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Giant Cell Tumor and the Psychological Effect on Patient's Health: Literature Review

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ABSTRACT

The giant cell tumor continues to be one of the bone tumors with many controversies in its diagnosis and management by doctors, it is benign, it mainly affects the epiphyses of the long bones. It occurs with a higher percentage in young adults, between 20 and 40 years old, although its origin is uncertain. It has a purely lytic and generally aggressive appearance, which destroys the bone and can even cause its fracture, sometimes invades the soft tissues, so magnetic resonance imaging and computed tomography are important to determine the extent of the tumor, for On the other hand, simple radiological examinations are often very useful in suggesting the diagnosis. The differential diagnosis mainly includes lesions that affect the epiphyseal regions of the bones, such as chondroblastoma and clear cell chondrosarcoma. The treatment of giant cell tumors is mainly surgical, which consists of an extensive scraping with direct vision through a wide bone window, said scraping is more effective with the use of substances, such as phenol or liquid nitrogen, with the in order to sterilize the tumor bed and reduce the risk of local recurrence, since even with modern scrapings the risk of recurrence is significant.

Objective: to carry out a bibliographic review on concepts and classifications that allow an early and effective diagnosis of this type of tumor, which will allow an adequate treatment to be given, thus improving the quality of life of patients suffering from this disease, reducing its complications.

Conclusions: It can be established that, in most patients, the tumors are benign and are usually located in the epiphysis of long bones with a tendency to produce local recurrences.

Keywords: Giant cell tumor, benign bone tumor, hyperparathyroidism, osteosarcomas, osteoclast.

METHODS

A bibliographic review was carried out in the period September-November where the analysis of original articles and systematic reviews obtained from the last 5 years that include information related to giant cell tumor was executed. The search was done by consulting the database of PubMed, Scielo, ClinalKey and Scopus also used in the Google Scholar search engine the keywords such as: Giant cell tumor, benign bone tumor, hyperparathyroidism, osteosarcomas, osteoclast.

RESULTS

Introduction

The giant cell tumor (GCT) originates from undifferentiated mesenchymal cells of the bone marrow, which corresponds to a primary bone neoplasm, is characterized by the presence of multinucleated giant cells type osteoclasts, in addition to being a very vascularized tissue that are uniformly dispersed in the stroma. It occurs between 60%-75% of all cases between the second and fourth decades of life, slightly predominating in the female

sex. It is very rare in the pediatric population and in the age group of 10 to 20 years the predilection for the female sex reaches up to 75% of cases.[1]

Epidemiology

Giant cell tumor has a relatively high frequency among bone tumors. It accounts for 5% of bone tumors and 20% of all benign bone tumors.[2]

Physiopathology

Genetically, 80% of individuals with this type of tumor have a cytogenetic abnormality of telomeric association, in addition a greater expression of p53 and alterations in different oncogenes have been described.

It mainly affects the epiphyseal region of the long bones, such as: the proximal humerus, distal radius and knee; this last joint has a higher incidence than the other regions. Less likely to manifest are the spine, pelvis, bones of the hand, foot and rarely the skull.[1]

Classification

According to Enneking it is classified into three stages:

Stage 1: May cause pathological fracture, is asymptomatic, radiography and computed tomography show well-defined sclerotic edges, occurs in 10 to 15% of patients, and is histologically benign.

Stage 2: It is also accompanied by pathological fracture expand the cortex, but do not break it, are symptomatic, its incidence is in 70% of patients, histologically benign and gamma graphically active.

Stage 3: Behaves as fast-growing masses which cause cortical perforation extending to soft tissues, are symptomatic, affects 10 to 15% of patients, histologically benign and gamma graphic activity is very intense.[3-4]

Clinical Manifestations

According to research in most cases, the most frequent symptom is pain and increased volume, in addition other signs are observed such as decreased muscle strength and limitation of joint movement; in other cases it began with pathological fracture without previous symptoms; between eight and a half months is the average time of evolution and with an interval of one month to three years of symptoms prior to diagnosis. In certain cases, traumatic histories and pulmonary implants were found.[5-6]

Treatment

In this type of neoplasm in all cases the treatment is surgical, so wide resection of the tumor is performed since there are high chances of metastatic disease, because there is an influence both by the expression of certain genes and by the gradation of the tumor.

Another surgical alternative consists of a prolonged intralesional curettage where adjuvants such as phenol, high-speed bur, dilute hydrogen peroxide, sterile water, argon bundle and liquid nitrogen could be included; because these substances can reduce recurrences. When surgery is not an option, radiation therapy or treatment with denosumab may also be used.[7-8]

Prognosis and Complications

The main complication in the management of this type of tumor is local recurrence after surgical treatment, followed by treatment with an isolated curettage, then curettage with adjuvants and finally decreases the recurrence rate with en bloc resection. Although the GCT of bone is usually benign, there is minimal risk of malignant transformation.[7]

It can be said that the prognosis of this type of disease is favorable, however, there is 5% of cases that present lung metastasis for this reason follow-up chest x-rays are performed routinely; when performing radiotherapy and after it, malignant transformation can occur.[7-9]

After a grade III block resection of the femur there is a probability of acquiring an infection in the surgical wound and in rare cases there may be septic loosening of the proximal tibia mega prosthesis, which is treated with antibiotic therapy.[9]

Conclusions

A literature review was conducted on concepts and classifications that help to effectively diagnose this type of tumor, which will facilitate adequate and timely treatment, thus improving the quality of life of patients suffering from this disease reducing its complications.

It can be established that, in most patients, tumors are benign and are usually located in the epiphysis of long bones with a tendency to produce local recurrences, these are more frequent when curettage treatment is performed, on the other hand, chest x-rays are performed routinely to thus rule out lung metastases since malignant tumors are less frequent, But there is a possibility that it manifests in the patient and these must be treated in an oncological way.

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