

PROPOSAL OF INTRAORAL PATTERN OF DISTRIBUTION OF THE GENERALIZED AGGRESSIVE PERIODONTITIS⁺

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Abstract :

The generalized aggressive periodontitis is synonymous to the localized form . Each may have unique entity which is often confusable . So the aim of this study is to draw an intraoral pattern of disease distribution depending upon the gingival bleeding index , radiologic bone loss , pocket depth and the clinical tooth mobility . Thirty two GAP patient were examined clinically and radiologically , 19 female constituted 59.375% , their average age was 22.45 ± 0.981 . Male constituted 40.625% (13 patients) , their average age was 25.313 ± 0.89 . A significant difference only in their number was obtained ($P < 0.05$ T and test) . The total present teeth were 891 , teeth involved with 80% and more of bone loss was 523 , constituted 58.698% with significant difference . The mobile teeth were 387 constitute 74.28% with significant difference the GBI score showed two forms , high score (2.089 ± 0.88) and low score (0.89 ± 0.13) with significant difference. The result shows that the clinical parameters are consistent and symmetrical on both arches. The disease could take certain order in its distribution making intra oral pattern realizable .

المستخلص:

التهاب اللثة العدوانية والعام متشابه مع مثيله المحدود ، كل منهما يحمل مواصفات خاصة له والتي هي غالباً مربكة ومتداخلة ، ولذا كان الهدف من هذه الدراسة وضع صورة من طريقة توزيع التهاب اللثة العدوانية العام في داخل الفم اعتماداً على مقياس درجة نزف اللثة وعمق حبوب اللثة وكمية عظم الفك المفقودة جراء الالتهاب وعدد الاسنان المتحركة جراء فقدان العظم الساند . اثنان وثلاثون مريضاً تم تشخيصهم شعاعياً وسريراً كونهم يحملون مرض التهاب اللثة العدوانية العام ، ١٩ أنثى نسبتهم ٥٩,٣٧٥% ومعدل اعمارهم $22,45 \pm 0,981$ ، مع ١٣ ذكراً نسبتهم ٤٠,٦٢٥% ومعدل $25,313 \pm 0,89$. مجموع عدد الاسنان الموجودة لدى ٣٢ مريضاً كان ٩٨١ ، الاسنان المصابة بفقدان بنسبة ٢٠% من العظم الساند او اكثر كان ٥٢٣ نسبتها ٥٨,٦٩٨% . عدد الاسنان المتحركة ٣٨٧ ، نسبتها ٧٤,٢٨% . مقياس نزف اللثة اظهر حالتين ذات النزف العالي وذات النزف المعتدل والفرق بينهما مسند بدلالة علمية وان توزيع الاصابة في الفكين متناسق على كلاهما في آن واحد ، وبصورة ثابتة ويبدو ان الاصابة تأخذ شكلاً تسلسلياً ثابتاً . من هذا نستنتج ان المرض يتوزع في الفم بطريقة محددة وبنظام معين .

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Key words :

Generalized aggressive periodontitis , consistent symmetrical pattern , GAP of.

Introduction :

The periodontal diseases are associated with common signs and symptoms , but each form may have one or more specific characteristics [1] . Localized aggressive periodontitis touching the dentition of adolescents, characterized by specific intraoral pattern of involvement with characteristic design of alveolar bone cavitations [2] . The generalized aggressive periodontitis exhibits a different course and design of bone destruction [3] , touching individuals older than adolescents , taking a rapid course of bone destruction with visible gingival manifestations of inflammation [4] . These diseases are widely super imposed making some confusion due to a wide resemblance in their prevalence in given population which is around 1-2% , their sex predominance which is twice in female to one male [5] .

The localized form distribution is limited to few certain teeth , the first molars and incisors [6] . The generalized aggressive periodontitis is a synonymous to the localized one , showing a large resemblance in their bacteriological and immunological background [7] , but clinically they may show a confusable clinical signs [8] . It is well recognized that these aggressive forms are distinct from the common adult periodontitis , they may have unique entities [9] . However , some earlier studies suggested that the generalized form is a more sever expression of the localized form , but the generalized one exhibits dense clinical feature with relative generalized rapid rate of bone loss [10] . The clinical feature of the generalized form appear variant from that of localized in its onset , patient age , intra-oral distribution , severity of the gingival reaction , variable tooth mobility , presence of dental plaque , with evidences of sever and rapid bone loss [11] .

The actual pattern of the disease distribution in the oral cavity is confusable [12] . So the aim of this study is to draw an intra-oral distribution pattern of the generalized aggressive periodontitis .

Materials and Methods :

Thirty two young adult patients were examined separately , diagnosed clinically and radiologically as having generalized aggressive periodontitis (GAP) . A precise protocol of diagnosis supported by a bacteriologic test of random pocket content smears has been applied . Patients, medical history , past dental history particularly concerning the disease , present illness , chief complain and its duration date and reason of previous extraction gingival bleeding index (GBI) [13] , clinical pocket depth (CPD) [14] , clinical tooth mobility (CTM) [15] have been used in our diagnosis profile . Periapical x-rays with long – cone machine, full mouth exposure were performed . Teeth showing bone loss 20% and more of total tooth length on mesial or distal proximities were considered as involved with GAP [16] , wisdom teeth were excluded from this study due to being either unerupted or previously extracted .

Results :

Female constituted 59.375% of total number of patient (19 females) while 13 males constituted 40.625% . The average age of male was 25.313 ± 0.89 . That of females was 22.450 ± 0.987 (Table 1) .

A significant difference was obtained in privilege to female ($P < 0.01$ T test). The age average didn't show a significant variable . Bacteriologic smear's showed a positive existence and predominance of Actinobacillus Actinomyces temcomitance in our patients smears which confirm the diagnosis positively [17] .

The total number of teeth present in the oral cavity of 32 patients was 891 , the involved teeth showing bone loss exceed 20% of total root proximitic length in x-ray were 523 , which equal to 58.698% . A significant difference was obtained between the involved teeth and the total present teeth ($P < 0.05$ T test) . The mobile teeth of any grade of mobility was 387 , which constituted 74.28% of the total involved teeth with bone loss , these differences are significant ($P < 0.05$ T test) . Gingival bleeding index (GBI) showed two distinct groups , the high GBI score = 2.089 ± 0.88 and the low GBI score = 0.89 ± 0.13 . The high score patients was 13 female and 8 male , constitute 21 patients , equal to 65.625% . The low score was 6 females and 5 males , constituting 11 patients , equal to 34.385% of the total patients (Table 2). A significant difference was obtained between the two scores , and between the patients number ($P < 0.05$, T test) .

A significant difference was also obtained between the involved teeth and the total present teeth of each arch., also , as a total number of both arches ($P < 0.05$) .

Insignificant variable was found in present teeth number and involved teeth number when comparing that of maxilla to that of mandibles , (Table 3) . A significant difference was found between the number of mobile teeth and that of involved teeth on each arch separately and as a total of both arches ($P < 0.05$ T test). Insignificant variables were found between the number of mobile teeth of maxilla and that of mandible (Table 4) .

Discussion and Conclusions :

In this investigation , the criteria used to detect the disease activity and the pattern of the distribution suggest that the disease could exhibit either an active form with high tendency of gingival bleeding or as a mild reaction . The significant difference between both score of GBI may support the concept of Burst disease activity [18, 19] . The generalized aggressive periodnotitis could show a burst gingival inflammation , rapid bone destruction with excessive involvement of present teeth , or may stay mildly active but reactionable . This reaction was suggested due to the liberation of nitric oxide by the neutrophiles in the gingiva [20] and due to the injurious activation of neutrophiles [12, 21] . Radiologically , the disease appears of symmetrical pattern involving both sides in both arches . This observation could be unique of the generalized aggressive form which has been earlier noticed [11,22,23] . The bone loss pattern was mainly wide vertical which differs from that seen with the localized aggressive form [24] .The initial distribution of the localized form appeared inconsistent and asymmetrical [25,26] . Bone loss started at the incisors firstly , then extended to the first molars which were at early onset time still healthy [3] while its evolution to the most sever aggression seemed to be consistent and could lead to the generalization of the diseases by

involving all the present dentition successively with a specific order . The order of involvement seemed to be consistent and symmetrical on both arches . The order of aggravation according to the pocket depth started on maxillary molars then on mandibular central incisors , lateral incisors , then maxillary second premolars and mandibular first premolars (Table 3) .

The pattern of teeth mobility appeared different , depending upon the roots number , amount of alveolar bone lost , and the magnitude of the occlusal forces . The mandibular central and lateral incisors firstly appeared to be mobile , then the maxillary first premolars , then maxillary incisors (Table 4) .

This investigation suggests that the symmetrical and consistent pattern of bone loss and tooth mobility with designed order of involvement could draw an intraoral pattern of the generalized aggressive periodontitis . This pattern could be explained the disease evolution and facilitates the clinical differential diagnosis .

Table 1 : Distribution of GAP according to patient's age and sex .

Sex	Number of patient	Percent of patient number out of total number according to the sex	Average age
Male	13	40.625 %	25.313±0.899
Female	19	59.375%	22.450±0.981

- A significant value in patient numbers according to their sex ($P < 0.05$ T and F test) .

- Insignificant value of patient age .

Table 2 : Distribution of the disease according to GBI

Gingival bleeding index GBI	Female number and percentage out of total females	Male , number and percentage out of total male number	Number and percentage of patients out of the total number
High score 2.089±0.88	13 patients 68.421%	8 patients 61.5384%	21 patients 65.625%
Low score 0.89±0.13	6 patients 31.5789%	5 patients 38.4615%	11 patients 34.375%

- Significant difference between high and low GBI scores ($P < 0.01$, T and F test).

- Significant difference in number of patients showing high or low GBI scores ($P < 0.05$, T and F test).

- Insignificant difference in the variable of sex of high score GBI.

- Insignificant difference in the variable of sex of low score GBI.

Table 3 : The distribution of the GAP (in descending order) according to the amount of bone loss seen in x-ray

Maxillary teeth		First molar	Second premolar	Central incisor	Lateral incisor	Second molar	First premolar	Canine
	Number of present teeth	62	63	64	64	63	64	64
	Number of involved teeth	50	41	40	40	39	38	6
	Percent of involved teeth	80.645%	65.8%	62.5%	62.5%	61.9%	59.375%	9.375%
Mandibular teeth	Percent of involved teeth	80.952%	71.875%	68.75%	65.625%	59.375%	53.125%	21.875%
	Number of involved teeth	51	46	44	42	38	34	14
	Number of present teeth	63	64	64	64	64	64	64
		First molar	Central incisor	Lateral incisor	First premolar	Second molar	Second premolar	Canine

- A significant difference was found between the involved teeth and the total teeth present for each arch and as total of both arches ($P < 0.05$).
- Number of present teeth of mandibular arch 447, the number of the involved teeth was 269. Significance $P < 0.01$.
- Number of present teeth of maxillary arch 444, the number of the involved teeth was 254, significance $P < 0.01$.
- Insignificant difference was found between the present teeth in maxilla and in mandible.
- Insignificant difference was found between the involved teeth of maxilla compared to that of mandible.

The total member of each tooth type involved with bone loss is 20% or more of the root length proximities and its percent out of the total tooth type present in total patient number.

Table 4 : The distribution of mobility (in descending order) according to the clinical mobility (modified millers index)

Maxillary teeth		First premolar	Central incisor	Lateral incisor	First incisor	First molar	First premolar	Canine
	Number of involved teeth	41	40	40	50	38	39	6
	Number of mobile teeth	33	31	30	36	26	26	2
	Percent of mobile teeth out of involved	80.488 %	77.5%	75.0%	72.0%	68.421%	66.666%	33.333%
Mandibular teeth	Percent of mobile teeth out of involand	95.652 %	93.182%	72.549%	70.588%	69.0476%	65.789%	21.429%
	Number of mobile teeth	44	41	37	24	29	25	3
	Number of involved teeth	46	44	51	34	42	38	14
		Center incisor	Lateral incisor	First molar	Second premolar	First premolar	Second molar	Conine

- A significant difference was found between number of mobile teeth and the number of involved teeth with bone loss on each arch separately and as a total of both arches ($P < 0.05$).
- Insignificant difference was found between the mobile teeth of maxilla and that of mandible.
- Number of mobile teeth in both arches was 388 that of maxillary was 184 and that of mandible was 203.

Total number of each tooth type represents clinical mobility, and its percent out of the total number of each tooth type involved with bone loss.

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