

Periodontal diagnosis in the context of the 2017 classification system of periodontal diseases and conditions: Presentation of a middle-aged patient with localised periodontitis

C. Walter,¹ P. Ower,² M. Tank,³ N. X. West,⁴ I. Needleman,⁵ F. J. Hughes,⁶ R. Wadia,⁷ M. R. Milward,⁸ P. J. Hodge,⁹ I. L. C. Chapple,⁸ and T. Dietrich*¹⁰

Key points

Demonstrates the application of the BSP implementation plan for diagnosing periodontitis patients according to the 2017 classification.

Discusses staging and grading of periodontitis in relation to alternative case definitions used in the epidemiologic literature.

Illustrates that thorough periodontal screening is required to diagnose localised periodontitis.

The objective of this case report is to illustrate the diagnosis and classification of periodontitis according to the 2017 classification system as recommended in the British Society of Periodontology (BSP) implementation plan. We describe a case of a patient who was diagnosed with 'localised periodontitis; stage II, grade B; currently unstable'. The present case report presents an example for the application of the new classification system and illustrates how the new classification system captures disease severity, extent and disease susceptibility by staging and grading periodontitis.

Introduction

The 1999 classification of periodontal diseases and conditions did not provide a clear definition of periodontal health versus disease. This was subsequently recognised as a significant limitation, in particular for clinical and epidemiologic research. Consequently, both a working group of the Centers for Disease Control and Prevention/American Academy of Periodontology (CDC/AAP)^{1,2} as well as an European Federation of Periodontology

(EFP) workshop³ suggested case definitions for periodontitis, for use in epidemiologic studies. These have subsequently gained some traction in the epidemiologic research community, but were 'not intended nor approved for clinical use or biologic research'.²

The 2017 classification of periodontal and peri-implant diseases and conditions provides, for the first time, clear definitions of periodontal health and disease.⁴ Furthermore, the introduction of a staging and grading system provides for an explicit distinction of severity/extent of periodontitis (stage) and disease susceptibility/progression (grade).⁵

In this case presentation we report on a middle-aged patient with localised periodontitis. We demonstrate, step-by-step, how the BSP recommendations for implementation of the 2017 classification system⁶ can be applied in practice to reach an appropriate periodontal diagnosis.

Case report

The 47-year-old female patient presented as a new patient. The patient was a physician, a never-smoker and was in good general health with no relevant medical history. However, she reported frequent travelling and some stress.

Intraoral clinical inspection revealed good oral hygiene and virtually no signs of gingival inflammation (Fig. 1). In addition, the patient did not present overt interproximal recession or clinical attachment loss.

As part of the initial patient assessment a BPE screening examination was indicated (Table 1). The BPE codes of 4 in both upper posterior sextants were, in the absence of pseudopockets, consistent with a provisional diagnosis of periodontitis and triggered a full periodontal assessment including a six point pocket chart, bleeding on probing and radiographs.

The detailed pocket chart (DPC) revealed maximum periodontal probing depth of 6 mm mesio-palatally on tooth 15 and disto-buccally on 26 (Fig. 2). Consistent with the DPC findings, radiographic bone loss due to periodontitis was evident on 17, 16, 15, 26 and 27. Accounting for the radiographic evidence of previous apicectomy of 15, the bone loss was judged to be confined to the coronal third of the roots (Fig. 3).

The medical history and results of the clinical and radiological examination therefore led to a diagnosis of periodontitis. There was evidence of bone loss exceeding 15% of the root length,

¹Department of Periodontology, Endodontology and Cariology, University Centre for Dental Medicine, University of Basel, Basel, Switzerland; ²Specialist in Periodontology, Periocourses Ltd., Alton, UK; ³Specialist in Periodontology, UK; ⁴Periodontology Clinical Trials Group, University of Bristol, Bristol, UK; ⁵Department of Periodontology, Eastman Dental Institute, University College London, London, UK; ⁶Centre for Host Microbial Interactions, Dental Institute, Kings College London, London, UK; ⁷RW Perio and King's College London, London, UK; ⁸Department of Periodontology, The School of Dentistry, University of Birmingham, Birmingham, UK; ⁹Department of Periodontology, Dental School, University of Glasgow, Glasgow, UK; ¹⁰Department of Oral Surgery, The School of Dentistry, University of Birmingham, Birmingham, UK.
*Correspondence to: Thomas Dietrich
Email: t.dietrich@bham.ac.uk

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but confined to the coronal third of the root length (stage II periodontitis). The maximum bone loss was estimated as 30% (15 mesially, 27 mesially). As the patient was 47 years old, the numerical value of her maximum amount of bone loss in percent was greater than half her age in years ($30 > 23.5$), but not greater than her age ($30 < 47$). Therefore, this case was classified as grade B periodontitis. Bone loss due to periodontitis was evident on five out of 28 teeth ($< 30\%$), resulting in an extent classification of 'localised' periodontitis. Finally, as this was a patient with untreated periodontitis with periodontal pockets up to 6 mm, it was classed as 'currently unstable'.

The final diagnosis was:

Localised periodontitis; stage II, grade B; currently unstable.

A systematic periodontal treatment was initiated. Note that the outcome of treatment would not result in a change of the initial disease classification as localised periodontitis; stage II/grade B. This patient would always be a periodontitis patient, with evidence of disease susceptibility, requiring appropriate periodontal maintenance.



Fig. 1 Initial intraoral view

Table 1 BPE examination

4	1	4
3	2	3

Discussion and summary

This case report provides an example of how to diagnose a patient with local periodontal inflammation according to the 2017 classification of periodontal and peri-implant diseases and conditions by following the BSP implementation plan.⁶

Under the 1999 classification system, this patient would have been diagnosed with localised chronic periodontitis. The 1999 consensus statement distinguished localised ($\leq 30\%$) from generalised ($> 30\%$) chronic periodontitis based on the proportion of affected sites. It also stated, perhaps somewhat ambiguously, that severity 'can be described for the entire dentition or for individual teeth and sites' using cut-offs of 1 to 2 mm, 2 to 3 mm and ≥ 5 mm clinical attachment loss for slight, moderate and severe disease, respectively.⁷ However, explicit patient level case definitions for chronic periodontitis of different severity levels were not given. In order to achieve some consistency of periodontitis case definitions across epidemiologic studies, several groups have proposed diagnostic thresholds.^{1,3,8} A CDC/AAP working group proposed criteria for mild, moderate and severe periodontitis based on clinical attachment loss and periodontal probing depths.² Importantly, these definitions were explicitly developed for

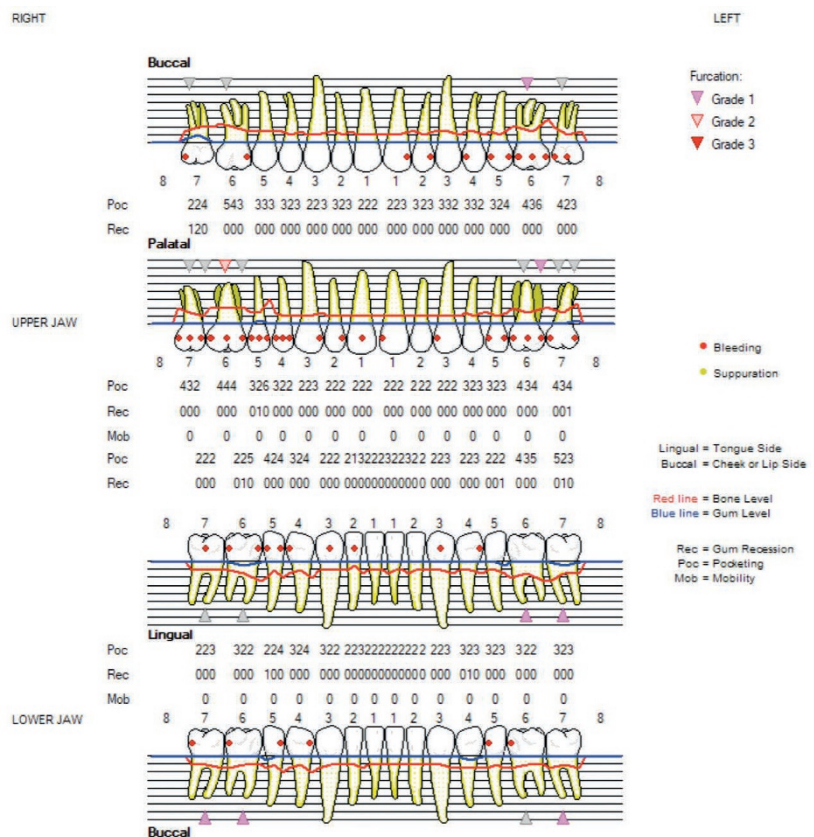


Fig. 2 Detailed periodontal charts (DPC)



Fig. 3 Periapical intraoral radiographs (note that in this case the anterior periapical radiographs were not taken for periodontal purposes, as that could not be justified based upon the BPE scores)

use in epidemiologic studies and not intended for use in clinical practice. Severe periodontitis was defined as ≥ 2 interproximal sites with clinical attachment level ≥ 6 mm (not on same tooth) and ≥ 1 interproximal site with periodontal probing depth ≥ 5 mm. Hence, the patient described here would have satisfied the CDC/AAP criteria for 'severe' periodontitis, due to the periodontal findings on teeth 15 and 26. However, the patient has localised disease, and we presume that most periodontists, when considering the spectrum of disease encountered in clinical practice, would agree that her disease is of moderate severity and its management of moderate complexity. The staging and grading according to the new classification appropriately reflects this by assigning stage II (that is, moderate severity in terms of historic tissue loss) and grade B (that is, moderate disease susceptibility).

In addition to determining disease stage and grade as well as current disease status (stable/remission/unstable), the BSP implementation plan highlights the need for a risk factor assessment. Periodontitis is a complex disease with a large number of causal risk factors conspiring to produce disease in an individual. Our understanding of the interplay between different microbial, environmental, behavioural, genetic

and other risk factors in the aetiology and pathogenesis of periodontitis has evolved significantly over recent decades, and a 'holistic' approach to periodontal care should account for relevant risk factors. Note that the periodontitis grade will reflect the patient's past risk factor profile, including both modifiable (for example, smoking) and unmodifiable (for example, genetic factors) exposures. The consensus of the 2017 classification workshop was that unequivocal evidence exists for smoking and poorly controlled diabetes as risk factors for periodontitis, and that smoking history and diabetes mellitus should therefore be part of a formal diagnostic statement.⁹ However, specific risk factors are of limited relevance where there are no clear diagnostic criteria or operationalisations for use in clinical dental practice (for example, 'family history', 'chronic stress' or 'diet') or where the evidence for their aetiological role is limited or controversial. Hence, even though the patient presented here reported 'some stress' that may well have contributed to her periodontitis¹⁰ and will have been noted during history-taking, this does not feature in the diagnostic statement.

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