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### RESEARCH ARTICLE

#### KNOWLEDGE AND ATTITUDE TOWARDS NEW CLASSIFICATION: PERIODONTAL DIAGNOSIS AND TREATMENT AMONG DENTAL PRACTITIONER IN MAHARASHTRA AND MADHYA PRADESH INDIA

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#### Abstract

This study is to compare the knowledge of general dental practitioner towards the New Periodontal Classification 2017. Comparison was done based on the questionnaire answered by different dental practitioners in Maharashtra & Madhya Pradesh, India. Questions were related to the diagnosis, treatment options, referral to periodontists and requirement of further Continuing Dental Education in terms of New Classification.

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#### Introduction:-

The speciality of periodontal treatment and diagnosis is evolving in all aspects ranging from newer advances in diagnosis, to the use of newer materials and regenerative techniques in treatment. These newer advances have given periodontal diagnosis and treatment planning a level of predictability for success, which was lacking just a decade ago. Thus, today we see periodontology as a speciality reaching newer heights, and with a very bright future in front of us. Periodontal disease is a multifactorial induced chronic inflammatory disease that affects tooth-supporting structure i.e. connective tissue and alveolar bone in the jaws, eventually leading to tooth loss.<sup>1</sup> There is a need to evaluate the attitude and perception of the general dental practitioners towards new periodontal classification, diagnosis, treatment, as they form the cornerstone of dental practice. Hence, this study aims to identify the various aspects of 2017 classification of periodontal diagnosis, treatment provided at a general dental clinic, along with referrals to periodontists. Based on the study done by Kanathur Smitha et al in 2020, oral prophylaxis is received by only 10-20% patients and 2% of the General dental practitioners stated that 80% of patients receive Scaling & root planning.<sup>2</sup>

This study, by the means of a questionnaire, aims to identify the current status of 2017 Periodontal Classification, Diagnosis & treatment in clinics, the protocol of maintenance therapy, and the general awareness of the dental profession toward periodontal care.

#### Subjects and Methods:-

The study was carried out in the form of a survey among 130 general dental practitioners having their dental clinics in the Maharashtra & Madhya Pradesh, India. A questionnaire comprising of 19 questions was distributed to each on the basis of Google Forms.

The questions ranged from classification of Periodontal diseases, diagnosis and treatment planning. The questionnaire was prepared by mutual discussion among the authors. Finally, a questionnaire consisting of 19 questions was prepared.

Dental practitioners with a dental clinic in Maharashtra & Madhya Pradesh, India. minimum qualification of BDS, and experience of at least one year in private clinical setup were included for the study.

Interns, dental students, dentists exclusively working in a dental institute and periodontists were excluded from the study.

Comparison is made among the awareness of new classification of Periodontal diseases in general dentist, diagnosis and treatment planning between two states i.e. Maharashtra & Madhya Pradesh.

The data was entered into the excel sheet. The data was analysed using SPSS (Statistical Package for Social Sciences) 20.0 version. The descriptive statistics was performed. The comparison between the categorical variables was done using Chi-square test. The comparison of the mean score was done using Unpaired 't' test. p value<0.05 was considered statistically significant. Confidence interval was set at 95%.

### **Results:-**

The study included 130 participants. 73 participants were from Madhya Pradesh and 57 participants were from Maharashtra, India. Out of 73 participants from Madhya Pradesh, India, 38 were BDS and 35 were MDS and out of 57 from Maharashtra 33 were BDS and 24 were MDS (Excluding Periodontist) in educational qualification. The number BDS and MDS Participants did not differ significantly between the states (Chi-square value- 0.440, df-1, p value-0.507).(Figure 1)

Each correct/most appropriate answer was assigned the score 1. The median (IQ) score of dentists from M.P. [14.0 (12.0-16.0)] did not differ significantly from the median (IQ) score of the dentists from Maharashtra [13.0 (12.0-15.0)] (p value- 0.092).

A significantly greater number of dentists from Madhya Pradesh (90.4%) as compared to Maharashtra (77.1%) had instrument in their clinic to measure pocket depth.

When the question was asked for knowledge of identification of initial periodontitis (i.e.If interdental Clinical Attachment Level at site of greatest loss is 1-2mm and maximum probing depth less than 4 mm then it is? ) a significantly greater proportion of (57.5)dentist from Madhya Pradesh correctly answered the question.

When the question was asked for knowledge of identification of slow progression of periodontitis (i.e. Radiograph or CAL (Clinical Attachment Level) show no evidence of bone loss over 5 years then it is?)a significantly greater proportion (74.0%) of dentist from Madhya Pradesh correctly answered the question.

When the question was asked for Consideration for periodontal treatment like flap surgeries and root coverage are successful a significantly greater proportion (93.2%) of dentist from Madhya Pradesh as compared to Maharashtra (77.2%) considered that therapy are successful.

The response of dentists from M.P. and Maharashtra did not differ significantly with respect to other questions (p value>0.05). (Table 1)

The median (IQ) score of MDS dentists [15.0 (13.0-16.0)] significantly more as compared to the median (IQ) score of the BDS dentists [13.0 (12.0-15.0)] (p value- 0.024).

A significantly greater proportion of MDS dentist (52.5%) as compared to BDS dentists (46.5%) correctly answered the question related to the identification of initial periodontitis (i.e. If interdental Clinical Attachment Level at site of greatest loss is 1-2mm and maximum probing depth less than 4 mm then it is?)

A significantly greater proportion of MDS dentist (59.3%) as compared to BDS dentists (53.5%) correctly answered the question related to the identification of slow progression of periodontitis (i.e. Radiograph or CAL (Clinical Attachment Level) show no evidence of bone loss over 5 years then it is?)

A significantly greater proportion of MDS dentists (55.9%) as compared to BDS dentists (26.8%) perform mucogingival surgeries in their clinic.

The response of MDS and BDS dentists did not differ significantly with respect to other questions.(Table 2)

### Discussion:-

The 1989 workshop recognized that periodontitis had several distinct clinical presentations, different ages of onset and rates of progression.<sup>3,4</sup> Based on these variables the workshop categorized periodontitis as prepubertal , juvenile (localized and generalized), adult, and rapidly progressive. The 1993 European Workshop determined that the classification should be simplified and proposed grouping of periodontitis into two major headings: adult and early onset periodontitis.<sup>5</sup> The 1996 workshop participants determined that there was insufficient new evidence to change the classification. Major changes were made in the 1999 classification of periodontitis,<sup>6-8</sup> which has been in use for the last 19 years. Periodontitis was reclassified as chronic, aggressive (localized and generalized), necrotizing and as a manifestation of systemic disease. Since the 1999 workshop, substantial new information has emerged from population studies, basic science investigations, and the evidence from prospective studies evaluating environmental and systemic risk factors. The analysis of this evidence has prompted the 2017 workshop to develop a new classification framework for periodontitis.<sup>9</sup>

Based on the 2017 World Workshop, it is suggested that a single definition be adopted for a patient is a periodontitis case in the context of clinical care if:

1. Interdental CAL is detectable at  $\geq 2$  non-adjacent teeth, or
2. Buccal or oral CAL  $\geq 3$  mm with pocketing  $>3$  mm is detectable at  $\geq 2$  teeth

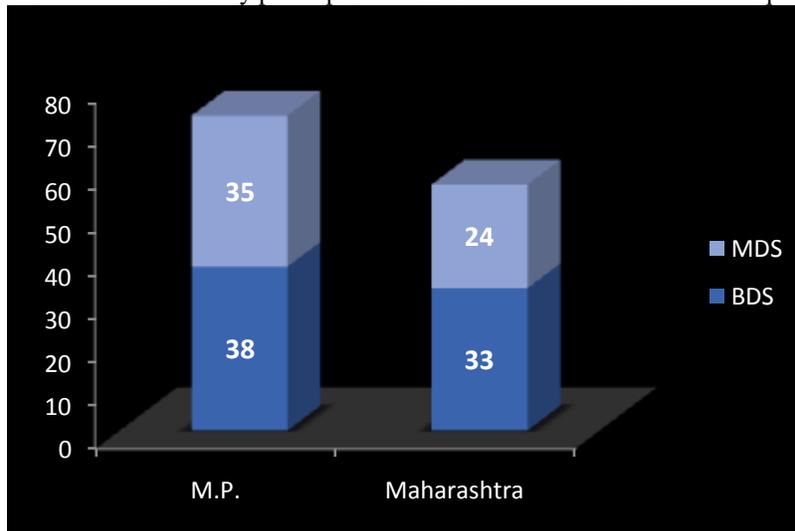
Staging & Grading given as per new Classification (Picture 1 & Picture 2)<sup>10</sup>

According to the new periodontal classification 2017 if less than 30 % of the teeth are involved it is denoted as localized and if more than 30% of the teeth are involved it is denoted as generalized. Staging is decided on the basis of CAL, Bone loss &tooth loss due to periodontitis. When coming to the grading of periodontitis is determined based on estimated disease progression in last 5 years. This can be done by direct method i.e. periodic radiographs & CAL measurement or indirect method includes determination of % of bone loss around the worst affected tooth divided by age of the patient i.e. BL/A.

Based on results obtain on date collection and analysis in our study it was found that when comparing between two states i.e. Madhya Pradesh & Maharashtra India, Dentist of greater proportion of dentist from Madhya Pradesh correctly answered the question related to the identification of initial periodontitis, identification of slow progression of periodontitis & flap surgeries and root coverage are successful. Whereas when comparing based on qualification of dentist, greater proportion of MDS dentist as compared to BDS dentists in terms of identification of initial periodontitis, identification of slow progression of periodontitis & performing mucogingival surgeries in their clinic.

### Acknowledgement:-

Figure 1:- Distribution of study participants of two states based on educational qualification.



**Table 1:-** Response of the participants of two states for different questions.

Question	Response	M.P.	Maharashtra	Total	Chi-square value	P value
Q1. Is there difference between gingivitis and periodontitis?	Yes	73 (100%)	57 (100%)	130 (100%)	-	-
	No	0 (0.0%)	0 (0.0%)	0 (0.0%)		
Q2. Do you examine various signs and symptoms of periodontal disease regardless of patient's chief complaint?	Yes	73 (100%)	56 (98.2%)	129 (99.2%)	1.291	0.256
	No	0 (0.0%)	1 (1.8%)	1 (0.8%)		
Q3. When do you say that the patient is having periodontitis?	Bleeding gums and presence of pocket depth	3 (4.1%)	3 (5.3%)	6 (4.6%)	1.568	0.667
	Mobility and furcation involvement	4 (5.5%)	4 (7.0%)	8 (6.2%)		
	Both	66 (90.4%)	49 (86.0%)	115 (88.5%)		
	No idea	0 (0.0%)	1 (1.8%)	1 (0.8%)		
Q4. Do you record pocket depth as a part of routine oral health examination?	Yes	49 (67.1%)	39 (68.4%)	88 (67.7%)	0.025	0.875
	No	24 (32.9%)	18 (31.6%)	42 (32.2%)		
Q5. Do you have any instrument in your clinic to measure pocket depth?	Yes	66 (90.4%)	44 (77.1%)	110 (84.6%)	4.296	0.038*
	No	7 (9.6%)	13 (22.9%)	20 (15.4%)		
Q6. Which parameter do you prefer to confirm periodontitis?	Clinical findings	6 (8.2%)	1 (1.8%)	7 (5.4%)	3.770	0.152
	Radiographs	2 (2.7%)	4 (7.0%)	6 (4.6%)		
	Both	65 (89.0%)	52 (91.2%)	117 (90.0%)		
Q7. Do you consider periodontal destruction and bone loss as a factor affecting orthodontic treatment?	Yes	67 (91.8%)	46 (80.7%)	113 (86.9%)	3.456	0.063
	No	6 (8.2%)	11 (19.3%)	17 (13.1%)		
Q8. Which classification for periodontitis do you follow?	1997/1999/older	47 (64.4%)	28 (49.1%)	75 (57.7%)	3.054	0.081
	2017	26 (35.6%)	29 (50.9%)	55 (42.3%)		
Q9. If interdental Clinical Attachment Level at site of greatest loss is 1-2mm and maximum probing depth less than 4 mm then it is	Stage I: Initial periodontitis	42 (57.5%)	22 (38.6%)	64 (49.2%)	9.144	0.027*
	Stage II: Moderate periodontitis	24 (32.9%)	19 (33.3%)	43 (33.1%)		
	Stage III: Severe periodontitis with potential for additional tooth loss	3 (4.1%)	4 (7.0%)	7 (5.4%)		
	No idea	4 (5.5%)	12 (21.1%)	16 (12.3%)		
Q10. If a patient is having stage II grade B Periodontitis, then;	Interdental CAL (Clinical Attachment Level) at site of greatest loss is 1-2 mm & moderate rate of	5 (6.8%)	3 (5.3%)	8 (6.2%)	1.469	0.689

	progression					
	Interdental CAL(Clinical Attachment Level) at site of greatest loss is 3-4 mm & moderate rate of progression	23 (31.5%)	23 (40.4%)	46 (35.4%)		
	Interdental CAL(Clinical Attachment Level) at site of greatest loss is >5 mm & moderate rate of progression	26 (35.6%)	20 (35.1%)	46 (35.4%)		
	No idea	19 (26.0%)	11 (19.3%)	30 (32.1%)		
Q11. If interdental CAL(Clinical Attachment Level) at site of greatest loss is >5mm and probing depth more than 6 mm then it is	Stage I: initial periodontitis	1 (1.4%)	0 (0.0%)	1 (0.8%)	2.920	0.404
	Stage II: Moderate periodontitis	13 (17.8%)	16 (28.1%)	29 (22.3%)		
	Stage III: Severe periodontitis with potential for additional tooth loss	46 (63.0%)	30 (52.6%)	76 (58.5%)		
	No idea	13 (17.8%)	11 (19.3%)	24 (18.5%)		
Q12. Radiograph or CAL(Clinical Attachment Level) show no evidence of bone loss over 5 years then it is	Grade A: Slow rate of progression	54 (74.0%)	19 (33.3%)	73 (56.2%)	38.643	0.000*
	Grade B: Moderate rate of progression	3 (4.1%)	25 (43.9%)	28 (21.5%)		
	Grade C	0 (0.0%)	4 (7.0%)	4 (3.1%)		
	No idea	16 (21.9%)	9 (15.8%)	25 (19.2%)		
Q13. Do you perform full mouth scaling for patients showing signs of gingival or periodontal diseases?	Yes	72 (98.6%)	53 (93.0%)	125 (96.2%)	2.761	0.097
	No	1 (1.4%)	4 (7.0%)	5 (3.8%)		
Q14. Do you perform curettage in patients with chief complaint of bleeding gums?	Yes	33 (45.2%)	29 (50.9%)	62 (47.7%)	0.413	0.521
	No	40 (54.8%)	28 (49.1%)	68 (52.3%)		
Q15. Do you consider periodontal treatment like flap surgeries and root coverage are successful?	Yes	68 (93.2%)	44 (77.2%)	112 (86.2%)	6.833	0.009*
	No	5 (6.8%)	13 (22.8%)	18 (13.8%)		
Q16. Do you give oral hygiene instructions/ demonstrate brushing technique and use of any interdental aids to the patients?	Yes	58 (79.5%)	42 (73.7%)	100 (76.9%)	1.650	0.438
	At times	15 (20.5%)	14 (24.6%)	29 (22.3%)		
	No	0 (0.0%)	1 (1.8%)	1 (0.8%)		
Q17. Do you perform mucogingival surgeries in your clinic?	Yes	31 (42.5%)	21 (36.8%)	52 (40.0%)	0.422	0.516
	No	42 (57.5%)	36 (63.2%)	78 (60.0%)		

18. Do you refer your patient to a periodontist/ Do you have a consultant periodontist visiting your practice?	Yes	55 (75.3%)	48 (84.2%)	103 (79.2%)	1.530	0.216
	No	18 (24.7%)	9 (15.8%)	27 (20.8%)		
Q19. Do you want educational program on the new classification, diagnosis & treatment planning in periodontics?	Yes	69 (94.5%)	54 (94.7%)	123 (94.6%)	0.003	0.957
	No	4 (5.5%)	3 (5.3%)	7 (5.4%)		

**Table 2:-** Response of the participants of with different educational qualification.

Question	Response	BDS	MDS	Total	Chi-square value	P value
Q1. Is there difference between gingivitis and periodontitis?	Yes	71 (100%)	59 (100%)	130 (100%)	-	-
	No	0 (0.0%)	0 (0.0%)	0 (0.0%)		
Q2. Do you examine various signs and symptoms of periodontal disease regardless of patient's chief complaint?	Yes	71 (100.0%)	58 (98.3%)	129 (99.2%)	1.213	0.271
	No	0 (0.0%)	1 (1.7%)	1 (0.8%)		
Q3. When do you say that the patient is having periodontitis?	Bleeding gums and presence of pocket depth	3 (4.2%)	3 (5.1%)	6 (4.6%)	2.338	0.504
	Mobility and furcation involvement	6 (8.5%)	2 (3.4%)	8 (6.2%)		
	Both	61 (85.9%)	54 (91.5%)	115 (88.5%)		
	No idea	1 (1.4%)	0 (0.0%)	1 (0.8%)		
Q4. Do you record pocket depth as a part of routine oral health examination?	Yes	48 (67.6%)	40 (67.8%)	88 (67.7%)	0.001	0.982
	No	23 (32.4%)	19 (32.2%)	42 (32.2%)		
Q5. Do you have any instrument in your clinic to measure pocket depth?	Yes	59 (83.1%)	51 (86.4%)	110 (84.6%)	0.276	0.599
	No	12 (16.9%)	8 (13.6%)	20 (15.4%)		
Q6. Which parameter do you prefer to confirm periodontitis?	Clinical findings	5 (7.0%)	2 (3.4%)	7 (5.4%)	0.878	0.645
	Radiographs	3 (4.2%)	3 (5.1%)	6 (4.6%)		
	Both	63 (88.7%)	54 (91.5%)	117 (90.0%)		
Q7. Do you consider periodontal destruction and bone loss as a factor affecting orthodontic treatment?	Yes	58 (81.7%)	55 (93.2%)	113 (86.9%)	3.769	0.052
	No	13 (18.3%)	4 (6.8%)	17 (13.1%)		
Q8. Which classification for periodontitis do you follow?	1997/1999/older	40 (56.3%)	35 (59.3%)	75 (57.7%)	0.118	0.732
	2017	31 (43.7%)	24 (40.7%)	55 (42.3%)		
Q9. If interdental Clinical Attachment Level at site of greatest	Stage I: Initial periodontitis	33 (46.5%)	31 (52.5%)	64 (49.2%)	9.521	0.023*
	Stage II: Moderate	30 (42.3%)	14 (23.7%)	43 (33.1%)		

loss is 1-2mm and maximum probing depth less than 4 mm then it is	periodontitis					
	Stage III: Severe periodontitis with potential for additional tooth loss	4 (5.6%)	2 (3.4%)	7 (5.4%)		
	No idea	4 (5.6%)	12 (20.3%)	16 (12.3%)		
Q10. If a patient is having stage II grade B Periodontitis, then;	Interdental CAL (Clinical Attachment Level) at site of greatest loss is 1-2 mm & moderate rate of progression	4 (5.6%)	4 (6.8%)	8 (6.2%)	5.595	0.133
	Interdental CAL (Clinical Attachment Level) at site of greatest loss is 3-4 mm & moderate rate of progression	29 (40.8%)	17 (28.8%)	46 (35.4%)		
	Interdental CAL (Clinical Attachment Level) at site of greatest loss is >5 mm & moderate rate of progression	27 (38.0%)	19 (32.2%)	46 (35.4%)		
	No idea	11 (15.5%)	19 (32.2%)	30 (32.1%)		
Q11. If interdental CAL (Clinical Attachment Level) at site of greatest loss is >5mm and probing depth more than 6 mm then it is	Stage I: initial periodontitis	1 (1.4%)	0 (0.0%)	1 (0.8%)	2.762	0.430
	Stage II: Moderate periodontitis	19 (26.8%)	10 (18.9%)	29 (22.3%)		
	Stage III: Severe periodontitis with potential for additional tooth loss	39 (54.9%)	37 (62.7%)	76 (58.5%)		
	No idea	12 (16.9%)	12 (20.3%)	24 (18.5%)		
Q12. Radiograph or CAL (Clinical Attachment Level) show no evidence of bone loss over 5 years then it is	Grade A: Slow rate of progression	38 (53.5%)	35 (59.3%)	73 (56.2%)	10.20	0.017*
	Grade B: Moderate rate of progression	22 (31.0%)	6 (10.2%)	28 (21.5%)		
	GRADE C	2 (2.8%)	2 (3.4%)	4 (3.1%)		
	No idea	9 (12.7%)	16 (27.1%)	25 (19.2%)		
Q13. Do you perform full mouth scaling for patients showing signs of gingival or periodontal diseases?	Yes	69 (97.2%)	56 (94.9%)	125 (96.2%)	0.448	0.503
	No	2 (2.8%)	3 (5.1%)	5 (3.8%)		
Q14. Do you perform curettage in patients with chief complaint of bleeding gums?	Yes	32 (45.1%)	30 (50.8%)	62 (47.7%)	0.431	0.511
	No	39 (54.9%)	29 (49.2%)	68 (52.3%)		
Q15. Do you consider periodontal treatment like flap surgeries and	Yes	60 (84.5%)	52 (88.1%)	112 (86.2%)	0.356	0.551
	No	11 (15.5%)	7 (11.9%)	18 (13.8%)		

root coverage are successful?						
Q16. Do you give oral hygiene instructions/demonstrate brushing technique and use of any interdental aids to the patients?	Yes	51 (71.8%)	49 (83.1%)	100 (76.9%)	4.140	0.126
	At times	20 (28.2%)	9 (15.3%)	29 (22.3%)		
	No	0 (0.0%)	1 (1.7%)	1 (0.8%)		
Q17. Do you perform mucogingival surgeries in your clinic?	Yes	19 (26.8%)	33 (55.9%)	52 (40.0%)	11.426	0.001*
	No	52 (73.2%)	26 (44.1%)	78 (60.0%)		
18. Do you refer your patient to a periodontist/Do you have a consultant periodontist visiting your practice?	Yes	55 (77.5%)	48 (81.4%)	103 (79.2%)	0.296	0.586
	No	16 (22.5%)	11 (18.6%)	27 (20.8%)		
Q19. Do you want educational program on the new classification, diagnosis & treatment planning in periodontics?	Yes	67 (94.4%)	56 (94.9%)	123 (94.6%)	0.019	0.890
	No	4 (5.6%)	3 (5.1%)	7 (5.4%)		

Picture 1:-

Periodontitis stage		Stage I	Stage II	Stage III	Stage IV
Severity	Interdental CAL at site of greatest loss	1 to 2 mm	3 to 4 mm	≥5 mm	≥5 mm
	Radiographic bone loss	Coronal third (<15%)	Coronal third (15% to 33%)	Extending to mid-third of root and beyond	Extending to mid-third of root and beyond
	Tooth loss	No tooth loss due to periodontitis		Tooth loss due to periodontitis of ≤4 teeth	Tooth loss due to periodontitis of ≥5 teeth
Complexity	Local	Maximum probing depth ≤4 mm Mostly horizontal bone loss	Maximum probing depth ≤5 mm Mostly horizontal bone loss	In addition to stage II complexity: Probing depth ≥6 mm Vertical bone loss ≥3 mm Furcation involvement Class II or III Moderate ridge defect	In addition to stage III complexity: Need for complex rehabilitation due to: Masticatory dysfunction Secondary occlusal trauma (tooth mobility degree ≥2) Severe ridge defect Bite collapse, drifting, flaring Less than 20 remaining teeth (10 opposing pairs)
		Extent and distribution	Add to stage as descriptor	For each stage, describe extent as localized (<30% of teeth involved), generalized, or molar/incisor pattern	

**Conclusion:-**

The world workshop 2017 Periodontal Classification is based on sound scientific ground and most clinically oriented classification. According to the classification diagnosis should be written as Generalised/Localized Periodontitis, Stage I/II/III/IV, Grade A/B/C.

The importance of a regular Periodontal examination/Screening should be emphasized to the general dentist. This can be achieved by conducting Continuing Dental Education program for general dentist and specialist dentist of other branch. A completely innovative technology can be used and information can be given by conducting webinars. All

the institutes should incorporate 2017 periodontal classification in the curriculum of under graduate dental students so that they can come out with the knowledge of latest trend of periodontal disease classification, diagnosis and periodontal management.

General dentist should be aware of multidisciplinary approach and give referral to Periodontist for periodontal management. This change in practice will enhance the treatment outcome & longevity of dentition.

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