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Combined Endodontic Periodontic Lesions and Related Factors in Southwestern Saudi Arabia

Hossam A. Eid¹, Ahmed A. Saleh**, and Ossama Gouda***

Abstract

Southern western region of Saudi Arabia (Aseer region) is characterized by presence of unique oral habits as khat chewing habit among both Saudi citizens and foreigners who live there for work and religion believes. This habit may act as suggested risk factor in emerging combined endoperio lesions in this region of the world. Objectives: was to study combined Endodontic Periodontic lesions and related factors among root canal treated cases attending outpatient clinics of College of Dentistry, King Khalid University. Methodology: During a three months period a total of 2150 patients attended the KKU dental clinics. Out of them 950 patients had endodontic treatment, from this number there were 200 patients with combined endoperio lesions with average age 41 years. Relevant demographic, clinical and x-ray data were collected from patients’ files. Results: Upper endo perio lesions were observed in 36% of patients while lower endoperio lesions were observed in 55% of patient having the habit of Khat chewing (65%). Lower endo perio lesions were apparently more common among patients aged 40 years and over (57.4%), males (55.7%), and patients having the habit of Khat chewing (80%). Conclusion: Combined endodontic periodontic lesions was significantly increased with khat chewing habit in Aseer region.

Key Words: Endo-perio lesions, Upper endo perio lesions, Lower endo perio lesions, Aseer region Saudi Arabia, Khat.

Introduction

Perio-endodontic lesions are common conditions that are often difficult to diagnose and persistent if not treated completely. However, if the patient’s history is taken carefully and thorough evaluation of all possible routes of infection is carried out, these lesions can be completely eliminated to give excellent results.¹². The dental pulp and periodontal tissues are closely related. The pulp originates from the dental papilla and the periodontal ligament from the dental follicle and is separated by Hertwig’s epithelial root sheet. As the tooth matures and the root is formed, three main pathways for exchange

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of infectious elements and other irritants between the two compartments are created by: dentinal tubules, lateral and accessory canals, and the apical foramen.  

The most conventional classification used for endodontic-periodontal lesions was given by Simon et al. (1972) separating lesions involving both periodontal and pulpal tissues into the following groups: Primary endodontic lesions, Primary endodontic lesions with secondary periodontal involvement, Primary periodontal lesions, Primary periodontal lesions with secondary endodontic involvement, and True combined lesions. A classification was recommended later by the World Workshop for Classification of Periodontal Diseases. Endodontic-periodontal lesion, Periodontal-endodontic lesion, and combined lesion.  

Trauma to teeth and alveolar bone may involve the pulp and the periodontal ligament. Both tissues can be affected either directly or indirectly. Dental injuries may take on many shapes but generally can be classified as enamel fractures, crown fractures without pulp involvement, crown fractures with pulp involvement, crown-root fracture, root fracture, luxation, and avulsion. Treatment of traumatic dental injuries varies depending on the type of injury and it will determine pulpal and periodontal ligament healing prognosis.  

The Aseer region (population of 1,200,000) is located in the southwest of Saudi Arabia covering an area of more than 80,000 km². The region extends from the high mountains of Sarawat (with an altitude of 3,200 meters above the sea level) to the Red Sea, and lies few kilometers from the northern border of the neighboring Yemen. Dental services in the region are provided through a wide spread network of primary health care centers and a tertiary services provided by the College of Dentistry, King Khalid University (KKU).  

Khat, qat or miraa are common names for Catha edulis, an evergreen plant of family Celastraceae that endemically grows in South-West Arabia and East Africa, where millions of local people habitually chew its fresh leaves and twigs for their stimulating, amphetamine-like effects. Khat has legally or illegally found its way to many Western countries where practicing the habit by immigrants is becoming an increasing phenomenon. It has negative effects on the oral health especially buccal mucosa and gingival tissues.  

The objective of the present work was to study combined Endodontic Periodontic lesions and related factors among root canal treated cases attending outpatient clinics of College of Dentistry, King Khalid University.  

MATERIALS AND METHODS  
During a three months period (January through March 2011) a total of 2150 patients attended the KKU dental clinics. Out of them 950 patients had endodontic treatment, from this number there were 200 patients with combined endoperio lesions. They were included in the present study. Pregnant women were excluded from the present study.  

Relevant demographic, clinical and x-ray data were collected from patients’ files. The collected data included gender, age, nationality, habits, and location of the lesion in upper or lower jaw. Similarly, two hundred panoramic and peri-apical x-rays of the endodontically treated teeth with endoperio lesions were examined. Patients consent to be included in the study were collected. Approval of the KKU ethical research committee was taken.  

Frequency, percentage, arithmetic mean, median and standard deviation were used to present the data. Univariate analysis methods were used at 5% level of significance. Multivariate binary logistic regression analysis was used to identify potential risk factors of endo perio lesions.
RESULTS

Description of the study sample

The present study included 200 patients suffering from endo perio lesions. They were 167 males and 33 females. Their age ranged from 30 to 50 years with an average of 39.82 ± 6.98 years and a median of 41 years. The mean age of males (39.75±7.04 years) was not significantly different (t=2.75, P=0.783) from the corresponding figure for females (40.12±6.76 years). Saudis were the most frequent seen nationality (58.5%) followed by Egyptians (10%) and Yemenis (6.5%). Ten percent (20) of the study sample had the habit of Khat chewing.

Location of Endo Perio Lesions

Upper endo perio lesions were observed in 36% (72) of patients while lower endoperio lesions were observed in 55% (110) of patients.

Determinants of Upper Endo Perio Lesions

Table 1 shows that upper endo perio lesions were apparently more common among patients aged 40 years and over (37.1%), males (37.1%), Non Saudis (40.9%) and patients having the habit of Khat chewing (65%). Using logistic regression analysis to identify risk factors associated with Upper Endo Perio Lesions, Khat chewing was found to be the only significant risk factor (aOR= 3.69, 95% CI=1.29 – 10.4). The study showed that patients chewing Khat had significantly more than 3 times the risk to develop upper endo perio lesions.

Determinants of Lower Endo Perio Lesions

Table 1 shows that lower endo perio lesions were apparently more common among patients aged 40 years and over (57.4%), males (55.7%), Saudis (55.6%) and patients having the habit of Khat chewing (80%). Using logistic regression analysis to identify risk factors associated with lower Endo Perio Lesions Khat chewing was found to be the only significant risk factor (aOR= 4.67, 95% CI=1.41 – 15.4). The study showed that patients chewing Khat had significantly more than 4 times the risk to develop lower endo perio lesions.

TABLE (1) Multivariate analysis of potential risk factors associated with Endo Perio Lesions in Aseer Region, south western Saudi Arabia.

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Upper Endo Perio Lesions</th>
<th>Lower Endo Perio Lesions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Patient age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-39 years</td>
<td>26</td>
<td>34.2</td>
</tr>
<tr>
<td>40+ years</td>
<td>46</td>
<td>37.1</td>
</tr>
<tr>
<td>Patient’s sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>10</td>
<td>30.3</td>
</tr>
<tr>
<td>Male</td>
<td>62</td>
<td>37.1</td>
</tr>
<tr>
<td>Nationality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saudi</td>
<td>38</td>
<td>32.5</td>
</tr>
<tr>
<td>Non Saudi</td>
<td>34</td>
<td>40.9</td>
</tr>
<tr>
<td>Khat Chewing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>59</td>
<td>32.8</td>
</tr>
<tr>
<td>Yes</td>
<td>13</td>
<td>65.0</td>
</tr>
</tbody>
</table>

\[ \text{aOR} = \text{adjusted odds ratio}; \, 95\% \, \text{CI} = 95\% \, \text{confidence intervals.} \]
DISCUSSION

Combined periodontal and endodontic therapy is essential for successful healing of a periodontal-endodontic lesion. Either endodontic or periodontic treatment alone would not lead to a satisfactory prognosis, if both disease entities are present and that both must be considered together. True-combined lesions are treated initially as primary endodontic lesions with secondary periodontal involvement. The prognosis of a true-combined perio-endo lesion is often poor or even hopeless, especially when periodontal lesions are chronic with extensive loss of periodontal attachment. Root amputation, hemi-section or separation may allow the root configuration to be changed sufficiently for part of the root structure to be saved. The prognosis of an affected tooth can also be improved by increasing bony support which can be achieved by bone grafting and guided tissue regeneration. This is due to the most critical determinant of prognosis being a loss of periodontal support. Cases of true combined disease usually have a more guarded prognosis than the other types of endodontic–periodontal problems. Thus, the prognosis of combined diseases rests with the efficiency of periodontal therapy. Most authors agreed that both forms of therapy are essential for successful healing of combined lesions. However, the problem arises over which lesion came first and which caused or aggravated the clinical problem. It is generally agreed that pulpal disease could initiate or perpetuate periodontal disease; the opposite theory is controversial. The lateral canals play an important role in spread of the infection from pulp to periodontal tissues. There are many studies where they have shown that accessory canals in root are more common in molars. Patent canals are especially common in furcation areas, where they have been found in between 20% to 60% of examined teeth. These accessory canals are one of the causes for periodontal involvement in endodontically involved tooth. Since there was a persistent pocket sub gingival scaling and root planning was performed, the pathways for the spread of bacteria between pulpal and periodontal tissues have been discussed with controversy. This article was an attempt to provide a rational approach to the combined endo-perio lesion possible risk factor in this particular region due to the presence of unique oral Khat chewing habit with its mechanical and chemical irritation to the buccal mucosa, gingival tissues and related teeth in the qhat chewing side for measuring the percentage of the Khat chweing habit among people with the combined endoperio lesions which may help in prevention or decrease such lesions in this society.

According to the results of this study the presence of the endoperio lesions in males more than females, specially in males with qat chewing habit, and also in the lower jaw more than the upper jaw specially the lower six molar teeth. This may be due to the early eruption of the lower six molar tooth, which mostly erupted at six years old, this tooth is the first permanent tooth erupted in the oral cavity, and subjected to the local noxious irritant either chemical or mechanical factors for long time, specially in males with khat chewing habit. In general, patients chewing Khat had significantly more than 4 times the risk to develop lower endo perio lesions and had significantly more than 3 times the risk to develop upper endo perio lesions. Also, lower endo perio lesions were apparently more common among patients aged 40 years and over (57.4%), males (55.7%), Saudis (55.6%) and patients having the habit of Khat chewing (80%). While, upper endo perio lesions were apparently more common among patients aged 40 years and over (37.1%), males (37.1%), Non Saudis (40.9%) and patients having the habit of Khat chewing (65%). From these results Khat chewing habit significantly has negative effect on the oral health status and act as risk factor which may increase the incidence of combined endoperio lesions in that part of the world.
CONCLUSION

Peoples live at Aseer region, in Southwestern of saudi arabia with khat chewing habit had a higher risk to develop combined endo-perio lesions

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REFERENCES