

Prevalence of periodontal abscesses among patients suffering from chronic periodontitis in Iraq.

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ABSTRACT

Background: Little information is available regarding the prevalence and distribution of periodontal abscesses. The aim of this cross-sectional study is to provide more information about the prevalence and distribution of periodontal abscesses and its relation to other periodontal variables in order to help in the characterizing of the periodontal abscesses in relation to periodontitis.

Materials and method: 105 periodontally affected patients were examined 57 male and 48 female the mean age was 43 yrs. Seventeen subjects were diagnosed with periodontal abscesses (10 male and 7 female) their mean age was 59 yrs. The periodontal abscesses were studied by the assessment of clinical variables including both subjective (pain, redness, swelling and edema) and objective (bleeding on probing, pocket depth and plaque index).

Results: It was clear that the prevalence of periodontal abscesses increase with age in both sexes but it was higher in male (10 patients) than female (7 patients) all periodontal abscesses were associated with deep periodontal pocket where the mean pocket depth was (10.7 mm) in male and (9.7 mm) in female, also all periodontal abscesses presented with bleeding on probing, most of abscesses scored as "severe" acute stage 90% in male and 85.72 % in female, all male patients affected with periodontal abscesses were smokers, examined patients were presented with abundant amount of plaque accumulation reflect the negligence in oral hygiene care. The mostly affected teeth were anterior teeth then premolar and molar teeth equally.

Conclusion: the periodontal abscesses have clear characteristics and they are usually associated with sever periodontal destruction including deep pocket and bleeding on probing also they are correlated with smoking habit and plaque accumulation, their prevalence increase with age and it is higher in male than female.

Keywords: Chronic periodontitis, periodontal abscesses, pocket depth. (J Coll Dentistry 2005; 17 (1): 66-9).

INTRODUCTION

The periodontal abscess is an acute, frequent, periodontal lesion in which periodontal tissues may be rapidly destroyed. This condition is one of the few clinical situations in periodontics where patients may seek immediate care and it is highly prevalent in periodontally affected patients ⁽¹⁻³⁾. It is usually closely related to periodontal pocket affecting not only untreated patients but also patients during acute treatment or during maintenance phase ⁽⁴⁻⁶⁾.

Periodontal abscesses are also one of the main causes of tooth extraction and tooth loss mainly maintenance patients ^(4,5,7) and it may result in complications due to bacteraemia which may cause infections in distant locations⁽⁸⁻¹¹⁾. For this reason its importance lies not only with the prognosis of the periodontitis affected tooth but also with possibility of infection spreading. It is very important to distinguish between abscesses of endodontal and periodontal origin in order to render appropriate theory ⁽¹²⁾. However, in spite of its importance very little scientific information is available about this condition. So the aim of this descriptive cross sectional study is to assess the prevalence of periodontal abscesses and its distribution among patient suffering from chronic periodontitis in Iraq and its relation to many periodontal parameters (bleeding on probing, pocket depth and plaque accumulation)

MATERIALS AND METHODS

105 patients with an established diagnosis of chronic periodontitis were selected randomly in this study (57 male and 48 female) their age ranged between 20-70, the mean age was 43 yrs, and these patients attended the College of Dentistry, periodontal department seeking periodontal treatment. The abscesses were diagnosed in the post graduate clinic in their first visit. Patients were examined by the assessment of clinical variables including both subjective (pain, redness, swelling and edema). And objective assessment including (bleeding on probing, pocked depth and assessment of plaque accumulation using PLI⁽¹³⁾ on the related abscess area⁽¹⁴⁾ patients were asked about their age, smoking habit and any diabetic patients were excluded from the sample. endodontal abscesses were excluded by using radiographic examination and vitality test. Patients were also excluded if they have used Antibiotic. In the previous four weeks ⁽¹⁴⁾

Clinical Examination:

The subjective clinical variables included the evaluation of edema, redness, and swelling. The assessment was done by using a semi quantitative scale ranging from (1-4)
1=None 2= mild
3= moderate 4= severe

Pain was a self assessed by the patients ⁽¹⁴⁾. The objective clinical variables were recorded by using periodontal probes (William's periodontal probes) pocket depth was measured from the gingival margin to the base of the pocket in mm. Bleeding on probing:

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this was scored as bleeding occurred at any sites within 30 second of probing⁽¹⁵⁾.

RESULTS

16% of the patients suffered from acute periodontal abscesses, their distribution according to age and sex groups is shown in (table 1) where the higher percentage was 52.94 % in 60-69 age group, and the prevalence is higher in male than female (10 to 7) also it is clear that prevalence of periodontal abscesses increases with age especially in men.

Data shows that the distribution of periodontal abscesses was higher in upper arch than lower (10 to 8) and that higher periodontal pocket depth mean was in male (10.76) mm than in female (9.72) mm, results also showed that the older the patients the deeper the pocket, in male the mostly affected teeth were the anterior teeth (4 abscesses) while premolar and molar teeth were equally affected (3 abscesses), in female also anterior teeth were affected with (4 abscesses) while in premolar and molar teeth they were equally affected by (2) in each.

Table 2 shows the distribution of plaque index, pocket depth and bleeding on probing in patients with periodontal abscesses where results revealed that all patients suffered from bleeding on probing 100%. The lowest PLI (1.3) was in female group (1 patient) while the highest PLI (2.9) was in male group (3 patients) no one was included in (0-1) mean PLI. Regarding the depth of the pocket, the deeper pocket was found in male group (13mm) while the shallower was found in female group (7.8 mm) which mean all periodontal abscesses examined associated with deep pocket and the deeper was in male. Data shows that 45 subjects of the included sample were smokers, which means about half of the patients smoke cigarette. It is clear from table 3 it is clear that all male patients suffer from periodontal abscesses were smokers and in female with abscesses smokers constitute 5/7 of patients.

Results from table 4 revealed that 90% of abscesses in male and 85% in female were scored as severe, according to the 1-4 scale. In table 5 we attempted to study the correlation between periodontal abscesses and important periodontal variables such as bleeding on probing, pocked depth & plaque accumulation. Results showed that in both sexes there was a highly significant relationship between periodontal abscesses and the depth of affected pocket. About plaque accumulation in relation to periodontal abscess the relation was significant in both sexes.

DISCUSSION

Periodontal abscess in relation to gingival bleeding on probing the correlation was highly significant in male and significant in female. The

relation of smoking with periodontal abscess was significant in both sexes but higher in male group. Information about periodontal disease pattern among the population of developing countries is limited while these population may illustrate the natural history of the disease owing to low or virtually no access to dental care⁽¹⁶⁾.

An evaluation of previous literature reveals two clinical types of periodontal abscesses (a) those related to pre-existing periodontal pocket (b) those not necessarily associated with periodontal pocket in which impaction of foreign objects could explain the abscess⁽¹⁴⁾.

In our study all periodontal abscess were of the first groups associated with deep periodontal pocket. Moreover, periodontal abscesses occurring in periodontal pocket have been explained by different etiological theories. First exacerbation of a pre-existing periodontitis^(6,17) second, in appropriate periodontal therapy mainly scaling^(17,18) third, Re-occurrence of the disease^(4,5).

All these etiological possibilities may exist so more effort will be needed to study each one separately. In this study 16.2% of the studied population showed periodontal abscesses and these abscesses were slightly more in male than female, which may be due to the presence of deep pocket depth and higher plaque accumulation which is the main etiological factor of periodontitis and bone destruction.

Abscesses were also higher in older patients in both sexes this could be due to the impairment in the immune system with aging and that chronic periodontitis is a disease of old age in general.

Although all diabetic patients were excluded but there may be some patients taking "nifidipine" for a cardiovascular treatment, where nifidipine reported to be related to multiple abscess formation⁽¹⁹⁾. Regarding the location of the abscesses they were found in upper jaw more than in lower which is in agreement with Herrera et al in 2000⁽¹⁴⁾. Abscesses were detected mostly on anterior teeth (8 abscesses) while in premolar and molar teeth abscesses were equally distributed (5 abscesses) in each group.

This in disagreement with previous studies done in developed countries where higher prevalence of periodontal abscesses found on molar teeth because of furcation involvement⁽⁵⁾. This result tends to confirm the results of previous studies on comparable population of developing countries regarding the distribution of calculus and gingival recession. This unfitted finding may be related to the ignorance and / or negligence of the population in dental care where they neglect their prophylactic treatment until emergency care is needed. While in developed countries periodontal disease in anterior region is anticipated earlier due to their well developed preventive care. We detected bleeding on probing in all abscesses which agrees with Herrera et al in 2000⁽¹⁴⁾.

Also all related pockets were deeper than 6 mm, this is in agreement with Smith and Davis in 1986⁽²¹⁾ where the mean pocket depth was 11mm. All the affected patients had high PLI mean which reflect their poor oral cleaning standards.

Table(1) Distribution of periodontal abscesses in periodontally affected patients according to age group

Age group	Male		Female		Total	
	No.	%	No.	%	No.	%
20-29	0	0	1	14.28	1	5.88
30-39	0	0	1	14.28	1	5.88
40-49	1	10	0	0	1	5.88
50-59	4	40	1	14.28	5	29.41
60-69	5	50	4	57.14	9	52.94
Total	10	100	7	100	17	100

Table(2) Distribution of PLI , pocket depth and bleeding on probing on patients with periodontal Abscesses

PLI mean	Male		Female	
	No.	%	No.	%
0-1	0	-	0	-
1.1-2	0	-	1	14.28
2.1-3	10	100	6	85.72
Pocket depth (mean)		10.76 mm		9.72mm
Pocket				
0-3	0	-	0	-
4-6	0	-	0	-
7-9	2	20.0	3	42.86
10-13	8	80.0	4	57.14
Gingival bleeding	10	100	7	100

Table(3) Number and percentage of smoker in patients with periodontal Abscesses

Age group	Male		Female	
	No.	%	No.	%
20-29	0	-	0	-
30-39	0	-	1	20.0
40-49	1	10.0	0	-
50-59	5	50.0	1	20.0
60-69	4	40.0	3	60.0
Total	10	100	5	100

Not to forget smoking which is a major risk factor for periodontal abscesses and causes bone loss with increasing pocket depth even in the absence of periodontal disease, and are 4 times more likely to have advanced periodontal disease⁽²²⁾.

In this study most of the abscesses were diagnosed in a clear “severe” acute stage, where 87% of the abscesses were in (score 4)

which is in agreement with Herrera et al in 2000⁽¹⁴⁾ on comparable population of developing countries regarding the distribution of calculus and gingival recession.

Table(4) Severity of the periodontal abscesses

Severity scale	Male		Female	
	No.	%	No.	%
1	0	-	0	-
2	0	-	1	14.28
3	1	10	0	-
4	9	90	6	85.72
Total	10	100	7	100

Table(5) Correlation between periodontal abscesses with PLI, bleeding on Probing and pocket depth

	Male	Sig	Female	Sig
PA&PLI	0.89	P<0.05	0.9	P<0.05
PA& bleeding probing	0.90	P<0.001	0.90	P<0.05
PA& Pocket depth	0.95	P<0.001	0.94	P<0.001
PA& Smoker	0.83	P<0.05	0.60	P<0.05

*P<0.05 Significant

**P<0.001 High significant

***P>0.05 Non significant

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