# Provisional versus histopathological diagnosis of periapical lesions

Sabah M SAKA*

## ABSTRACT

One hundred and thirteen cases of periapical lesions associated with non-vital anterior teeth are analysed and reported. The associated teeth were apicoectomised and the lesions were measured grossly and interpreted histopathologically. It was found that (66) out of (72) cases (91.7%) provisionally diagnosed as periapical granuloma or chronic periapical abscess show correct diagnosis histopathologically, whereas of (41) cases provisionally diagnosed as periapical radicular cyst only (24) (58.5%) show correct diagnosis histopathologically. It was found also that (29) periapical lesions out of (30) diagnosed histopathologically as periapical radicular cyst measured more than (10) mm of (83) periapical lesions diagnosed histopathologically as a granuloma or abscess, (71) measured less than (10) mm.

*Key Words:* Periapical lesion, provisional diagnosis, histological diagnosis.

## الخلاصة

تم تحليل مائة وثلاثة عشر حالة فيها آفات حول نهاية جذور الأسنان الأمامية غير الحية. أجريت لهذه الأسنان عملية قطع ذروة الجذر وتم قياس الآفات بالعين المجردة بواسطة مسطرة عادية ثم قراءة نتيجة المقاطع النسيجية تحت المجهر.

لقد تبين أن التشخيص المبدئي لـ (٦٦) حالة من أصل (٧٢) (٩١,٧%) آفات حُبيبية أو خراجات كانت مطابقة للفحص النسيجي. بينما من أصل (٤١) حالة شُخِّصت مبدئياً بأنها تكيُّس في نهاية الجذر كان (٢٤) (٦٨,٥%) فقط كان مطابقاً للفحص النسيجي. لقد تبين أيضاً أن (٢٩) من أصل (٣٠) حالة شُخِّصت نسيجياً بوجود تكيسات في نهاية الجذر كان قياسها أكثر من (١٠) ملم ومن أصل (٨٣) حالة شُخِّصت نسيجياً وجود آفات حُبيبية وخراجات، (٧١) حالة كان قياس آفاتها أقل من (١٠) ملم.

* Sabah Moshi SAKA; BDS, MSc, PhD: Assistant Prof. Department of Oral and Maxillofacial Surgery, College of Dentistry, University of Mosul, Mosul, IRAQ.

## INTRODUCTION

Periapical lesions associated with non-vital teeth are of three entities. These are periapical abscess, periapical granuloma and periapical radicular cyst. In most cases there is some sources of transformation from one type into another. Sequelae of pulpitis are periapical abscess and rather more commonly is periapical granuloma. Whereas the periapical radicular cyst is a common but not inevitable sequela of periapical granuloma [1]. Occasionally, these lesions are asymptomatic but in most cases the patient complains from one or a combination of the following signs and symptoms: pain, swelling, pus discharge through a sinus, the associated tooth shows tenderness to percussion and in advanced cases mobility of associated tooth. Radiograph of the lesions show radiolucent area of variable size seemingly attached to the root apex reflects the amount of the resorbed bone. In some cases this radiolucency shows well-circumscribed lesion dermacated from the surrounding bone. In these instances, a thin radioopaque line of sclerotic bone may sometimes be seen. This indicates that the lesion is slowly growing and has not undergone acute exacerbation. In other instances, these lesions appear radiographically as diffuse blending of radiolucent area with surrounding bone [2].

This study was designed to evaluate the accuracy of provisional diagnosis of periapical lesions compared to that of histopathological diagnosis. Also, the study was designed to find out whether the gross size of the lesions has any relation to the histopathological diagnosis.

## MATERIALS AND METHODS

One hundred and thirteen cases of apicoectomised anterior teeth associated with periapical lesions were retrieved from the files of Oral Pathology Section of the Dental College of Mosul University. Cases selected were strictly provisionally diagnosed and surgically operated by the same surgeon. The histopathological reports of the cases were also issued by the same histopathologist. The data concerning the provisional diagnosis, the gross size of the lesions and the histopathological diagnosis for the individual case stated in the biopsy form are tabulated. The provisional diagnosis of these cases was compared to the histopathological diagnosis. An attempt to relate the gross size of the lesion to the histopathological report of the individual case was carried out. The obtained data were analysed and reported.

## RESULTS

Following analysis of the data obtained from the biopsy reports of the studied cases, it was found that of (113) cases with periapical lesions (72) were provisionally diagnosed as periapical granuloma or periapical abscess. The remaining (41) cases were provisionally diagnosed as periapical radicular cyst. Table (1) shows the number of the cases with the type of periapical lesions contrasting the provisional and histopathological diagnosis of the lesions. Of the (72) periapical lesions diagnosed provisionally as periapical granuloma or abscess (66) (91.7%) were confirmed as such histopathologically.

Table (1): Analysis of periapical lesions showing the number of correct and incorrect provisional diagnosis

| Provisional Diagnosis | Number of Cases | Histopathological Diagnosis | |
|---|---|---|---|
| | | Correct | Incorrect |
| Granuloma and Abscess | 72 | 66 (91.70%) | 6 (8.30%) |
| Cyst | 41 | 24 (58.54%) | 17 (41.46%) |
| Total | 113 | 90 | 23 |

Table (2) shows the gross size of the lesions in relation to the histopathological diagnosis. Twenty nine out of (30) cases histopathologically diagnosed periapical cyst measured more than (10) mm. On the other hand out of (83) cases histologically diagnosed as periapical granuloma or abscess, (71) measured less than (10) mm.

Table (2): The gross size and histopathological diagnosis of periapical lesions

| Histopathological Diagnosis | Number of Cases | Gross Size (mm) | |
|---|---|---|---|
| | | <10 | >10 |
| Cyst | 30 | 1 | 29 |
| Granuloma and Abscess | 83 | 71 | 12 |

## DISCUSSION

The integrity of natural dentition regarding the function and æsthetic is essential. This study is stressed on non-vital anterior teeth with periapical lesions. Hence the dentist should direct his efforts not to sacrify such teeth as much as possible [3]. Treatment of teeth with periapical granuloma or abscess can successfully done endodontically, whereas teeth with radicular cyst should apicoectomised [1]. It was stated that in both clinical and radiographic evaluation of periapical lesions, there are many gray areas in which interpretations may vary among observers [4]. In order to reduce as much as possible the gray areas concerning the evaluation of lesions, it was

stressed in this study to select only cases provisionally diagnosed and surgically operated by the same surgeon. The inability to differentiate radiographically between granuloma and a radicular cyst is of minor importance if the treatment chosen is either extraction or complete apicoectomy. Lack of such differentiation does present problem in root canal therapy when apicoectomy is not completed, for then success of treatment often depend on the nature of the lesion [2]. Following root canal treatment of a tooth associated with radicular cyst, it was pointed out that incomplete healing resulted and subsequent enlargement of a cyst may occur again [5]. Hence teeth associated with periapical granuloma or abscess can successfully treated by either endodontic therapy or apicoectomy. Whereas teeth associated with radicular cyst apicoectomy is the treatment of choice. In this study it was found that the gross size of periapical lesions is directly related to the histopathological diagnosis. Only one case out of (30) having radicular cyst measured less than (10) mm. On the other hand only (12) out of (83) cases showing periapical granuloma or abscess measured more than (10) mm. It can always be argued that the sampling of such lesions for histopathological processing may not be adequate and the section prepared might not be representative. Serial sections of such lesions may show in some areas epithelial proliferation and in such instances the histopathological diagnosis will be radicular cyst rather than an abscess or granuloma [6]. Now if the gross size of periapical lesion considered to be equivalent to the radiolucent areas shown in the rediograph of the lesions, the appropriate treatment for periapical lesions can be selected. Teeth associated with lesions showing radiolucent area more than (10) mm should apicoectomised. By contrast, teeth associated with lesions showing radiolucent area less than (10) mm can successfully treated by root canal therapy and no need to expose such patients to a surgical process of apicoectomy.

## REFERENCES

1. Shafer WC, Hine MK. A Textbook of Oral Pathology. 4th Edn. WB Saunders Co. 1983.
2. Stafne EC, Gibilisco JA. Oral Roentgenographic Diagnosis. 4th Edn. WB Saunders Co. 1975.
3. Abdal AK, Retief DH, Jamison HC. The apical seal via the retrosurgical approach II. *Oral Surg.* 1982; 54: 213-219.
4. Seltzer S, Bender IB, Smith J, Freedman I. Endodontic failures; analysis based on clinical, radiographic and histologic findings. *Oral Surg.* 1967; 23: 500-530.
5. Bender IB. A commentary on general Bhaskar's hypothesis. *Oral Surg.* 1972; 34: 469-472.
6. Saka SM, MacDonald DG. Sampling of jagulo-digastric lymph nodes in oral cancer. *J Oral Pathol Med.* 1989; 18: 90-92.