Research Article

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Evaluation of Chronic Inflammatory Periapical Lesions Among the Known Population

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ABSTRACT

Background: Majority of periapical lesions are the result of apical periodontal or pulpal disease. If left untreated, disease related to the tooth may spread to adjacent tissues, including the sinuses, orbits, deep fascial spaces of the neck. The present study was conducted with the aim to evaluate chronic inflammatory periapical lesions among the known population.

Material and methods: A sample of 60 teeth diagnosed with chronic inflammatory periapical lesions, with or without previous nonsurgical endodontic treatment, were evaluated clinically and radiographically and selected for the study. Histological evaluation was obtained after surgical endodontic treatment. Semi-serial slices were obtained and stained with hematoxylin/eosin and Gomori trichrome for light microscopy evaluation. The data obtained was used to correlate the clinical, radiographic, and histological findings to verify the occurrence of inflammatory development of chronic periapical lesions. Statistical analysis was done by using SPSS, version 22 (SPSS, Inc., Chicago, IL) and $p<0.05$ was considered statistically significant.

Results: A total of 60 chronic inflammatory periapical lesions were analyzed clinically and radiographically. Out of which 28(46.66%) were diagnosed as chronic apical periodontitis, 19 (31.66%) as inflammatory cysts and 13 (21.66%) had no characterization. When histological examinations were done, 33 cases (55%) were diagnosed as chronic apical periodontitis and 27(45%) as inflammatory cysts.

Conclusion: Our study concluded that there was a significant difference in clinical radiographic as well as histological diagnosis. Therefore, histological examination must be considered important in the diagnosis of chronic inflammatory periapical lesions.

Keywords: Chronic inflammatory periapical lesions, chronic apical periodontitis, inflammatory cysts.

INTRODUCTION

Periapical radiolucency is often seen incidentally at head and neck imaging studies performed for indications not related to the teeth but may represent the cause of a patient's symptoms. According to a study, 78% of periapical lesions are the result of an infectious or inflammatory process, occur due to apical periodontal or pulpal disease.[1] The inflammatory periradicular pathologies are universal and involve mainly the apical periodontium, with no predominance of race, sex or age.[2] Periapical lesions may have odontogenic or nonodontogenic origins. Many periapical lesions with nonodontogenic origins such as benign and

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malignant tumors, nonodontogenic cysts, and infections can imitate radiographic view of inflammatory odontogenic lesions.[3,4,5] Inadequate treatment of disease related to the teeth can lead to complications and contribute to increased patient morbidity and healthcare costs.[6,7] Thus, the present study was conducted with the aim to evaluate chronic inflammatory periapical lesions among the known population.

MATERIAL AND METHODS

A sample of 60 teeth diagnosed with chronic inflammatory periapical lesions, with or without previous nonsurgical endodontic treatment, were evaluated clinically and radiographically and selected for the study. Histological evaluation was obtained after surgical endodontic treatment. Endodontic surgery was conducted and biopsy specimens were sent to the pathology lab for histological evaluation and diagnosis determination. Semi-serial slices were obtained and stained with hematoxylin/eosin and Gomori trichrome for light microscopy evaluation. For ease histological analysis of the samples, the following findings compatible with chronic apical periodontitis were considered: connective tissue with variable collagen density, inflammatory infiltrate predominantly of

macrophages, lymphocytes, groups of plasmocytes, polymorphonucleocytes and giant cells, and presence of variable fibro-angioblastic proliferation that was epithelial or not. The lesions that presented connective tissue with variable diffuse inflammatory infiltrate and cavity formation limited by continuous or discontinuous stratified squamous epithelium were considered inflammatory cysts. The data obtained was used to correlate the clinical, radiographic, and histological findings to verify the occurrence of inflammatory development of chronic periapical lesions. Statistical analysis was done by using SPSS, version 22 (SPSS, Inc., Chicago, IL) and $p<0.05$ was considered statistically significant.

RESULTS

A total of 60 chronic inflammatory periapical lesions were analyzed clinically and radiographically. Out of which 28(46.66%) were diagnosed as chronic apical periodontitis, 19 (31.66%) as inflammatory cysts and 13 (21.66%) had no characterization. When histological examinations were done, 33 cases (55%) were diagnosed as chronic apical periodontitis and 27(45%) as inflammatory cysts.

Table 1: Evaluation of Chronic Inflammatory Lesions With Clinical Radiographic Examination

Chronic inflammatory lesions	Number n(%)	p-value
Chronic apical periodontitis	28(46.66%)	<0.05
Inflammatory Cysts	19(31.66%)	
Had no characterization	13(21.66%)	
Total	60(100%)	

Table 2: Evaluation of Chronic Inflammatory Lesions With Histological Examination

Chronic inflammatory lesions	Number n(%)	p-value
Chronic apical periodontitis	33(55%)	<0.05
Inflammatory Cysts	27(45%)	
Total	60(100%)	

DISCUSSION

The commonly seen inflammatory lesions are chronic apical periodontitis, periapical cyst and periapical granuloma. The origin of radicular cysts are from epithelial rests of Malassez' involved during the evolution of periapical granulomas, characterized by an inflammatory process associated with the central cavity formation and limited by the stratified squamous epithelium, which may be discontinuous.[1] In our study, a total of 60 chronic inflammatory periapical lesions were analyzed clinically and radiographically. Out of which 28(46.66%) were diagnosed as chronic apical periodontitis, 19 (31.66%) as inflammatory cysts and 13 (21.66%) had no characterization. When histological examinations were done, 33 cases (55%) were diagnosed as chronic apical periodontitis and 27(45%) as inflammatory cysts.

Comelli et al in their teeth evaluated 164 teeth having periapical lesions. Chronic inflammatory periapical lesions were seen in 43.2%, periapical cysts in 35.9% and indefinite lesions in 20.7% cases.[8] Lia RC et al showed the result that 71

(43.29%) were diagnosed as chronic apical periodontitis, 59 (35.98%) as inflammatory cysts and 34 (20.73%) had no definition. When histological evaluations were performed, 90 cases (54.88%) were diagnosed as inflammatory cysts, 74 (45.12%) as chronic apical periodontitis, and 2 presented a slight repair pattern.[9]

Trope et al found a significant lack of agreement for 8 lesions diagnosed clinically and radiographically as 4 inflammatory cysts and 4 chronic apical periodontitis. Histologically, only one was diagnosed as a radicular cyst.[10]

Eesha et al found that out of 148 teeth, 41 had chronic inflammatory lesions, 34 had inflammatory cysts and 25 had indefinite lesions. Chronic inflammatory lesions assessed histologically found chronic apical periodontitis in 86 cases and inflammatory cysts in 62 cases. The difference was significant (P< 0.05). Out of 86 cases of chronic apical periodontitis confirmed clinical radiographically, 64% found positive while 36% were not histologically. Out of 62 cases of inflammatory cysts confirmed clinical radiographically, 78% found positive while 36% were not histologically. Out of 25 indefinite lesions, 56% found chronic inflammatory lesions while 44% found inflammatory cyst.[11]

CONCLUSION

Our study concluded that there was a significant difference in clinical radiographic as well as histological diagnosis. Therefore, histological examination must be considered important in the diagnosis of chronic inflammatory periapical lesions.

CONFLICT OF INTEREST

No potential academic conflict of interest relevant to the above article was reported.

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