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ORIGINAL ARTICLE

Solid ameloblastomas - Retrospective clinical and histopathologic study of 54 cases

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Summary

Recently, the World Health Organization (WHO) excluded the desmoplastic pattern from the histopathological spectrum of solid ameloblastomas and classified it as a distinct variant, named desmoplastic ameloblastoma. **Aim:** To perform a retrospective analysis of the clinicopathologic aspects in a case series of solid ameloblastomas. **Study design:** Cross-sectional cohort study. **Materials and methods:** Data regarding age, gender, location and clinical characteristics were retrieved from patient records. Histological sections were evaluated regarding existing histological patterns and the predominant histological pattern. Cases were classified according to the study of Waldron and El-Mofty (1987) and the WHO classification of 2005. **Results:** A total of 54 cases were identified, with similar gender distribution and a mean age of 38.3 years. Fifty three cases (98.1%) affected the mandible. Forty nine cases (90.8%) were classified as solid ameloblastomas, 3 (5.6%) as desmoplastic ameloblastomas, and 2 (3.7%) as hybrid lesions. The most frequent histological patterns in solid ameloblastomas were follicular (77.6%), acanthomatous (69.4%), and plexiform (65.3%). Focal areas of desmoplastic ameloblastomas were identified in 11 solid ameloblastomas (22.4%). **Conclusion:** Despite its characterization as a distinct variant, our results revealed that focal areas of desmoplastic ameloblastomas can be observed with some frequency in conventional ameloblastomas.

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INTRODUCTION

Ameloblastoma is a benign epithelial odontogenic tumor, locally invasive and of slow growth[1]. Numerous histological patterns can be seen in these lesions, such as: follicular, plexiform, acanthomatous, desmoplastic, basal cells and granular[2]. Up to 1992, the World Health Organization (OMS) recognized the existence of 3 distinctive clinicopathologic variants of ameloblastoma, called conventional solid ameloblastoma, unicystic ameloblastoma and peripheral ameloblastoma[3].

Case reports and retrospective studies[4-8] carried out after the WHO's 1992 classification[3] reported important clinical and image differences between ameloblastomas comprised exclusively of the desmoplastic pattern and solid lesions made by the remaining histological patterns. Thus, in their most recent classification of odontogenic tumors, published in 2005, the WHO excluded the desmoplastic pattern from the histological spectrum of solid ameloblastomas and placed it as a distinctive variant called desmoplastic ameloblastoma[9].

According to the WHO[9], ameloblastomas which have both solid and desmoplastic areas are called hybrid lesions. It is suggested that the hybrid lesions represent a coalition of tumors[10,11]. Notwithstanding, Melrose[12] states that the word "hybrid" does not have a clearly defined purpose and, if considered literally, can overestimate the meaning of seeing areas of desmoplastic ameloblastoma in combination with islets of solid ameloblastoma.

Having the recent classification of odontogenic tumors from the WHO[9], the present study aims at doing a retrospective analysis of the clinical and histopathological findings from a number of solid ameloblastomas filed in the Laboratory of Oral Pathology of the Department of Dentistry of the Federal University of Rio Grande do Norte (UFRN).

MATERIALS AND METHODS

We carried out a retrospective study in a series of cases of solid ameloblastomas using clinical charts and histology slides found in the files of the Laboratory of Oral Pathology of the Department of Dentistry of the UFRN. This study was approved by the Ethics in Research Committee of the UFRN (Document # 171/2008).

We used 54 cases of solid ameloblastomas. The criteria established in order to include the cases in the sample were the presence of a recorded chart, with the gender of the patient and anatomical location of the lesions, as well as the existence of enough biological material in the paraffin blocks in order to prepare the histology slides. Any case which did not match the criteria previously established was taken off the study.

For the clinical study, we collected data regarding the patients' gender and age, as well as anatomical location, symptoms and time of lesion development.

For the morphological study we used 5mm thick slides cut from the paraffin material, dyed by the hematoxylin-eosin technique. The specimens were analyzed under light microscopy (Olympus X31 microscope), identifying the histological patterns present and the predominant histological pattern in the lesions. Later on, having as reference the study led by Waldron and El-Mofty[13] and the classification of odontogenic tumors by the WHO[9], The cases were classified into desmoplastic solid ameloblastomas or hybrid lesions. The criteria used to classify the cases are presented on Chart 1.

The data obtained was plotted on electronic spreadsheets using Microsoft Excel (Microsoft Corporation), and later on exported to the Statistical Package for Social Sciences (SPSS 13.0), from which we obtained the mean values, absolute and percentage frequencies through descriptive statistics techniques. In order to analyze the differences between solid ameloblastomas, desmoplastic ameloblastomas and hybrid lesions in relation to gender, anatomical location, region and symptoms, we used the Chi-Squared test, considering $p<0.05$ as significant value.

RESULTS

The analysis of the clinical data revealed a similar involvement between the genders, with 27 cases (50.0%) diagnosed in men and 27 (50.0%) in women. The age of the patients varied between 12 and 92 years, with a mean value upon diagnosis of 38.3 years. Men and women revealed mean ages of 38.2 and 38.4 years, respectively. As far as anatomical location is concerned, we noticed a predilection for the mandible (98.1%). Most of the cases were asymptomatic (82.1%) and were located in the posterior portion of the gnathic bones (66.7%). Time of evolution varied between 1 month and 33 years, with a mean value of 34.9 months. The diameter of the lesions varied between 0.7 cm and 15.0 cm, with a mean value of 4.2 cm.

After histopathological evaluation, 49 cases (90.8%) were classified as solid ameloblastomas, 3 (5.6%) as desmoplastic ameloblastomas and 2 (3.7%) as hybrid lesions. The clinical data related to gender, anatomical location, region and symptoms concerning each type of ameloblastoma are presented on Table 1. We did not notice statistically significant differences between solid ameloblastomas, desmoplastic ameloblastomas and hybrid lesions as far as gender is concerned ($p = 0.838$), anatomical location ($p = 0.949$), region ($p = 0.091$) and symptoms ($p = 0.358$).

Solid ameloblastomas affected patients with ages between 12 and 92 years (mean of 37.7 years). Desmoplastic ameloblastomas and hybrid lesions were respectively diagnosed in patients with ages between 20 and 51 years (mean of 34.3 years) and 44 and 71 years (mean of 57.5 years). In relation to size, solid ameloblastomas had diameters between 0.7 cm and 15.0 cm (mean of 4.3