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Original Article

Epidemiological study on giant cell tumor recurrence at the Brazilian National Institute of Traumatology and Orthopedics☆

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ABSTRACT

Objective: Giant cell tumors are benign bone neoplasms that are relatively rare in adults and their biological behavior is still unpredictable. The incidence of local recurrence has presented variation between 0% and 65% in studies conducted worldwide, but few data are available on this complication in the Brazilian population.

Methods: Information on 155 patients with confirmed histological diagnoses of giant cell tumor who were treated in our institution's orthopedic oncology service between January 2000 and July 2014 was gathered. Demographic characteristics were evaluated and compared between patients who presented local recurrence during the clinical follow-up.

Results: Local recurrence was observed in 26 patients (16.7%), of whom 22 were female (84.6%). The most common site of local recurrence was the distal femur (38.4%). Eleven patients presented early recurrence, while 15 cases were diagnosed after 15 months, representing 42.3% and 57.7%, respectively. Metastases were identified in five patients (3.2%).

Conclusion: Tumor-related factors did not show any increased incidence of local recurrence of giant cell tumors. Surgical treatment with an intralesional margin is a valid option for treating local recurrences and does not show any difference in disease-free survival in relation to other types of procedures. Clinical treatment is reserved for cases of unresectable tumors or when surgical treatment is impossible.

☆ Study conducted at Instituto Nacional de Traumatologia e Ortopedia (Into), Rio de Janeiro, RJ, Brazil.

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Estudo epidemiológico de recidiva de tumor de células gigantes no Instituto Nacional de Traumatologia e Ortopedia

Palavras-chave:
Tumores de células gigantes
Recidiva
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RESUMO

Objetivos: O tumor de células gigantes (TCG) é uma neoplasia óssea benigna relativamente rara em adultos, porém seu comportamento biológico ainda é imprevisível. A incidência de recidiva local apresenta variação entre 0–65% em estudos internacionais, porém há poucos dados referentes a essa complicação em nossa população.

Métodos: Foram coletadas informações sobre 155 pacientes com diagnóstico histológico confirmado de TCG, acompanhados no serviço de oncologia ortopédica da nossa instituição, de janeiro de 2000 a julho de 2014. As características demográficas foram avaliadas e comparadas entre os pacientes que apresentaram recidiva local durante o seguimento clínico.

Resultados: Houve recidiva local em 26 pacientes (16,7%), dos quais 22 eram do sexo feminino (84,6%). A localização mais comum de recidiva local foi o fêmur distal (38,4%). Onze pacientes apresentaram recidiva precoce, enquanto 15 casos foram diagnosticados após 15 meses, o que representa, respectivamente, 42,3% e 57,7%. Metástases foram identificadas em cinco pacientes (3,2%).

Conclusão: Os fatores relacionados ao tumor não evidenciaram aumento da incidência de recidiva local de tumor de células gigantes. O tratamento cirúrgico com margem intralesional é uma opção válida no tratamento de recidivas locais e não apresenta diferença de sobrevida livre de doença entre outros tipos de procedimentos. Tratamento clínico é reservado em casos de tumores irressecáveis ou impossibilidade de tratamento cirúrgico.

Introduction

Giant cell tumor (GCT), or osteoclastoma, is a neoplasm of indeterminate malignancy with locally aggressive behavior, composed of mononuclear ovoid neoplastic tissue uniformly interposed by numerous giant cells.[1–3]

GCT represents approximately 5% of primary bone tumors and about 23% of benign bone tumors.[2,4] It occurs most often between 20 and 40 years of age, with a slight predominance in females (ratio of 1.2:1). It is considered a rare tumor in children and adolescents,[5] and less than 10% of cases occur in patients over 65 years.[6]

The most common location is the epiphyseal region of long bones in skeletally mature individuals; it can also affect the metaphyseal region of patients with open physis.[1,2] The most affected areas are the distal femur, proximal tibia and distal radius. Axial involvement is unusual.[7] Despite its benign behavior, this disease can develop with local complications and metastasis, especially into the lungs.[4,8,9]

Relapse is defined as symptomatic or radiologic evidence of the disease, at least three months after the treatment, and is generally detected within the first two years of follow-up.[10] Recurrence rates of primary GCT range from 0% to 65%, depending on the type of treatment and tumor site presentation. Despite their benign nature, pulmonary metastases occur in 2–5% of cases.[11]

GCT is a relatively rare benign tumor in adults; however, its biological behavior remains unpredictable. There are many published studies that report the experiences of international groups in developed countries, but there is little information about the disease's behavior in developing countries. This article presents the epidemiological data of 155 patients, with 14 years of follow-up, in a Brazilian orthopedic reference institution.

Methods

Data were collected on patients with confirmed histological diagnosis of GCT, followed-up at the Orthopedic Oncology Service from January 2000 to July 2014. This study was approved by the ethics committee of the institution.

Diagnostic investigation was conducted through clinical and radiological evaluation, which included conventional radiography, computed tomography, and magnetic resonance imaging. Subsequently, the patients underwent needle biopsy for histopathological definition.

The exclusion criteria were: local recurrence in less than three months after surgery; loss to follow-up; and incomplete clinical and radiological record.

The affected site, the presence of metastases and/or pathological fractures, the period of symptoms evolution, clinical and radiological staging and histopathological diagnosis were assessed, as well as the type of surgery performed, surgical margin, and the use of adjuvants. The follow-up period, disease-free time, and location/number of relapses were also assessed.

Patients were divided into three groups, A, B, and C, according to tumor site, as described by Takeuchi et al.[12] Group A included lesions in the femur, tibia, humerus, and radius. Group B comprised tumors located in the scapula, fibula, ulna and hand or foot. Group included tumors located in the axial skeleton.