Condensing Osteitis Lesions in Eastern Anatolian Turkish Population

Oğuzhan ALTUN, Numan DEDEOĞLU*, Esma UMAR, Ümit YOLCU, Ahmet Hüseyin ACAR

Inonu University, Dentistry Faculty, Department of Mouth Tooth and Jaw Radiology, Malatya, TURKİYE, Turk
*Corresponding author: dedenu@gmail.com

Received May 23, 2014; Revised May 29, 2014; Accepted May 29, 2014

Abstract

Objectives: The aim of this study was to determine the prevalence of condensing osteitis lesions in Eastern Anatolian Turkish population. About condensing osteitis lesions, these were evaluated; sex, localization, side, age, shape and status of involved teeth (caries, restoration etc.).

Methods: This retrospective study was carried out using panoramic radiographs of 962 patients who came to for some dental problems to Inonu University Faculty of Dentistry. Status of involved teeth (caries, restoration etc.), sex, age, shape, localization and side were evaluated.

Results: The evaluated of 962 patients, 539 female and 423 were male. 29 condensing osteitis lesions were found in 26 patients; 7 males and 19 females had once or two condensing osteitis lesion in apical or interradicular area detected by radiographic evaluation. Most condensing osteitis lesion were in the mandibular molar region 82.8%; mandibular first molar (n=21) was the most frequent condensing osteitis involved tooth (72.4%). Of these 29 condensing osteitis lesions, 15 (51.7%) were detected in the teeth that involved deep caries.

Conclusion: Condensing osteitis lesions had a prevalence of 2.7%, with mandibular molar region was the most included region. Deep cariesly teeth were the most common related to COL and mandibular first molars were the most involved teeth in the Eastern Anatolian Turkish population.

Keywords: condensing osteitis lesion, first molar, deep cariesly tooth


1. Introduction

Asymptomatic sclerotic bone images of the jaw bones are often encountered in radiographic examination. These lesions are seen in periapical, periradicular, interseptal and edentulous areas. Some of these lesions are associated with low level root inflammation, while others etiologies are unknown [1]. Unexplained increases in radiodensity of the the jaws is called idiopathic osteosclerosis. These lesions are usually asymptomatic and detected on routine radiographic examination [2].

Radiopaque lesions in periapical area associated with low level root inflammation are called chronic sclerosing osteomyelitis or condensing osteitis [2,3]. Condensing osteitis is usually seen in the mandible and molar teeth region [2]. However, the exact etiology is unknown and it is thought to be caused by the increase in osteoblastic activity. The lesion is characterized by excessive bone and develops as a result of dental pulp inflammation, radiopaque image returns to normal after a successful root canal treatment [4]. The aim of this study was to determine the prevalence of condensing osteitis in Malatya population evaluating according to gender, age, tooth number and dental status of the teeth involving condensing osteitis, location, shape of condensing osteitis and presence of antagonist teeth.

2. Material and Methods

This retrospective study was performed using 962 digital panoramic radiographs of patients who were referred to Department of Oral and Maxillofacial Radiology, Faculty of Dentistry at the Inonu University in 2011. The evaluated radiographs were obtained using orthopantomography device (Planmeca Proline XC -Helsinki, Finland). Condensing osteitis lesions (COL) is defined as formation of sclerotic bone from low grade chronic inflammation around the teeth root apices with widening periodontal space. The lesions with the following properties around the apical region were omitted from study; bening fibroosseous lesions, radiopacities around the healthy teeth, increased thickening of the lamina dura around a teeth. The lesion is characterized by excessive bone and develops as a result of dental pulp inflammation, radiopaque image returns to normal after a successful root canal treatment [4].
teeth was defined as apical only and, apical and interradicular. The variables were analyzed using the SPSS 17 statistical program. The Pearson chi-square test was used to determine for gender differences.

3. Results

Among the 962 digital panoramic radiographs evaluated, 539 belonged to female patients and 423 belonged to males. Patients ranged in age from 13 to 72 and were subjected to different dental problems. 29 COL were found in 26 of all the patients (2.7%). 19 of the patients were female (3.53%) and 7 were male (1.65%) ranging in age from 13 to 51 (Table 1). The Pearson chi-square test indicated no significant gender differences. Of the patients with lesions, 23 patients had 1 COL and 3 patients had 2 COL (Figure 1). 10 COL were found in the second decade of life (34.5%). Distribution according to tooth number of lesions were detected: 21 lesions in mandibular first molar (72.4%), 4 lesions in mandibular first premolar (13.8%), 3 lesions in mandibular third molar (10.3%) and 1 lesion in mandibular second premolar (3.4%) (Table 2). Dental status of COL involved teeth was also detected: 15 lesions between deep caries (51.7%), 8 lesions between large restorations (27.6%), 5 lesions between treated root canal (17.2%) and 1 lesion between crowned tooth (3.4%). Side of the lesions were found to be 17 in right (58.6%) and 12 in left side (41.4%). All of COL were found in mandible and most of them involved the molar region (82.8%). 28 teeth between COL had antagonist teeth (96.55%). 24 lesions had irregular shape (82.8%) and 5 had round shape (17.2%) (Figure 2). 20 COL were in relationship with apical only (69%) and 9 COL were apical and interradicular (31%) (Figure 3).

Table 1. Distribution of condensing osteitis lesions according to gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>n</th>
<th>Patients with COL</th>
<th>%</th>
<th>X²</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>female</td>
<td>539</td>
<td>19</td>
<td>3.53</td>
<td>3.15</td>
<td>0.076</td>
</tr>
<tr>
<td>male</td>
<td>423</td>
<td>7</td>
<td>1.65</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Distribution of condensing osteitis lesions according to tooth number and another characteristics

<table>
<thead>
<tr>
<th>Tooth number</th>
<th>Mandibular first molar (72.4%)</th>
<th>Mandibular third molar (10.3%)</th>
<th>Mandibular second premolar (3.4%)</th>
<th>Mandibular first premolar (13.8%)</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>7</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Female</td>
<td>14</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>Deep caries</td>
<td>10</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>Large restorations</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Treated root canal</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Crowned</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Right</td>
<td>14</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>17</td>
</tr>
<tr>
<td>Left</td>
<td>7</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Irregular</td>
<td>18</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>24</td>
</tr>
<tr>
<td>Round</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Apical</td>
<td>14</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Apical-interradicular</td>
<td>7</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>9</td>
</tr>
</tbody>
</table>

Figure 1. Panoramic radiograph showing two COLs at right mandibular second premolar and left mandibular first molar in a one patient

Figure 2. Panoramic radiograph showing an irregular shape COL at right mandibular first molar
4. Discussion


In our study there was no statistically significant gender difference in the frequency COL. This findings agrees with Verzak et al [9] and also Williams and Brooks [2]. Miloglu et al [5] and also Marmary and Kutiner [8] found COL prevalence in female higher than males. Avramidou et al [10] detected radiopaque lesions in female more than males.

COL occurs as a result of chronic low grade irritation by the presence of inflamed pulp, chronic pulpsitis or microorganisms of necrotic pulp, or inadequately treated root [10]. In addition, COL case was reported involved microorganisms of necrotic pulp, or inadequately treated pulp, chronic pulpitis or inflammation, and/or necrosis together with COL. Deep cariesly teeth were most common frequent related to COL. All of the COL were found in mandible and majority of COL found in mandibular molar region. Mandibular first molar teet were the most common teeth involved COL.

Conflict of Interest

The authors deny any conflicts of interest related to this study.

References


