

Periodontology & Periodontal Instruments

Dr Reham Ragab • CoNnect Academy • PERIO + Periodontal Instrumentation decks + BSP BPE & sBPE handouts

EXAM-DAY SUMMARY

everything on this page → detail in §§ overleaf

2018 CLASSIFICATION → §1

- A health/gingival · B periodontitis · C other · D peri-implant
- Extent: **localised ≤30%** · **generalised >30%** · molar–incisor
- B3 syndromes: Down, Papillon–Lefèvre, Chédiak–Higashi, LAD, neutropenia

STAGES → §2

- CAL: I 1–2 · II 3–4 · III/IV ≥5 mm
- RBL: <15% · 15–33% · mid ½ +
- Tooth loss: **III ≤4** · **IV ≥5 teeth**
- III complexity: PPD ≥6, vertical ≥3, furcation II–III

GRADES & STATUS → §2

- %BL÷age: A <0.25 (BSP <0.5) · B → 1.0 · C >1.0 · 5-yr: ≥2 mm = C
- Modifiers: ≥10 cigs/day · HbA1c ≥7.0% → C
- Unstable: **PPD ≥5, or ≥4 mm + BoP** · stable BoP <10%, PPD ≤4

BPE PROBE & CODES → §3

- WHO probe: ball 0.5 mm · band 3.5–5.5 · force 20–25 g
- 6 sextants · worst tooth · ≥2 teeth else dash
- **3 = band partly obscured** · **4 = band gone** · * furcation, never alone

BPE ACTIONS → §4

- 0–2 annual · 3 → 6-pt chart **that sextant** · 4 → full mouth + rads
- No BPE on implants · can't monitor · true = pseudo-pocket blind
- Refer: unresponsive, surgical, BPE 4 + modifier, aggressive
- BoP: <10% health · 10–30% localised · >30% generalised gingivitis

SBPE UNDER-18 → §5

- Index teeth: **UR6 UR1 UL6 LL6 LL1 LR6**
- 7–11 yr: codes 0–2 only · 12–17: full 0–4 + *
- 3 = 4–5 mm · 4 = ≥6 mm

MICRO • POCKETS → §6–7

- Anaerobic G–ve rods: **Aa · P. gingivalis · T. forsythia**
- True pocket = migration from CEJ; pseudo = overgrowth
- Infra-bony walls remaining: 3-wall best · 1-wall worst

GINGIVAL DISEASE → §8

- Healthy: coral pink, firm, knife-edged, stippled
- Cinnamon allergy → plasma-cell gingivitis · perfect OH + inflamed → artifact
- Enlargement drugs: **nifedipine · ciclosporin · phenytoin** (+ local factors)
- Tx: local factors → drug switch → gingivectomy

PAINFUL PAIR → §9, §11

- Only painful: **ANUG + periodontal abscess**
- ANUG: fusiform–spirochaetal · punched-out papillae · NUP = + LOA
- Perio abscess: vital · swelling → pain · lateral percussion · no X-ray role
- Endo-perio → RCT first (drainage)

CHRONIC VS AGGRESSIVE → §10

- Chronic: deposits match · slow · horizontal bone loss
- Aggressive: young · minimal plaque · **incisor–1st-molar vertical defects** · **Aa** · FHx · Afro-Caribbean

IMAGING • HALITOSIS → §11–12

- Standard: **full-mouth PAs, long-cone paralleling** · vertical BW > horizontal · no routine OPG
- Halitosis: VSCs ← G–ve proteolytic anaerobes; interdental cleaning key

RECESSION • MILLER → §13

- Cause: traumatic brushing · thin biotype · lower anteriors
- Miller: I not to MGJ · II to MGJ, papilla ok · III papilla affected · **IV total papilla loss**
- Surgery: CT graft · free gingival graft (palate) · rotational flap

TREATMENT LADDER → §14

- Initial → review **8 wk** → supportive 3–4(–6) mo, else corrective
- Subgingival scaling ≥4 mm · Cavitron = AMS · FMD = 24 h · Bass; interdental first
- CHX biguanide: new plaque only · substantivity · stains/taste/salivary swelling
- Metro 400 tds 5/7 (ANUG systemic) · + amox 500 (aggressive) · splint CI grade 3

SURGERY • GRAFTS → §15

- Success ~50% · access flap = **Modified Widman** (>6 mm/furcation)
- Membrane blocks long JE; needs 2–3 walls, non-smoker, good OH
- Flaps: apical = crown lengthening · coronal = 3-to-3 recession · rotational = single tooth · tunnel = non-pedicle
- Freeze-dried allograft ↓antigenicity, exposes BMPs · bovine = xenograft · HA/β-TCP = alloplast

INSTRUMENTS → §16

- Gracey = area-specific · universal = rounded toe · Naber's = furcation
- Markings: **Williams 1-2-3-5-7-8-9-10** · CP-11 3-6-8-11 · CP-12 3-6-9-12 · CP-15 1–15 · WHO 3.5-5.5-8.5-11.5

§1 Classification of periodontal diseases

- **1999 classification:** gingival diseases (plaque-induced vs non-plaque) · chronic periodontitis · aggressive periodontitis · periodontitis in systemic disease · necrotising ulcerative diseases · abscess of periodontium · periodontitis with endodontic lesions · developmental/acquired deformities
- **2017/2018 World Workshop:** four major groups
 - **A** — periodontal health, gingival diseases & conditions · **B** — periodontitis · **C** — other conditions affecting the periodontium · **D** — peri-implant diseases & conditions
- **A1 — health:** clinical gingival health on intact periodontium, or on **reduced** periodontium (stable periodontitis patient · non-periodontitis patient)
- **A2 — biofilm-induced gingivitis:** biofilm alone · mediated by systemic/local factors · drug-influenced gingival enlargement
- **A3 — non-biofilm gingival diseases:** genetic & developmental · specific infections · inflammatory & immune · reactive processes · neoplasms · endocrine, nutritional & metabolic · traumatic lesions · gingival pigmentation
- **B — periodontitis:** necrotising periodontal diseases · periodontitis · periodontitis as manifestation of systemic disease
- **Extent & distribution:** localised ★ ≤30% of teeth · generalised >30% · molar-incisor distribution
- **B3 — systemic diseases with periodontitis:** Down syndrome · cyclic & familial neutropenia · leukocyte adhesion deficiency · Chédiak–Higashi · ★ **Papillon–Lefèvre** · Langerhans cell disease · glycogen storage disease · chronic granulomatous disease
- **C — other conditions:** systemic diseases affecting supporting tissues · periodontal abscess & endo-perio lesions · mucogingival deformities · traumatic occlusal factors · tooth- & prosthesis-related factors
- **D — peri-implant:** health · mucositis · peri-implantitis · soft & hard tissue deficiencies

Table 1. Classification of Periodontal Diseases and Conditions

CLASSIFICATION OF PERIODONTAL AND PERI-IMPLANT DISEASES AND CONDITIONS 2017										
Periodontal Diseases and Conditions										
Periodontal Health, Gingival Diseases and Conditions			Periodontitis			Other Conditions Affecting the Periodontium				
Periodontal Health and Gingival Health	Gingivitis: Dental Biofilm-Induced	Gingival Diseases: Non-dental Biofilm-Induced	Necrotizing Periodontal Diseases	Periodontitis	Periodontitis as a Manifestation of Systemic Diseases	Systemic Diseases or Conditions Affecting the Periodontal Supporting Tissues	Periodontal Abscesses and Endodontic-Periodontal Lesions	Mucogingival Deformities and Conditions	Traumatic Occlusal Forces	Tooth and Prosthesis Related Factors
Peri-Implant Diseases and Conditions										
Peri-Implant Health		Peri-Implant Mucositis		Peri-Implantitis		Peri-Implant Soft and Hard Tissue Deficiencies				

Adapted from Caton et al. (2018) J Clin Periodontol. 45(Supl 20); S1-S8.

Fig. 1 — The 2017/2018 classification: periodontal diseases (groups A–C) above, peri-implant diseases (D) below (Caton et al. 2018).

★ EXAM PEARL

The 2017 workshop **eliminated "chronic" and "aggressive" periodontitis as diagnoses** — both are now "periodontitis", staged and graded. The classic chronic/aggressive discriminators (§9) are still examined; know both vocabularies.

§2 Periodontitis staging & grading

Stage = severity + complexity (worst site of periodontitis bone loss); grade = rate of progression. Radiographs: periapicals or OPG/DPT; if only bitewings, use CAL/bone loss from CEJ.

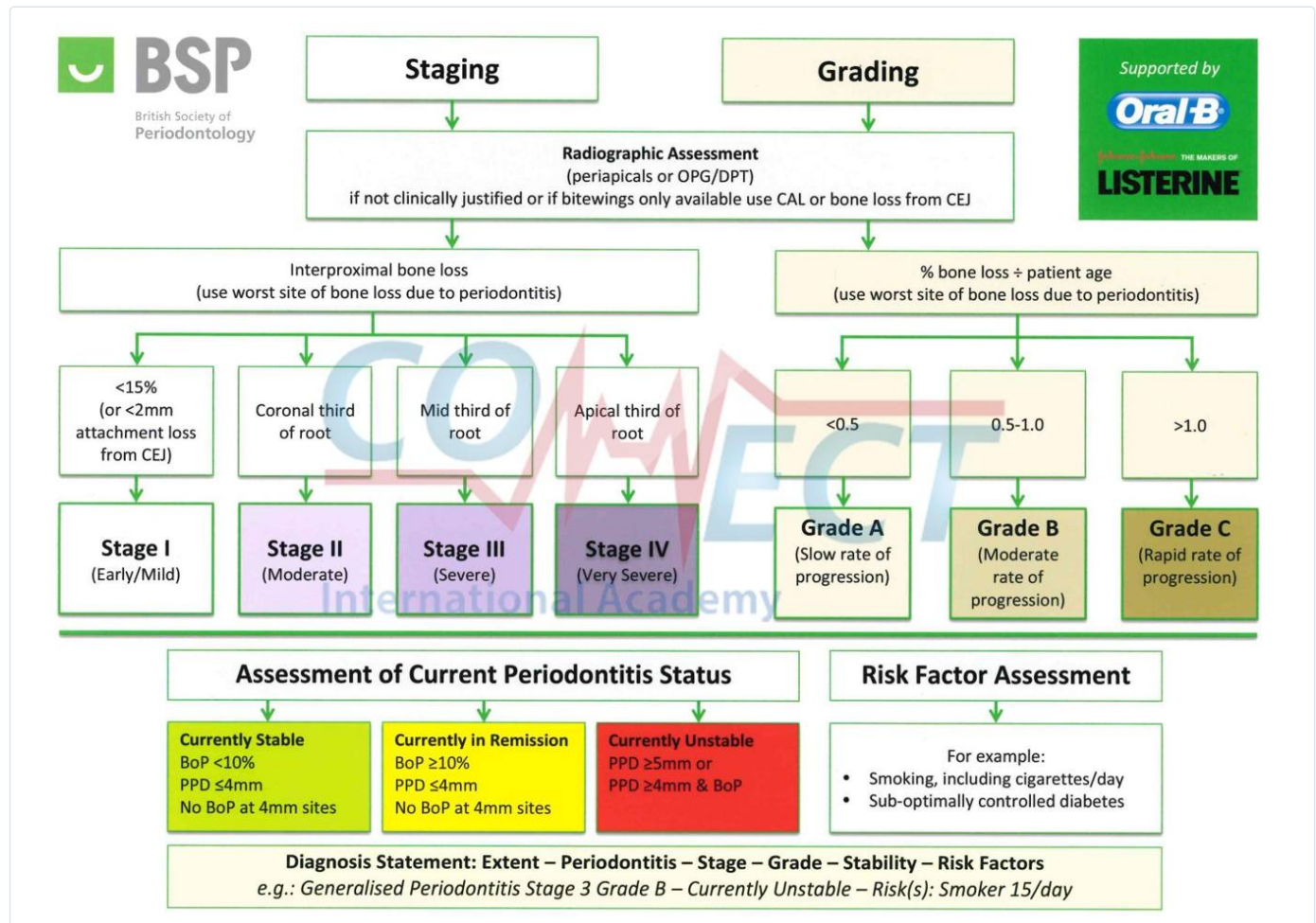


Fig. 2 — BSP staging/grading pathway: interproximal bone loss → stage; % bone loss ÷ age → grade; then current status + risk factors → diagnosis statement.

Table 1 — Periodontitis stages

	Stage I	Stage II	Stage III	Stage IV
Label	Early / mild	Moderate	Severe	Very severe
Interdental CAL (worst site)	1–2 mm	3–4 mm	≥5 mm	≥5 mm
Radiographic bone loss	coronal ⅓, <15%	coronal ⅓, 15–33%	mid ⅓ of root & beyond (BSP: III mid ⅓ · IV apical ⅓)	
Tooth loss (perio)	none		≤4 teeth	≥5 teeth
Complexity	max PPD ≤4 mm · mostly horizontal loss	max PPD ≤5 mm · mostly horizontal	+ PPD ≥6 mm · vertical loss ≥3 mm · furcation II–III · moderate ridge defects	+ masticatory dysfunction · 2° occlusal trauma (mobility ≥2) · severe ridge defects · bite collapse, drifting, flaring · <20 teeth (10 opposing pairs)

Table 2 — Periodontitis grades (+ modifiers)

	Grade A — slow	Grade B — moderate	Grade C — rapid
Direct: bone loss/CAL over 5 yr	none	<2 mm	≥2 mm
Indirect: % bone loss ÷ age	<0.25	0.25–1.0	>1.0
Case phenotype	heavy biofilm, low destruction	destruction matches biofilm	destruction exceeds biofilm · patterns of rapid progression / early onset
Smoking	non-smoker	<10 /day	≥10 /day
Diabetes	normoglycaemic	HbA1c <7.0%	HbA1c ≥7.0%

- **Extent descriptor per stage:** localised <30% of teeth · generalised · molar/incisor pattern
- **Current status:** stable = BoP <10%, PPD ≤4 mm, no BoP at 4 mm sites · in remission = BoP ≥10%, PPD ≤4 mm · unstable = ★PPD ≥5 mm, or PPD ≥4 mm + BoP
- **Diagnosis statement:** Extent – Periodontitis – Stage – Grade – Stability – Risk factors
 - e.g. "Generalised Periodontitis Stage 3 Grade B — currently unstable — risk: smoker 15/day"

★ EXAM PEARL

Grade A cut-off differs by source: World Workshop table <0.25, BSP UK flowchart <0.5. B–C boundary = 1.0 in both. Match the answer to whichever guideline the question quotes.

§3 BPE — recording & codes

- **Definition:** Basic Periodontal Examination = simple, rapid **screening** → level of further examination + basic treatment guidance · minimum standard for initial assessment · **screening only — not diagnosis, not monitoring** · clinical judgment may justify deviation (e.g. poor patient engagement)
- **Sextants ×6:** upper right 17–14 · upper anterior 13–23 · upper left 24–27 · lower left 34–37 · lower anterior 43–33 · lower right 47–44
 - all teeth examined **except 3rd molars** (unless 1st/2nd molars missing) · sextant qualifies with ★≥2 teeth, else dash (–) · record the worst tooth per sextant
- **WHO probe:** ball end 0.5 mm · silver band 0.5–3.5 mm · first black band ★3.5–5.5 mm · held parallel to long axis, ball walked round the pocket depth · light force **20–25 g** (≈ blanching a fingernail)
- **If code 4 found:** continue examining all sites in the sextant → fuller picture, furcations not missed
- **Grid:** number AND * recorded together — 3* = pocket 3.5–5.5 mm + furcation in that sextant

Table 3 — BPE codes, findings and treatment need

Code	Probe finding	Meaning	Treatment need
0	Band fully visible · no BoP · no roughness	Pockets <3.5 mm, healthy	No treatment
1	Band fully visible · BoP · no roughness	Pockets <3.5 mm	OHI
2	Band fully visible · roughness (supra/subgingival calculus or overhang)	Pockets <3.5 mm + plaque-retentive factors	OHI + scaling, remove plaque-retentive factors
3	Band partially obscured	Pocket 3.5–5.5 mm (4–5 mm)	As 2 + RSD if required → review with 6-point chart (that sextant)
4	Band completely obscured	Pocket >5.5 mm (≥6 mm)	Full periodontal assessment, 6-point chart whole dentition; specialist referral may be indicated
*	Probe passes "through and through"	Furcation involvement	Full assessment; assess for complex treatment/referral

★ EXAM PEARL

Code 3 vs 4 is the single most-tested BPE line: **partially obscured = 3 (4–5 mm)** · **completely obscured = 4 (≥6 mm)**. The * is never written alone — always with the sextant's number.

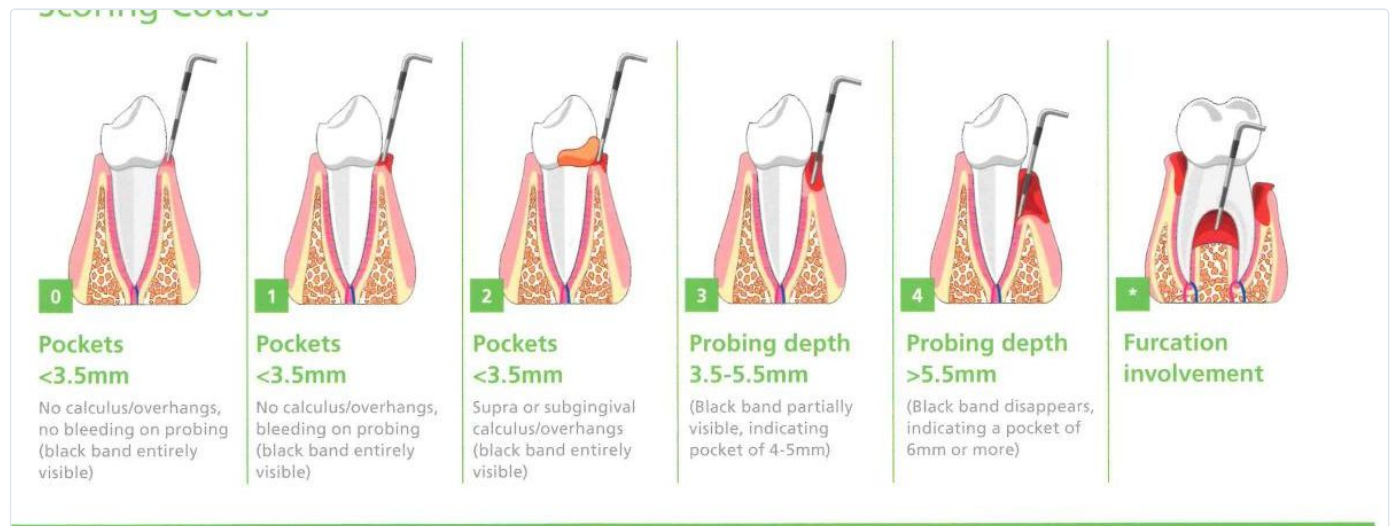


Fig. 3 — BSP scoring codes: the black band's visibility carries the code; * = furcation.

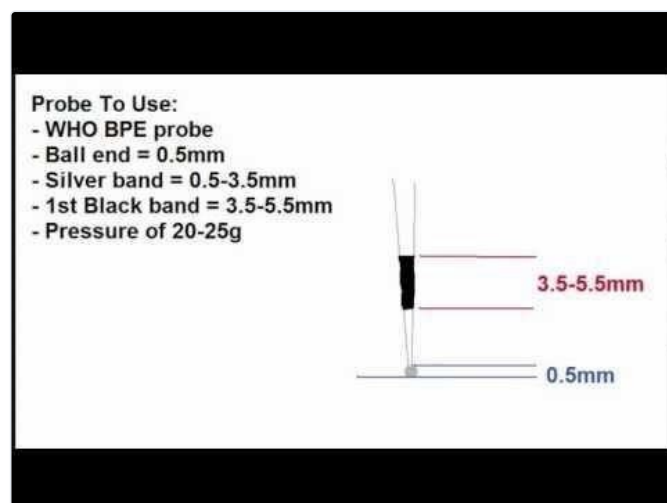


Fig. 4 — WHO BPE probe: ball 0.5 mm, black band 3.5–5.5 mm, force 20–25 g.

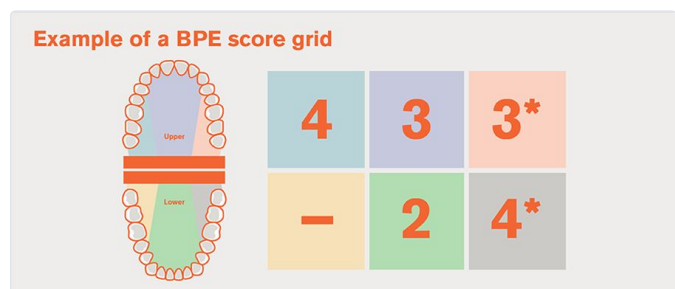


Fig. 5 — Example grid: 4 | 3 | 3* over - | 2 | 4*.



Fig. 6 — Walking the probe in a posterior sextant.



Fig. 7 — Surface roughness from calculus — the code-2 finding.

§4 BPE — actions, referral & limitations

- **Who gets a BPE:** all new patients · codes 0–2 → repeat at every routine exam, annual follow-up
- **Code 3:** initial therapy (OHI, risk-factor control) → post-therapy ★ **6-point pocket chart in that sextant only** (+ BPE for the rest) · review ≈ 3 months
- **Code 4:** 6-point pocket chart **whole dentition**
- **6-point charting:** measure 6 sites/tooth, record sites ≥ 4 mm · always record BoP with it · maintenance patients → full-mouth probing depths at least annually · BPE cannot monitor therapy → 6-point charts pre- and post-treatment
- **Radiographs:** for all code 3 & 4 sextants, crestal bone visible · periapicals preferred for code 4 (bone loss as % root length + periapical tissues)

- **Implants: BPE not used** — 4- or 6-point chart instead
- **Referral:** BPE 1–3 → general practice · BPE 4 → initial phase in practice · refer: unresponsive, needing surgery, **BPE 4 + modifying factor** (e.g. medical condition), aggressive periodontitis
- **What BPE indexes:** treatment **need** — not the level of disease present (that requires measurement of attachment loss) · BPE scores weighed with other factors when deciding referral (BSP "Referral Policy & Parameters of Care")
- **Limitations ×3:** no site-specific information · does not identify the cause · **cannot separate true from pseudo-pockets**
- **BSP diagnosis pathway (codes 0/1/2, no interdental recession):** BoP <10% → clinical gingival health · ★10–30% → **localised gingivitis** · >30% → generalised gingivitis · code 2 present → comment on plaque-retentive factors
- **Pathway for code 3:** radiographs + initial therapy → 3-month review with localised 6-point chart → no pockets ≥4 mm & no radiographic bone loss → back to 0/1/2 path; pockets ≥4 mm and/or bone loss → code-4 path
- **Pathway for code 4 / interdental recession:** radiographs + full assessment → periodontitis: molar–incisor pattern · localised <30% · generalised ≥30% → stage & grade (§2)

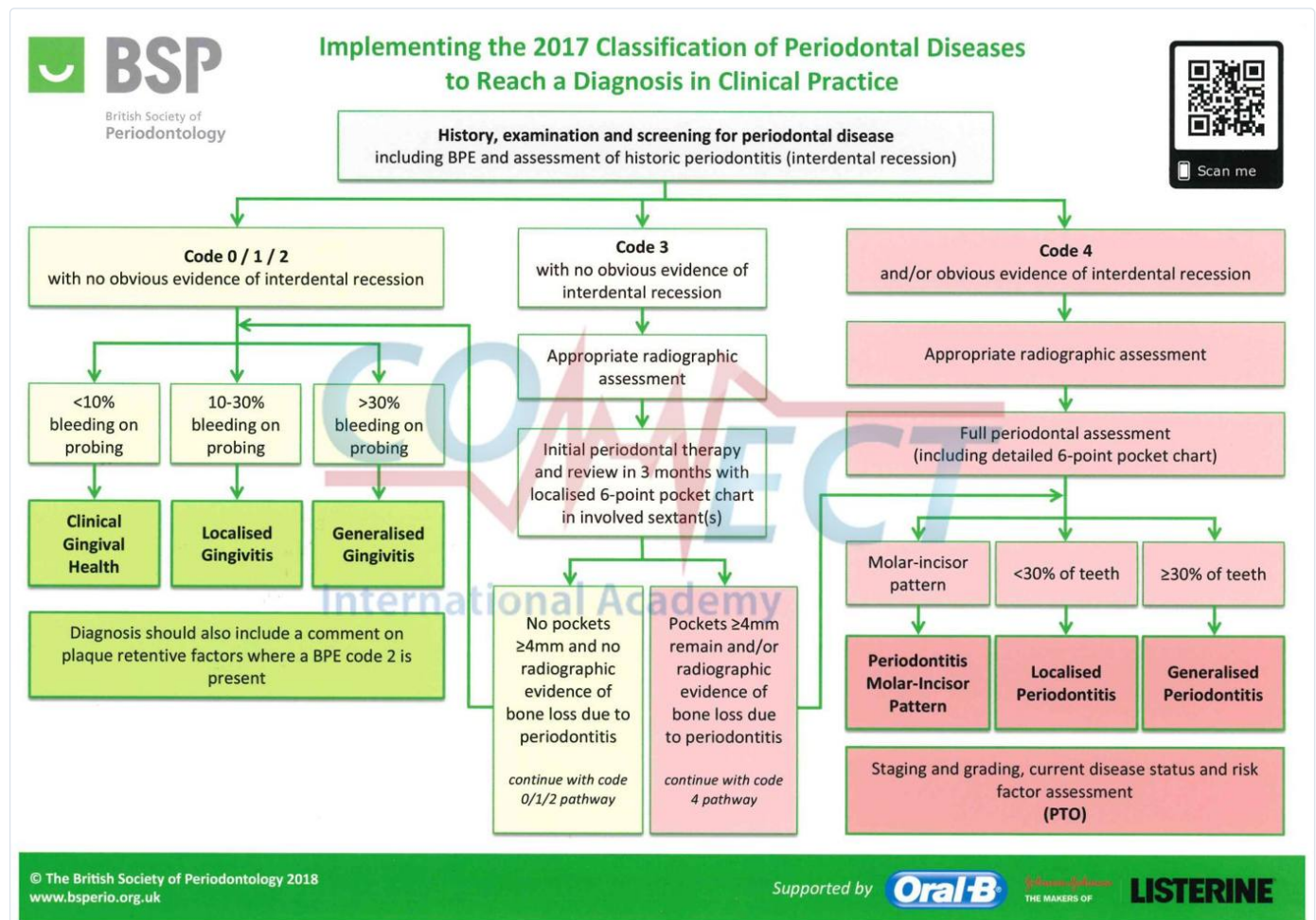


Fig. 8 — BSP pathway from BPE screen to diagnosis in clinical practice.

KEY POINTS

0–2 → screen & prevent · 3 → treat, then chart that sextant · 4 → chart everything + radiographs · unresponsive / surgical / modified BPE-4 → specialist.

§5 Simplified BPE (under-18s)

- **Why simplified:** avoids **false pockets** around erupting teeth · joint BSP + BSPD guidance (2021) · integral part of the U18 history & examination · dentists have key role in early diagnosis of gingival/periodontal disease in the young
- **Six index teeth:** ★UR6, UR1, UL6, LL6, LL1, LR6 — all four first permanent molars + UR1 + LL1
- **Codes by age:** 7–11 yr (mixed dentition) → codes ★0–2 **only** · 12–17 yr → full range 0, 1, 2, 3, 4, *
- **Code meanings:** 0 healthy · 1 bleeding after gentle probing · 2 calculus / plaque-retentive factor · 3 shallow pocket 4–5 mm · 4 deep pocket ≥6 mm · * furcation

- **Same probe:** WHO, 0.5 mm ball, black band 3.5–5.5 mm
- **Context:** 2017 classification defined health & gingivitis explicitly for the first time and re-classified periodontitis (chronic/aggressive eliminated) · BSP implementation guidance covers staging/grading + diagnosis statement · BSP UK version of EFP S3 evidence-based treatment steps (2020) · specific U18 cases warrant specialist referral (guideline Table 2)

★ EXAM PEARL

The incisor index teeth are **UR1 and LL1** — **diagonal**, not same-side; writing LR1 is the classic error. And a 9-year-old can never score a 3 — codes are capped at 2 until age 12.

§6 Microbiology & risk factors

- **Flora:** periodontitis ← mainly **anaerobic Gram-negative rods**
- **Key trio:** ★ **Aggregatibacter actinomycetemcomitans (Aa)** · **Porphyromonas gingivalis** · **Tannerella forsythia**
- **Local risk factors:** insufficient plaque control · calculus (roughness → more plaque) · overhanging restorations (**iatrogenic**) · RPDs (plaque accumulation) · orthodontic braces · occlusal trauma (weak evidence)
- **Systemic risk factors:** smoking · diabetes mellitus · syndromes · drug-induced · lowered immunity · stress

§7 Pockets, attachment loss & bony defects

- **True pocket:** apical migration of gingival attachment from the CEJ → pocket + ↑ probing depth
- **Pseudo-pocket:** attachment at its level · gingival overgrowth → false ↑ probing depth
- **Supra-bony pocket:** crestal bone level not affected
- **Infra-bony pocket:** crestal bone lost · defects named by **walls remaining**
 - 3-wall = ★ **best prognosis** · 2-wall · 1-wall = worst prognosis

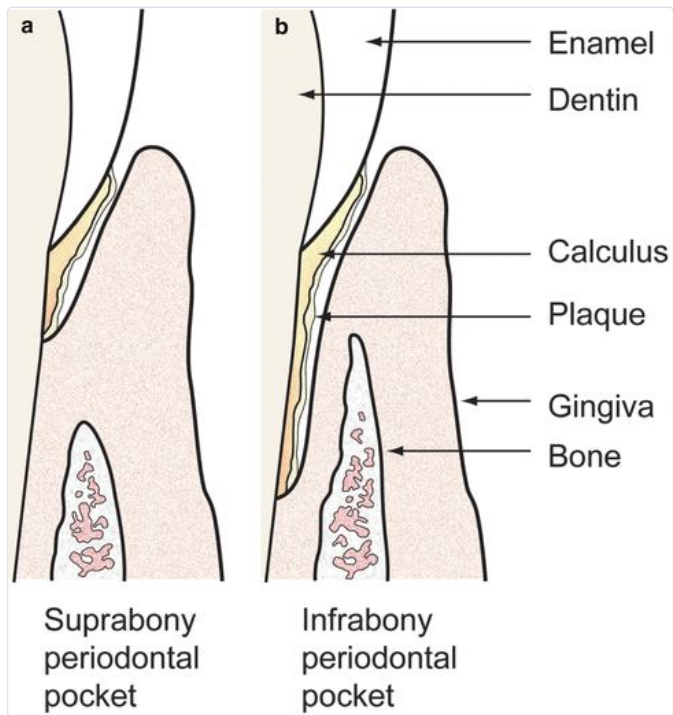


Fig. 9 — Supra- vs infra-bony pocket: base above vs below crestal bone.

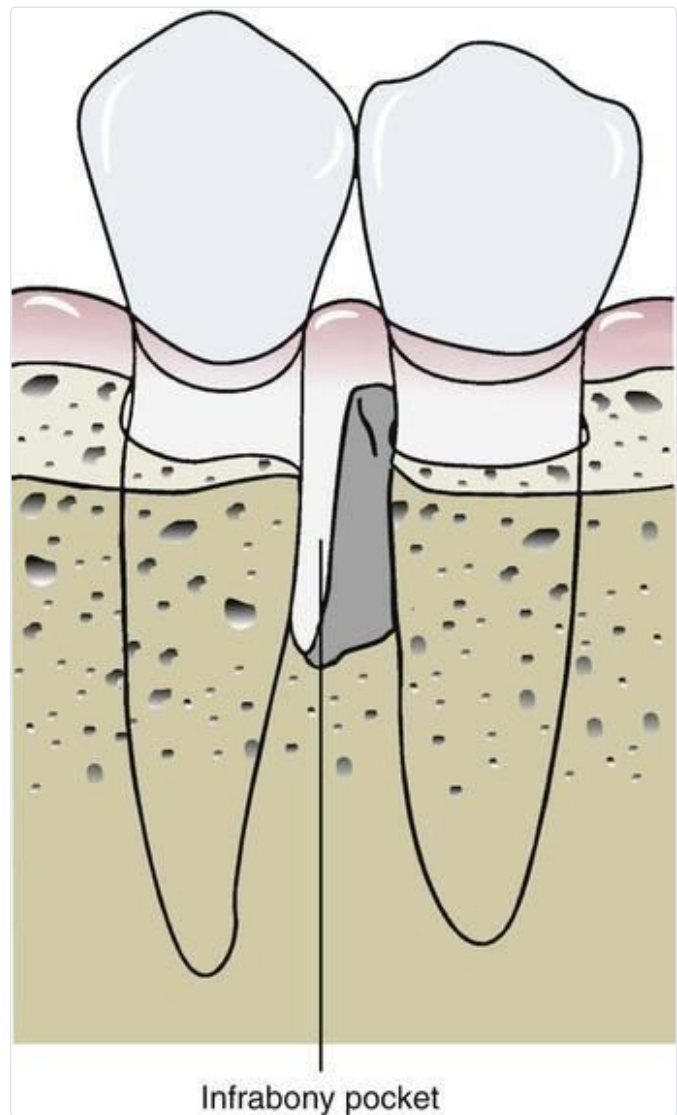


Fig. 10 — Infra-bony defect within bone.

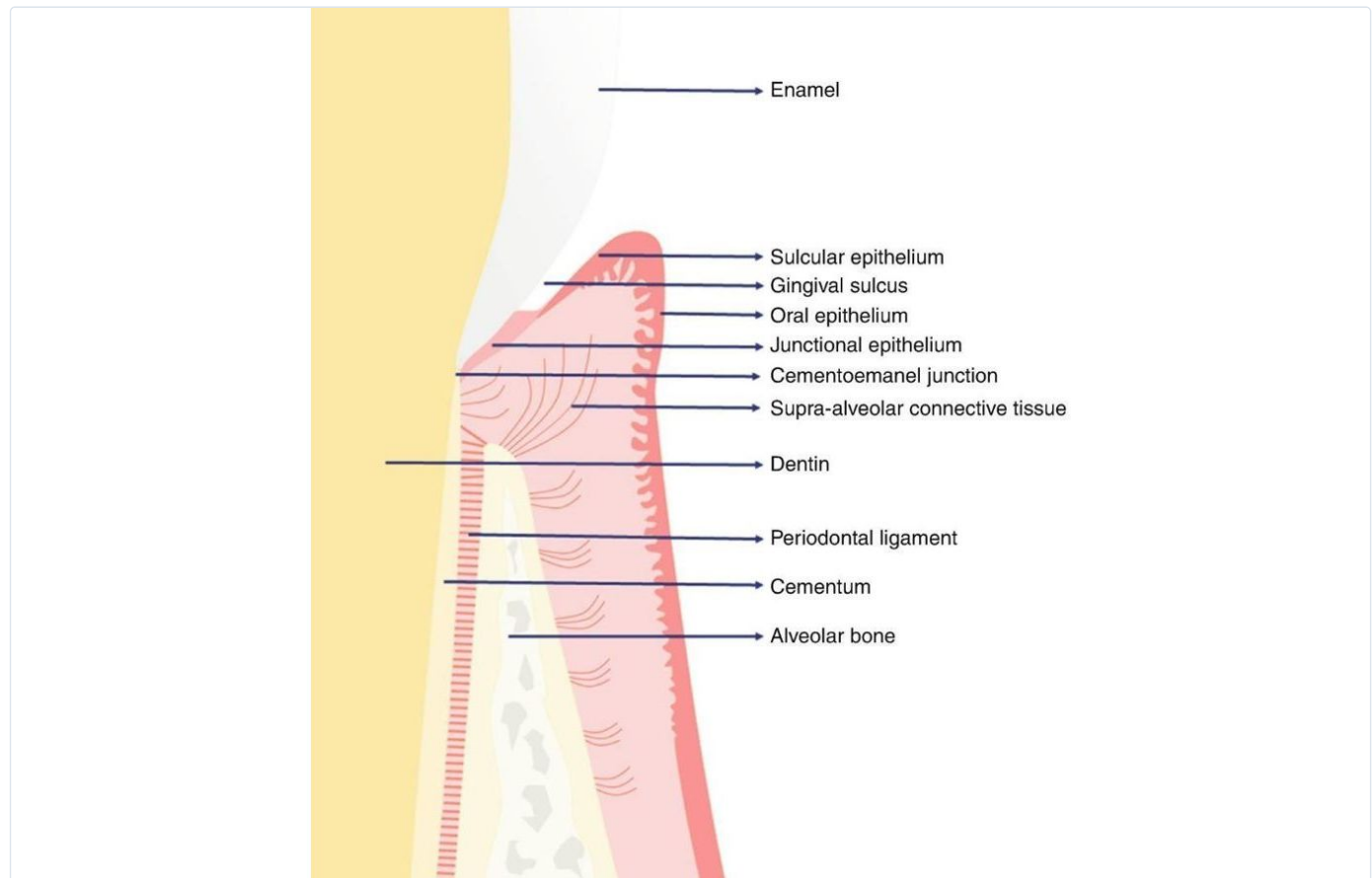


Fig. 11 — The healthy periodontium: sulcular + junctional epithelium, supra-alveolar connective tissue, PDL, cementum, alveolar bone.

§8 Gingivitis & gingival hyperplasia

- **Healthy gingiva:** ★coral pink · firm · knife-edged · stippled
- **Plaque-induced gingivitis:** superficial inflammation · erythema, oedema, bleeding on brushing · **no pain, only discomfort** · hormonal changes (menstrual cycle, pregnancy) ↑ inflammatory signs
- **Non-plaque causes:** food allergy (e.g. cinnamon) → **plasma-cell gingivitis** (plasma cells predominate) · **gingival artifact** (traumatic gingivitis) → excellent OH, minimal plaque, persistently inflamed — self-inflicted
- **Hyperplasia — systemic:** pregnancy → localised (pregnancy tumour / fibrous epulis, requires local factors + impaired OH) · Crohn disease · leukaemia · amyloidosis (amyloid deposition)
- **Hyperplasia — drugs:** Ca^{2+} -channel blockers (nifedipine) · immunosuppressants (ciclosporin) · anti-epileptics (phenytoin/ Dilantin) — enlargement **only with local factors present**
- **Treatment order:** 1 control local factors (scaling, OH) → 2 physician: modify drug → 3 gingivectomy for residual excess



Fig. 12 — Marginal erythema with bleeding on probing.



Fig. 13 — Plaque-induced gingivitis: red, swollen margins.



Fig. 14 — Gingival hyperplasia — think pregnancy, Crohn, leukaemia, amyloid, drugs.

★ EXAM PEARL

Inflamed gums + excellent hygiene = **gingival artifact**, not "resistant gingivitis" — the near-absence of plaque is the clue the examiner plants.

§9 Necrotising disease — ANUG & ANUP

- **Risk factors:** heavy smoking · poor oral hygiene · HIV infection · immunosuppression · malnutrition · stress
- **Organisms:** ★ **fusiform–spirochaetal complex**
- **Clinical:** most distinguishing = **punched-out ulcers of the interdental papillae** · ulcers painful · grey necrotic surface tissue · submandibular nodes may be tender/palpable
- **NUP vs NUG:** NUP = same picture + **loss of attachment**



Fig. 15 — ANUG: punched-out papillae with grey slough (arrows).

§10 Periodontitis — chronic vs aggressive

Table 4 — Chronic vs aggressive periodontitis (deck's classic teaching)

	Chronic	Aggressive
Deposits	Plaque & calculus obviously involved	Destruction incompatible with plaque/calculus
Age / history	Older, slow progression over years	Young patients · family history (older relative lost teeth young)
Pattern	Generalised signs: redness, swelling, BoP, recession, mobility, drifting	Generalised or localised to central incisors + first permanent molars
Bone loss	Horizontal alveolar resorption	Vertical defects on radiographs
Pathology	Destroyed junctional epithelium → pockets	Predominant organism Aa · most affected group Afro-Caribbean



Fig. 16 — Chronic periodontitis: deposits explain the destruction.



Fig. 17 — Aggressive periodontitis: clean-looking mouth, vertical defects at incisors/first molars.

★ EXAM PEARL

Vignette signature of aggressive disease: <25 yr + **minimal plaque** + **vertical defects at incisors/6s** + **positive family history** → Aa. Any two of these should trigger the diagnosis in a single-best-answer.

§11 Periodontal abscess, endo-perio & radiographs

- **Patient complaints in periodontal disease:** discomfort · aching gingiva · food impaction in pockets · bleeding on brushing / spontaneous
 - true **pain** only in: ★ **ANUG** · **periodontal abscess**

Table 5 — Periapical vs periodontal abscess

	Periapical	Periodontal
Sequence	Pain → swelling	Swelling → pain
History	Caries, pulpitis	Food impaction, difficulty cleaning
Hygiene	May have little plaque	Poor oral hygiene
Vitality	Non-vital	Vital
Percussion	+ve apically	+ve laterally

- **X-ray in abscess: no role in diagnosis** — radiographic change appears long after onset · role in pockets = assessing bone loss
- **Endo-perio lesion:** start **RCT first** → opens drainage pathway for pus/exudate → periodontal treatment succeeds later
- **Standard perio imaging:** ★ **full-mouth periapicals, long-cone paralleling**
- **Bitewings:** horizontal → bone vs CEJ, same arch · vertical → opposing arches + **better bone-level visualisation**
- **Panoramic:** not for routine periodontal screening — complex, multi-concern cases only



Fig. 18 — Periodontal abscess: lateral swelling, vital tooth.

§12 Halitosis

- **Primary cause:** ★ **volatile sulphur compounds (VSCs)** ← G-ve proteolytic anaerobes in stagnant areas (pockets, interproximal, recurrent pericoronitis, unclean tongue) · commonest everyday cause = poor OH, especially missed **interdental cleaning**
- **Intra-oral causes:** plaque gingivitis & periodontitis · NUG · pericoronitis · abscesses · hyposalivation · tongue coating · ill-fitting appliances · dry socket · osteomyelitis
- **Extra-oral causes:** alcohol-containing liquids · smoking · GORD · xerostomic drugs

§13 Gingival recession & Miller classification

- **Complaints:** sensitivity (root exposure) · aesthetics · exposed roots prone to decay · mobility (advanced) · loss of vitality → tooth loss
- **Causes:** main = ★ **trauma** — **traumatic toothbrushing** · local factors (crowding, plaque, calculus) · **thin gingival biotype** (thin bone + thin gingiva) · commonest site = lower anterior
- **Treatment:** 1 remove the cause → 2 correct tooth position (crowding) → 3 corrective surgery: connective-tissue graft (from under epithelium) · free gingival graft (palate) · rotational flap

Table 6 — Miller classification of recession

Class	Definition
I	Does not reach the mucogingival junction (MGJ)
II	Reaches/exceeds MGJ · no papilla affected
III	Beyond MGJ · interdental papilla affected
IV	Beyond MGJ · total loss of interdental papilla



Fig. 19 — Deck spot-diagnosis: apply the criteria — MGJ reached? papillae lost?



Fig. 20 — Spot-diagnosis practice (deck gives no key).



Fig. 21 — Severe recession with papilla loss; radiograph confirms interproximal bone destruction.

§14 Treatment — phases & non-surgical therapy

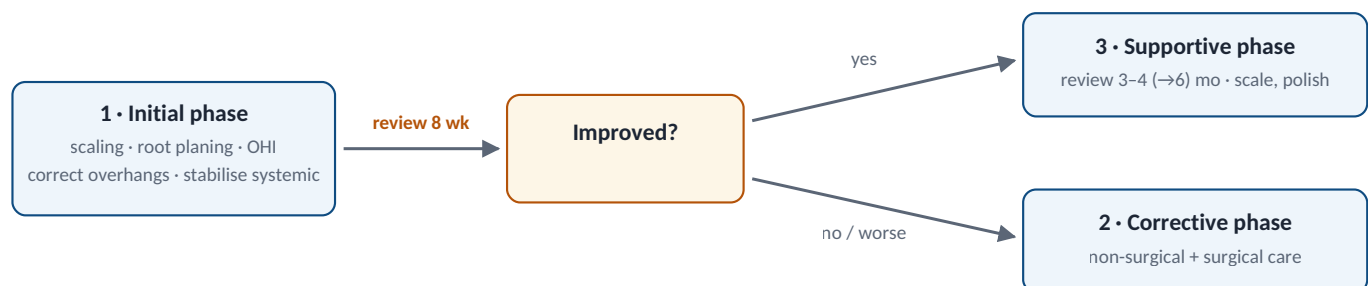


Diagram 1 — Treatment sequence: initial phase → 8-week review → supportive, or corrective if unresponsive.

- **Initial phase:** remove all local factors — scaling, root planing, correct overhanging restorations, strict OHI · stabilise systemic factors — refer to GMP for underlying disease/risk factors · review after ★8 weeks
- **Supportive phase:** review every 3–4 (up to 6) months — scaling, polishing, cleaning bleeding pockets
- **Ultrasonic scaling (Cavitron):** works by **acoustic micro-streaming (AMS)** — vibrations break down & remove calculus (supragingival)
- **Subgingival scaling:** when pocket depth ★≥4 mm · deck poses "root planing vs root-surface debridement — which to use?" as a discussion point
- **Brushing:** best technique = removes all plaque without gingival trauma — modify the patient's own method · most used = **Modified Bass** · interdental cleaning (floss, interdental brushes) comes **before** brushing
- **Full-mouth disinfection:** complete full-mouth scaling within **24 h** → ↓ microbial load · antiplaque mouthwash = co-factor adjunct to brushing/flossing
- **Chlorhexidine (biguanide):** prevents **new** plaque — does not treat existing deposits · ↓ bacterial counts (G+ve and G-ve) · **substantivity** = slow release over time
 - disadvantages: altered taste · tooth staining · salivary gland enlargement
- **Splinting:** wire + composite bonding · for mild–moderate mobility · strict OH instructions
- **Antimicrobials — only two indications** (always adjunct to local measures/debridement):
 - necrotising disease + systemic involvement → ★**metronidazole 400 mg tds × 5 days**; amoxicillin 500 mg tds × 5 days if metronidazole contraindicated
 - rapidly progressive disease <40 yr (aggressive) → metronidazole 400 mg + amoxicillin 500 mg tds × 5 days

CAUTION

Splinting is **contraindicated in grade 3 mobility** · surgical therapy is contraindicated with uncontrolled systemic disease (e.g. uncontrolled diabetes) or without demonstrated plaque control.

§15 Surgical therapy, flaps & grafts

- **Prerequisites:** good oral hygiene proven (test the patient) · after a course of non-surgical treatment · refer to specialist unless you have both interest and experience
- **Reality check:** success rate ≈ ★50% — and expensive
- **Access / open-flap debridement:** most common = **Modified Widman flap** · for difficult access, deep pockets (>6 mm), furcation involvement — when completed non-surgical debridement is not enough
- **Regenerative surgery:** membrane = scaffold → inhibits epithelial proliferation → prevents healing by **long junctional epithelium** → osteoblastic, organised healing with new bone, PDL, cementum
 - case selection: 3- or 2-wall defects · good OH · non-smoker · not for poor-prognosis or implant-planned teeth
- **Enlargement surgery:** gingivectomy · crown lengthening — measure **biologic width** + crown-root ratio first
- **Pedicle flaps** (never fully detached — keep their blood supply, stretched to a new position):
 - coronally repositioned/advanced → recession coverage **canine-to-canine**
 - apically repositioned → **crown lengthening**
 - rotational (lateral pedicle) → single-tooth recession at the **corner of the smile line**
- **Non-pedicle recession coverage:** tunnel technique / tunnel flap

Table 7 — Bone graft materials

Type	Description
Autogenous	Same individual, one site → another · intraoral or extraoral donor
Allogenic	Same species, genetically dissimilar · commonly freeze-dried → ↓ antigenicity + exposes BMPs
Xenogenic	Another species · commonly bovine bone mineral
Alloplastic	Inorganic synthetic biocompatible substitutes · hydroxyapatite, β-tricalcium phosphate, polymers, bioactive glasses

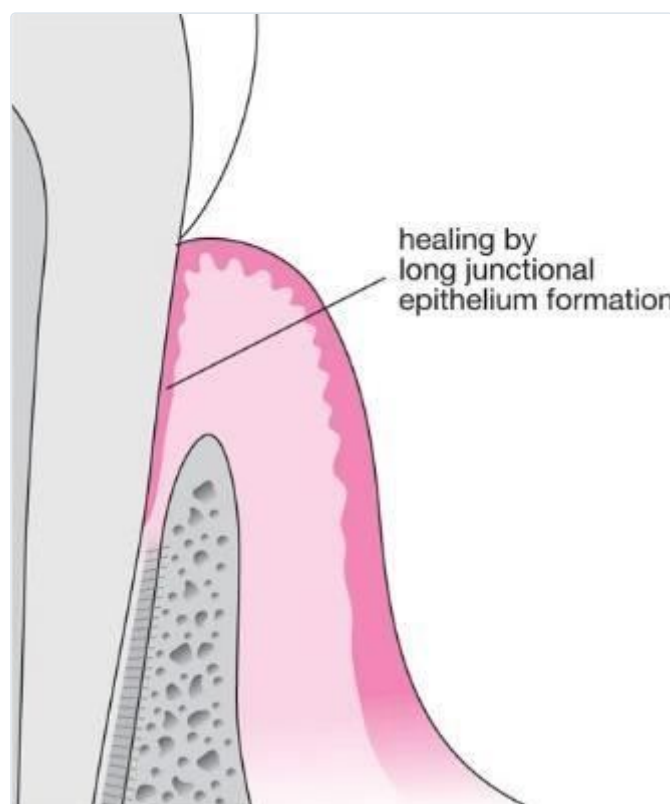


Fig. 22 — Default healing after debridement: long junctional epithelium — what the membrane prevents.

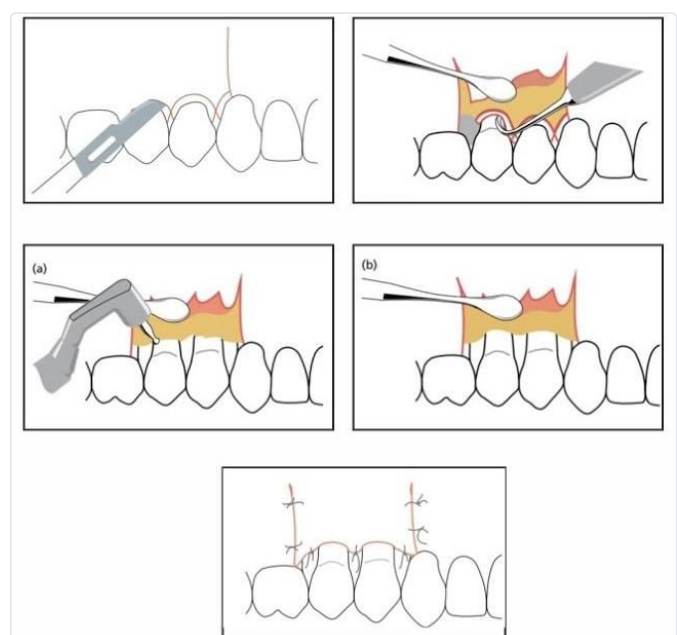


Fig. 23 — Apically repositioned flap → crown lengthening.



Fig. 24 — Rotational (lateral pedicle) flap → single-tooth recession.

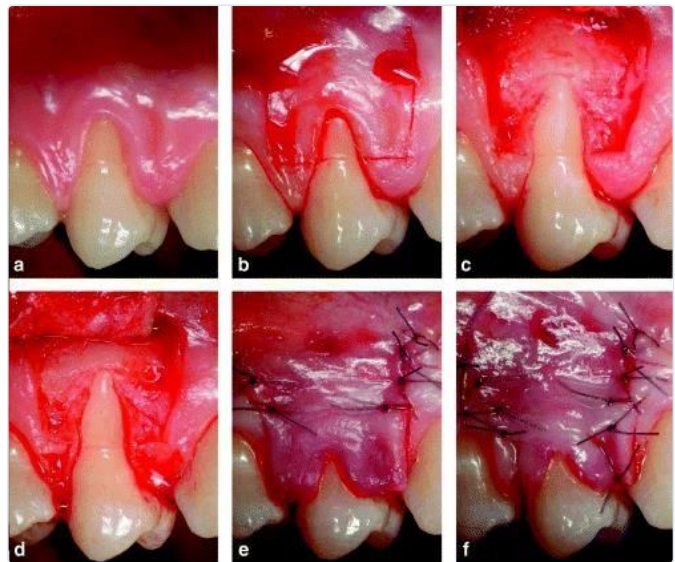


Fig. 25 — Coronally advanced flap: raise → advance → suture.



Fig. 26 — Recession coverage: coronally advanced flap (a) vs tunnel technique (b).

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Flap-matching is a gift question: **apical** = crown lengthening · **coronal** = canine-to-canine recession · **rotational** = single tooth at the smile-line corner · **tunnel** = the non-pedicle option.

§16 Periodontal instruments

- **Sickle scaler**: pointed curved blade · double-ended patterns (Fig. 27)
- **Hoe scaler**: blade at right angle to shank (Fig. 28)
- **Universal curette**: rounded toe, one design for all areas (Fig. 29)
- **Gracey curettes**: ★area-specific · colour-coded pairs GRA 1-2 → 13-14 (Fig. 31)

- **Naber's probe:** curved probe — measures ★**extent + depth of furcation lesions** (Fig. 30)
- **WHO probe:** 0.5 mm ball · black band 3.5–5.5 mm · markings 3.5-5.5-8.5-11.5 mm — the BPE probe (Fig. 32)
- **Jacquette scaler:** double-ended scaler (chart, Fig. 33)
- **Probe markings** (Fig. 33): CP-15 → every mm, 1–15 · CPITN → ball 0.5 mm · Williams → **1-2-3-5-7-8-9-10** (skips 4 & 6) · CP-11 → 3-6-8-11 · CP-12 → 3-6-9-12



Fig. 27 — Sickle scaler.



Fig. 28 — Hoe scaler.



Fig. 29 — Universal curette.



Fig. 30 — Naber's probe (furcation).



Fig. 31 — Gracey curettes (area-specific set).



Fig. 32 — WHO probe.



Fig. 33 — The deck's marking chart: Jacquette, CP-15, WHO, CPITN, Williams, CP-11, CP-12, sickle.

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"Which probe?" questions turn on markings alone: **ball end** → WHO/CPITN · skips 4 & 6 → Williams · 3-6-8-11 → CP-11 · 3-6-9-12 → CP-12 · every millimetre → CP-15.