RBO REVISTA BRASILEIRA DE ORTOPEDIA
www.rbo.org.br

Original Article

Giant-cell tumor: analysis on the importance of early diagnosis and the epidemiological profile☆

Diego Firmino de Carvalho Diniz Ferraz, César Augusto Torres dos Santos, Victor Hugo Farias Costa, Antônio Marcelo Gonçalves Souza, Paulo Rogerio Gomes Lima*

Service of Orthopedics and Traumatology, Hospital Otávio de Freitas, Recife, PE, Brazil

ARTICLE INFO

Article history:
Received 10 October 2014
Accepted 5 March 2015
Available online 5 January 2016

Keywords:
Giant-cell tumors/diagnosis
Giant-cell tumors/epidemiology
Giant-cell tumors/therapy

ABSTRACT

Objective: This study aimed to ascertain the relationship between early diagnosis of giant-cell tumors (GCT) and their prognosis, by correlating the time of symptom onset with the staging of the injury (through the Campanacci classification at the time of diagnosis), and with the type of treatment. The secondary objective of the study was to outline the epidemiological profile of patients with GCT in the region where the data were gathered, and to compare them with data in the literature.

Methods: The authors present an evaluation on 61 patients diagnosed with bone GCT, with regard to the site of involvement, age, initial symptoms, time of symptom onset, classification and type of treatment, among patients attended between May 1994 and August 2009.

Results: The threshold indicated as the limit for Campanacci stage I tumors to be the commonest diagnosis, with a 98.2% chance that the treatment would be non-aggressive, was 2 months after symptom onset. This finding was statistically significant ($p = 0.017$). Every additional month increased the chance that a patient would be diagnosed with an advanced-stage tumor by 10.94%, in relation to the chances of having the other two stages of the tumor.

Conclusion: The study result not only suggests that the alternative hypothesis that the earlier the diagnosis of GCT is, the less severe the lesion will be, has been confirmed; but also especially predicts the relationship between the time of symptom appearance and the severity of the tumor.

☆ Work performed in the Hospital do Câncer de Pernambuco, Recife, PE, Brazil.

* *Corresponding author.*
E-mails: diegofirminoferraz@gmail.com, d_ferrazz@hotmail.com (D.F. de Carvalho Diniz Ferraz).

http://dx.doi.org/10.1016/j.rboe.2015.12.012

Tumor de células gigantes: análise sobre importância do diagnóstico precoce e perfil epidemiológico

Palavras-chave:
Tumores de células gigantes/diagnóstico
Tumores de células gigantes/epidemiologia
Tumores de células gigantes/terapia

RESUMO

Objetivo: Presumir a relação entre o diagnóstico precoce do tumor de células gigantes (TCG) e o seu prognóstico, relacionar o tempo de surgimento dos sintomas com o estadiamento da lesão, por meio da classificação de Campanacci no momento do diagnóstico, e com tipo de tratamento. O objetivo secundário do estudo é traçar o perfil epidemiológico dos pacientes com TCG da região onde foram colhidos os dados e compará-lo com dados da literatura.
Métodos: Avaliação de 61 pacientes diagnosticados com tumor de células gigantes ósseo quanto ao local de acometimento, idade, sintomatologia inicial, tempo do surgimento dos sintomas, classificação e tipo de tratamento em pacientes atendidos entre maio de 1994 e agosto de 2009.
Resultado: Aponta o marco de dois meses após o início da sintomatologia como data limite, quando seria mais comum o diagnóstico de tumor estágio I de Campanacci e com 98,2% de chance de ser tratado de modo não agressivo, dados com relevância estatística ($p = 0,017$). A cada aumento de um mês a chance de um paciente ser diagnosticado com tumor em estágio avançado é 10,94% maior do que em relação aos outros dois estágios do tumor.
Conclusão: O resultado do estudo sugere não somente a confirmação da hipótese opcional de que quanto mais precoce o diagnóstico de TCG, menos grave é a lesão, mas, principalmente, prediz a relação do tempo de surgimento do sintoma com a gravidade do tumor.

Introduction

Bone giant-cell tumors (GCTs) are benign mesenchymal neoplasms with aggressive characteristics. Histologically, it is known that GCTs were first described by Cooper apud McCarthy[1] and were considered to be "fungal medullary exostoses". In 1845, Lebert et al. apud McCarthy[1] described a group of bone tumors with giant multinucleated cells that presented a tendency to recur, but which could be cured through amputation. Histopathological evaluations on GCTs reveal that they are formed by vascularized tissue consisting of stroma of fusiform or ovoid cells and by the presence of numerous multinucleated giant cells that resemble osteoclasts. They present characteristics common to many different tumoral and pseudotumoral lesions, and analysis together with the clinical and imaging characteristics is needed in order to confirm the diagnosis.

According to a series at the Mayo Clinic,[2] these tumors account for 5% of bone neoplasms and are slightly more prevalent in females. The age group most affected is between the second and fourth decades of life. GCTs generally affect a single bone. The commonest sites affected are the distal femur, proximal tibia and distal radius.

The clinical condition consists of progressive pain and increased joint volume, which may be associated with joint symptoms such as mechanical blocking and synovitis. These symptoms are often initially related to physical activity and the pain only rarely becomes incapacitating. A diagnosis of GCT is suspected when, in addition to the abovementioned clinical condition, radiographic evaluation reveals a tumor of osteolytic appearance that destroys the entire epiphysis and may reach as far as the joint cartilage (characteristics of aggressiveness in the radiological evaluation). The diagnosis is confirmed through histopathological analysis.

In 1990, Campanacci et al.[3] presented a radiographic classification for GCTs that describes three different grades: stage 1 – small, quiescent and intraosseous lesions; stage 2 – active or aggressive tumors, with compromised bone cortex, but presenting intact periosteum; stage 3 – aggressive, with invasion of adjacent soft issues.

Historically, the treatment consisted of simple curettage, but this method was shown to give rise to a high recurrence rate. Currently, the techniques most used are curettage with adjuvant therapy, resection of the affected segment with fusion-like reconstruction or auto/homograft replacement or use of endoprostheses.

Nonspecific initial symptoms, lack of medical training directed toward primary care and difficulty in accessing referral hospitals makes it harder to achieve early diagnosis and adequate treatment for GCTs. The present study had the aims of evaluating the relationship between early diagnosis of GCT and its prognosis and correlating the length of time since symptoms appeared with the staging of the lesion, by means of the Campanacci classification at the time of diagnosis, and with the type of treatment. This study also had the aim of establishing time markers for early diagnosis of GCT that would be capable of allowing the assumption of low severity of the lesion, with the need for less aggressive types of treatment, and serving as a guide for public policies for diagnosing and providing early treatment for GCT.