

Application of the new periodontal classification: generalised periodontitis

Two clinical cases are presented here to demonstrate application of the 2017 World Workshop classification of periodontal and peri-implant diseases and conditions in daily practice.

The World Workshop on the Classification of Periodontal and Peri-implant Diseases and Conditions was convened in 2017 and resulted in the publication of a new classification system in 2018.¹ This replaces the formerly used Armitage Classification.² The complete Workshop proceedings are available to clinicians for free online via the European Federation of Periodontology (EFP) website.³ The new system incorporates significant changes from previous classification systems that may be pertinent to Irish dental healthcare professionals, as reviewed recently in this *Journal*.⁴ Perhaps the most significant of these changes is the process for diagnosing and classifying periodontitis, which incorporates staging and grading of each case.⁵

The diagnosis of individual periodontitis cases has been simplified by the publication of diagnostic decision trees by several of the major periodontal organisations. For pragmatic reasons, the current series utilises the decision tree published by the British Society of Periodontology (BSP), so readers may find it useful to refer to this decision tree while evaluating each case. The decision tree is available free to dental professionals on the BSP website.⁶

CASE 1

This case assimilates patient history, clinical and radiographic findings from a 61-year-old female patient who attended the Dublin Dental University Hospital (DDUH) for periodontal assessment, in order to establish a clinical case diagnosis. To assist readers in understanding the new classification system, the rationale for the clinical diagnosis is presented.



FIGURE 1: Orthopantomogram (OPG) of patient taken at time of referral by GDP.



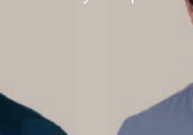
FIGURE 2: Clinical photograph at initial presentation at DDUH. Note extraction of mandibular anterior teeth by GDP since initial referral.

Ian Reynolds
Practice limited to
periodontology and
implant dentistry



reynoldsperio@gmail.com

David Naughton
Postgraduate student
in Periodontology,
Dublin Dental
University Hospital



Lewis Winning
Division of Restorative
Dentistry &
Periodontology,
Dublin Dental
University Hospital



Peter Harrison
Division of Restorative
Dentistry &
Periodontology,
Dublin Dental
University Hospital



Case presentation: patient history

Table 1: Overview of case presentation.

Patient:	61-year-old female
Presenting complaint:	"loose teeth and bleeding gums"
Medical history:	Hypothyroidism, hypertension, high cholesterol and penicillin allergy
Smoking status:	Former smoker (ceased five years ago)
Family history of periodontitis:	Yes
Other risk factors:	No

Table 2: Summary of clinical findings.

Visual assessment:	Generalised swelling and erythema of gingival tissues with heavy deposits of supra and subgingival calculus
Probing pocket depths (PPD):	Range 2–11mm
Clinical attachment loss (CAL):	Range 1–13mm
Bleeding on probing:	99%
Plaque control:	Poor
Tooth mobility:	Grade I: 11, 12, 14, 21, 22, 24, 25, 37, 43 and 47 Grade II: 32 and 48 Grade III: 31 and 42
Furcation involvement:	Class II: 27, 36, 37, 46 and 47 Class III 16 and 48
Tooth loss due to periodontitis:	2 teeth
Other factors of relevance:	3 further teeth extracted following initial assessment

RADIOGRAPHIC FINDINGS:

Bone loss present:	Yes
Pattern of bone loss:	Mostly horizontal
Severity of bone loss:	Range 30–90%
Distribution:	Generalised (>30% of teeth)

Clinical findings

What is the diagnosis using the new classification?

The diagnosis in this case is:

- generalised periodontitis; ■ Stage IV, grade C;
- currently unstable; and, ■ risk factors: former smoker.

How this diagnosis was reached

- This is a periodontitis case as clinical attachment loss is present at ≥ 2 non-adjacent teeth.
- This is a generalised periodontitis case as >30% of teeth are affected by attachment loss/bone loss.
- Stage IV was selected based on the site of greatest bone loss severity (based on the radiographic assessment: 90% bone loss of tooth 42 equating to apical third of the root).
- Grade C was chosen based on calculation of the ratio of percentage bone loss at the worst site divided by patient age being >1.0 (90% bone loss $\div$ 61 [age] = 1.48).
- The disease was identified as currently unstable based on the presence of PPD ≥ 5 mm.

CASE 2

This case assimilates patient history, clinical and radiographic findings from a 51-year-old male patient who attended the Dublin Dental University Hospital (DDUH) for periodontal assessment, in order to establish a clinical case diagnosis. Once again, the rationale for the clinical diagnosis is presented.

Case presentation: patient history

Table 1: Overview of case presentation.

Patient:	51-year-old male
Presenting complaint:	"bleeding gums"
Medical history:	Systemically healthy
Smoking status:	Former smoker of 15 cigarettes/day; quit 10 years ago
Family history of periodontitis:	No
Other risk factors:	No

Table 2: Summary of clinical findings.

Visual assessment:	Gross palatal surface staining; supra- and subgingival calculus evident
Probing pocket depths:	Range 1–5mm
Clinical attachment loss:	Range 0–4mm
Bleeding on probing:	27%
Plaque control:	Poor
Tooth mobility:	Nil
Furcation involvement:	Class I: 1,8; 1,6; 2,6; and 3,6
Tooth loss due to periodontitis:	Nil
Other factors of relevance:	No

RADIOGRAPHIC FINDINGS:

Bone loss present:	Yes
Pattern of bone loss:	Mostly horizontal
Severity of bone loss:	Range 15–30%
Distribution:	Generalised (>30% teeth)

Clinical findings

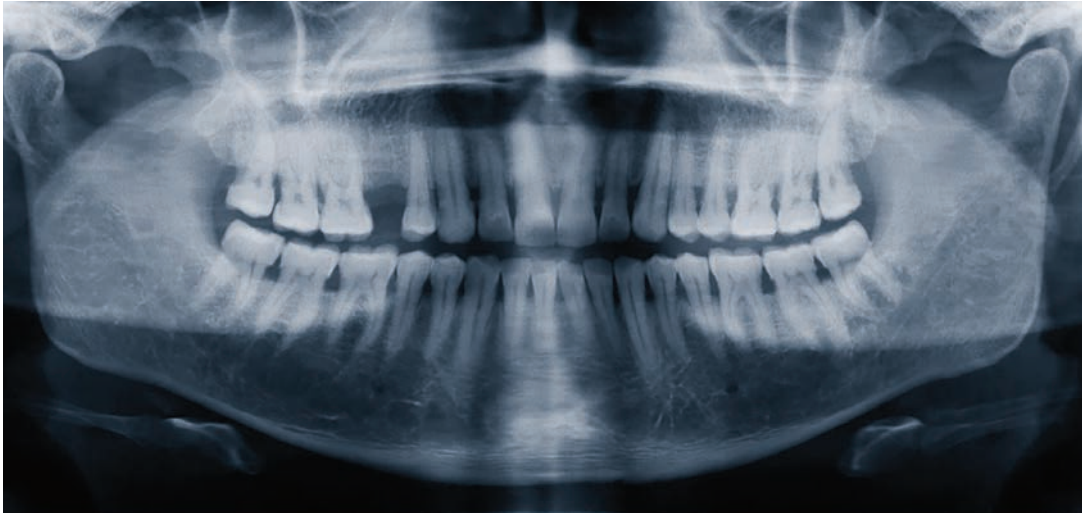
What is the diagnosis using the new classification?

The diagnosis in this case is:

- generalised periodontitis ■ Stage II, grade B;
- currently unstable; and, ■ risk factor: former smoker.

How this diagnosis was reached

- This is a periodontitis case as attachment loss is present at ≥ 2 non-adjacent teeth.
- This is a generalised periodontitis case as >30% of teeth are affected by attachment loss/bone loss.
- Stage II was selected based on the site of greatest bone loss severity (based on the radiographic assessment: 30% bone loss of tooth 2,7 equating to coronal third of the root).
- Grade B was chosen based on calculation of the ratio of percentage bone



loss at the worst affected tooth site divided by patient age. In this case, the ratio is >0.5 and <1 ($30\% [\text{bone loss}] \div 51 [\text{age}] = 0.59$).

- The disease was identified as currently unstable based on the presence of periodontal probing depth (PPD) $\geq 5\text{mm}$.
- The patient's former smoking habit is identified as a contributory factor to disease.

FIGURE 3: Orthopantomogram (OPG) of patient taken at initial periodontal assessment.

References

1. **Caton, J.G., Armitage, G., Berglundh, T., et al.** A new classification scheme for periodontal and peri-implant diseases and conditions – introduction and key changes from the 1999 classification. *J Clin Periodontol* 2018; 45 (Suppl. 20): S1-S8.
2. **Armitage, G.C.** Development of a classification system for periodontal diseases and conditions. *Ann Periodontol* 1999; 4 (1): 1-6.
3. **European Federation of Periodontology.** New classification micro-site. [Internet]. [Accessed November 25, 2020]. <https://www.efp.org/publications-education/new-classification/>.
4. **Lee Kin, R., Reynolds, I.** Introduction to the new classification on periodontal and peri-implant diseases and conditions. *J Irish Dental Assoc* 2019; 65 (4): 202-206.
5. **Tonetti, M.S., Greenwell, H., Kornman, K.S.** Staging and grading of periodontitis: framework and proposal of a new classification and case definition. *J Clin Periodontol* 2018; 45 (Suppl. 20): S149-S161.
6. **British Society of Periodontology.** Flowchart implementing the 2017 Classification. [Internet]. [Accessed November 25, 2020]. www.bsperio.org.uk/assets/downloads/111_153050_bsp-flowchart-implementing-the-2017-classification.pdf.



FIGURE 4: Clinical photograph at initial presentation at DDUH.