retrospective Study in Cancer Institute Imam Khomeini Hospital and Faculty of Dentistry of Tehran University of Medical Sciences

N. Eshghyar;¹ Mohebbi ²

¹ Assistant Professor, Department of Oral and Maxillofacial Pathology; Tehran University of Medical Sciences

² Dentist

Statement of Problem: Chondrosarcoma is a tumor which includes 10 percent of the bone primary tumors. Its prevalence is half of the osteosarcoma and two times of Ewing's. The mean age of the patients ranges between 30-50 years of old. There is no significant sex or race predilection. The most common complaint is the presence of a painless and enlarging mass. Its clinical course is described as slow-growing lesion with local invasion and recurrence, no or delayed metastasis, almost long survival.

Purpose: The aims of this study were as follows: the determination of prevalence of reported Chondrosarcoma in cancer institute Imam Khomeini hospital and faculty of dentistry of Tehran University of medical sciences, comparison of jaw Chondrosarcoma to the body one, evaluation of sex, age, clinical and histological parameters and prevalence of different locations in body.

Materials and Methods: In this study the biopsy notes of all kinds of chondrosarcoma of the body in cancer institute (212 cases) and the extracted files of the patients with the jaws chondrosarcoma in cancer institute and department of oral pathology of faculty of dentistry, University of Tehran medical sciences (23 Cases) were evaluated.

Results: In this retrospective statistical study the proportion of the patients with the jaws conventional chondrosarcoma to the patients with conventional Chondrosarcoma of the body was 8.57%. The mean age of the total patients and the patients with jaws chondrosarcoma were 36.21 and 38.87 years, respectively. Men were somehow more involved. Pelvic was the most common location of the tumor. Maxilla involvement was 3-4 times more than mandible. Microscopic manifestation and tumor grading suggested a low grade lesion in jaws. Local recurrence in jaws was 33.3%.

Conclusion: The most common site of involvement of chondrosarcoma was pelvic and maxillary involvement was more common than mandible. Its prevalence was in the posterior site of the jaws.

Key words: Chondrosarcoma; Conventional type; Statistical study

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In 1930, Phemester stated that Chondrosarcoma is one type of bone sarcoma which consists mostly of cartilage.^(1,2)

One of the best expressions about Chondrosarcoma has been declared by WHO. "A malignant neoplasm, which its characters are

making cartilage and there is no bone regeneration by tumor cells.⁽³⁾

This tumor can be divided to different types according to microscopic characteristic, originated place, or primary and secondary.

According to microscopic characteristics, it divides to two groups:

1- Conventional Chondrosarcoma

2- Variants Chondrosarcoma

Another division of the tumor is according to settled site and it has three groups: central, peripheral and juxtacortical (periosteal).⁽⁴⁾

Almost 75% of Chondrosarcoma are primary tumors and 25 % of them originated from a previous cartilaginous lesion, like Enchondromatosis, Exostosis or rarely Chondroblastoma.^(5,6)

One of the aims of this study was the determination of prevalence of reported Chondrosarcoma in cancer institute of Imam Khomeini hospital and dental school of Tehran university of medical sciences. Other purposes were comparison of jaw Chondrosarcoma to all body and evaluation of age, sex and clinical and histological parameters in patients.

Materials and Methods

A review of the files and biopsy notes at the cancer institute of Imam Khomeini hospital and dental school of Tehran university of medical sciences were undertaken (in a 30-year period from 1349 to 1378).

Firstly, all biopsy notes of patients affected by all types of Chondrosarcoma involvement hard and soft tissue were evaluated (212 cases). Then, information of sex, age, lesion's site, primary clinical symptoms, histology and recurrence prevalence, and metastasis was obtained from the clinical charts of jaw Chondrosarcoma patients (17 cases).

After reviewing the files, all data of patients of jaw Chondrosarcoma (8 cases) from dental school were drawn up. Two patients of dental school were approached to cancer institute after tumor recurrence. The results were analyzed by

Wilcoxon test.

Results

All patients with different types of Chondrosarcoma were 212 cases. Twenty-four of them (11.32 %) were extra skeletal and 188 cases (88.68 %) were intra skeleton.

There were 175 cases (of 188 cases) of conventional type (93%) and 9 cases of mesenchymal type (4%). Four cases had other types of Chondrosarcoma. The youngest patients of all types of Chondrosarcoma, intra skeletal conventional and mesenchymal types were 7, 10 and 7 years old. The oldest ones were 83, 75, and 53 years old with mean of 36.21 ± 16.66 , 35.86 ± 16.39 and 23.22 ± 14.34 years old. The mean age of patients with intra and extra skeletal tumors were 35.24 ± 16.48 and 44.5 ± 17.06 years. The difference between the means was significant ($P=0.011$). The mean age of mesenchymal Chondrosarcoma (including hard and soft tissue) was 31.08 ± 19.64 years. Other patients of other types of Chondrosarcoma had a mean age of 36.52 ± 16.47 years old.

There were 123 male (58%) and 89 female (42%) of all types of body Chondrosarcoma. But the rate of intra skeletal mesenchymal Chondrosarcoma was twice in men compare to women. The common sites of intra skeletal Chondrosarcoma were Iliac, Pelvic, hip joint (18.3% altogether), Thigh bone (17.1%), foreleg (10.3%), shoulder bone (9.1 %) and jaw (8.57%) (Fig. 1).

Also, Pelvic was the most common place for intra skeletal mesenchymal Chondrosarcoma and for soft tissue Chondrosarcoma, Buttock-gluteal had the maximum rate.

In job evaluation, householder women were the largest group (35.4%).

Eight percent of all patients had jaw Chondrosarcoma and it was 8.57% for conventional Chondrosarcoma.

Twenty-three cases of jaw Chondrosarcoma were included 18 (78.26%), 3 (13.04%) and 2

(8.6%) cases of conventional, mesenchymal and mixoid types respectively.

The minimum and maximum ages of conventional jaw Chondrosarcoma were 22 and 65 years old with mean of 41.67 years. The maximum prevalence of conventional jaw Chondrosarcoma was in the fourth decade (5cases=28.7%).

There were 61.1% male and 38.9% female of conventional affected patients.

Of 23 jaw affected cases, 14 cases (60.9%) and 7 cases (30.4%) involved the maxilla and mandible respectively (Fig. 2).

Involving of the maxilla and mandible in conventional Chondrosarcoma were 72.2 and 22.2% respectively. The affected place was recognized in 18 patients, which it was 66.7% in right side in 12 of them. The tumor was in posterior site in 15 patients and in 3 of them, the anterior side was involved (Fig. 2).

Four cases of maxillary tumors had maxillary sinus involvement. Thirteen patients had primary clinical symptoms, which the first symptom was swelling in 12 cases (92.3%). One patient (7.7%) had pain and swelling together.

Lymphoid nodes were evaluated in 7 patients and except in one recurrence tumor, all of them were non- touchable

The consistency of tumors was hard in 9 (69.2%) and 2 (15.4%) cases in all 13 cases. From microscopically view, 2 mixoid, 1 mesenchymal and 10 conventional tumors (83.3%) were lobular. Calcification and ossteogenesis were seen in 60.9% of all types.

Tumor was classified only in 5 cases (2 cases: G III, 1 cases: G II and 2 cases: G I). The treatment procedure was clear in 13 cases which were as follows: 7 cases (53.8%): surgery, 2 patients (15.4%): surgery, chemotherapy and radiotherapy, 2 cases (15.4%): only chemotherapy, 1 patient (7.7%): surgery, radiotherapy and 1 case (7.7%): surgery and chemotherapy. Five patients had follow up files and the rate of recurrence tumor of conventional type was obtained 33.3%.

Discussion

First section: all types of body Chondrosarcoma All patients of Chondrosarcoma and osteosarcoma were 212 and 453 cases which had the rate of 1/2 like previous researches.^(3,6)

The rate of intra skeletal mesenchymal Chondrosarcoma to conventional one was 5.1% and it was different with the rate (10%) of Myo clinic.⁽⁷⁾

Enzinger et al like our study found the rate of 3.1 for intra skeletal mesenchymal to the external one.⁽⁸⁾

The mean age of patients was 36.21 years old, which was similar to Garrington et al (38 years).⁽³⁾

The maximum prevalence of Mesenchymal type like other researches was in second and third decades (^{4,9,10,11}) and for other types, it was in fourth decade.^(4,5,9)

In this study, the same as others, men were affected more to the conventional tumor.^(3,6,12)

The most affected locations were Iliac and Pelvic areas the same as our study.^(13,14)

Second section: Jaw Chondrosarcoma

Jaw Chondrosarcoma patients to jaw osteosarcomas ones had the rate of 6.10 that was almost as 1.2 in other researches.^(12,15)

Some studies have obtained 1-2% of jaw Chondrosarcoma to the body.^(12,16)

Anwar et al⁽¹⁷⁾ and Batsakis⁽¹⁸⁾ found it 10% or under it, like this research (8.57%). This result was 9% in other study.⁽¹⁹⁾

The mean age of jaw conventional Chondrosarcoma patients was 41.67±13.5 years and its maximum prevalence was in fourth decade. It is comparable to the mean of 32 years⁽³⁾ in a research in USA and 35-50 years in Japan.⁽²⁰⁾ Some researches believe to younger ages in jaw Chondrosarcoma patients to the body affected ones, but, it wasn't the same in our study.

Some studies state that 61.1% of patients affected to the conventional tumor aren't different in different sexes.^(10,12,16,20,21,22) But,

Shafer believed men get disease twice women. Also, like our study, he stated that maxilla involvement was more than mandible.^(1,12,15,19,22,23)

Hanks and Peddison stated the opposite opinion.^(24,25) According to Batsakis and Bhaskar, maxilla and mandible involve the same.^(20,26)

In 4 cases of involving maxilla (28%), there was sinus involvement, which it was the same in Myo clinic.⁽⁷⁾

The most clinical symptoms of tumor were swelling without pain in all of researches. Many

researches have announced non-touchable lymphatic nodes.^(1,7,20,25) According to this study and Anwar et al, hard consistency was the most.⁽¹⁷⁾

Lobulation in 83.3% of conventional tumors indicated lower degree of tumor.^(3,21)

Calcification and osseogenesis of 72.2% of conventional types of this study was almost the same as 70.3% of other research.⁽²¹⁾

The rate of recurrence for conventional tumor was 33.3% like Sanito et al.⁽²⁷⁾ But, head and neck Chondrosarcoma had 85% recurrence prevalence.

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