

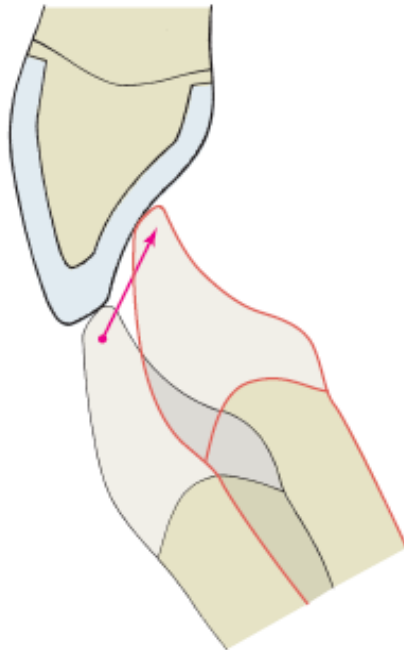
TEKNIK PREPARASI GIGI – Pembuatan GTC

DRG. FAHMI YUNISA, SP.PROS

ALL CERAMIC

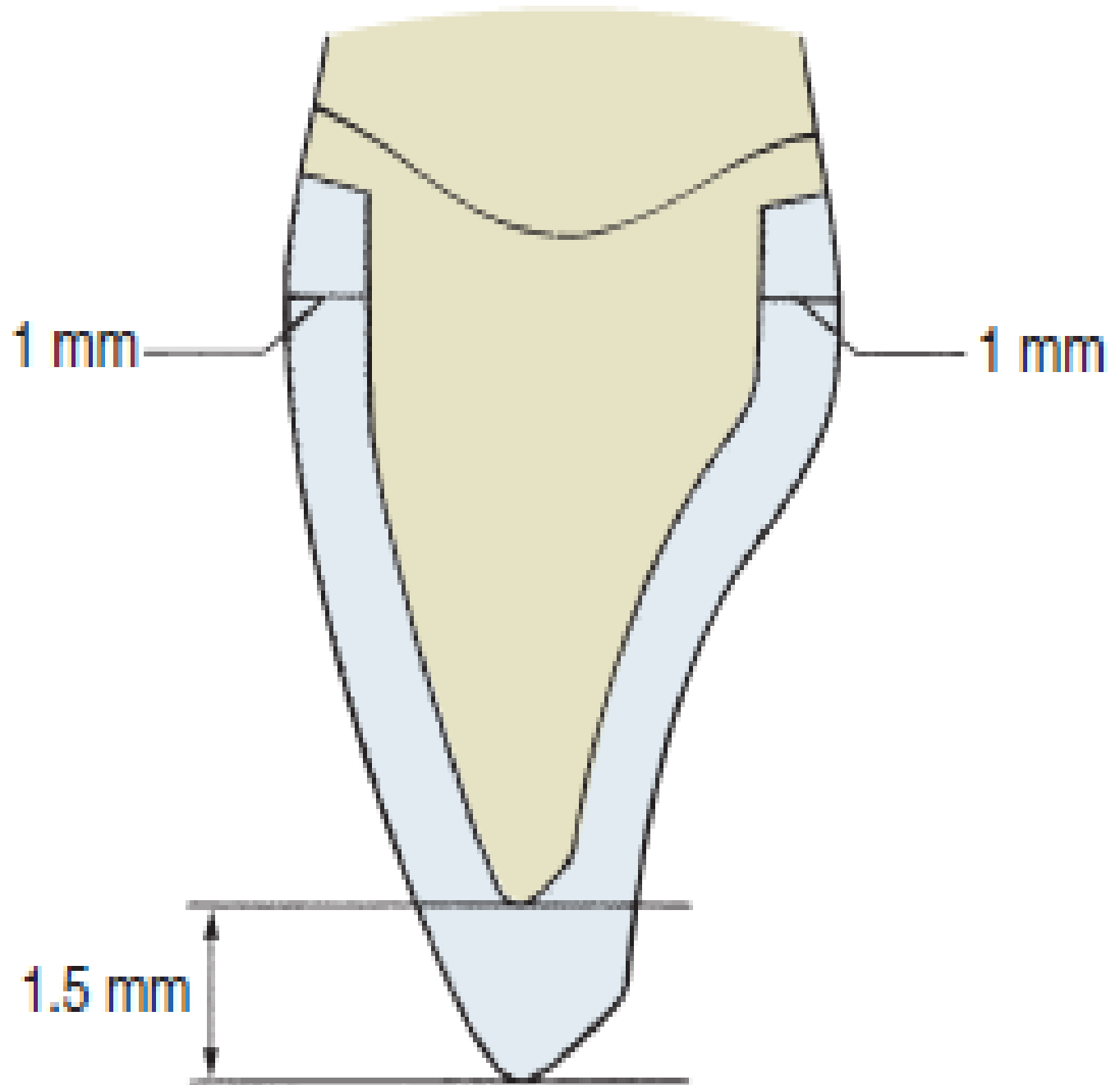
- a. Tidak dilapisi logam → transmisi cahaya baik
→ mirip warna gigi asli → sangat estetis
- b. Tidak dilapisi logam → lebih konservatif di labial/bukal → 1-1,5 mm
- c. Tidak dilapisi logam → kekuatan berkurang
→ mudah pecah
- d. Pengurangan lebih banyak di proksimal-lingual / palatal
- e. Kurang baik sbg GTC posterior

- **INDIKASI :**
 - a. Kebutuhan estetik yang tinggi, tidak dapat direstorasi dg yg lain
 - b. Gigi dengan karies di bagian proksimal atau facial
 - c. Kontak area harus terdukung struktur gigi



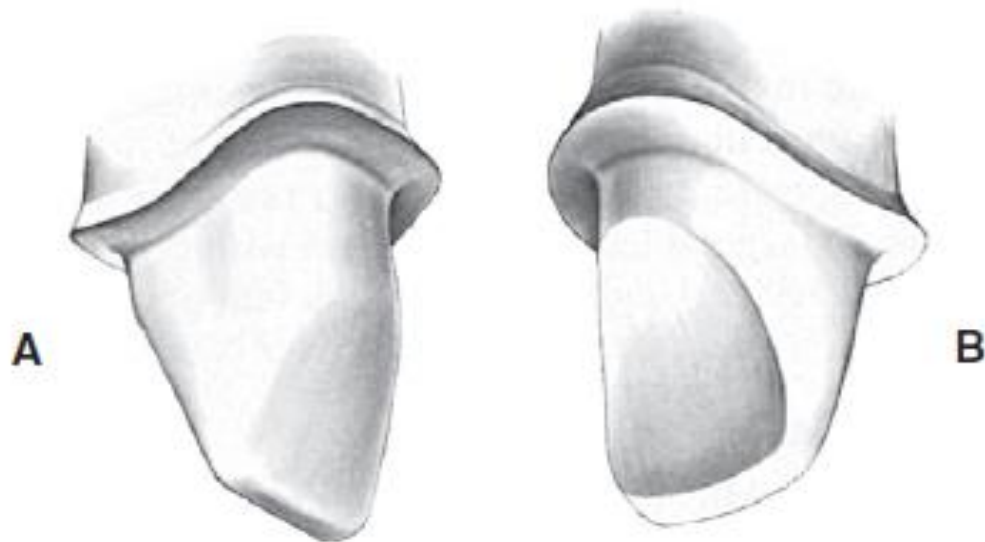
- KONTRAINDIKASI :
 - a. Dapat direstorasi dengan restorasi lain
 - b. Beban oklusi tinggi
 - c. Tidak membutuhkan estetika
 - d. Dimensi labiolingual tipis
 - e. Gigi dengan pulpa lebar → remaja





SUMMARY CHART
ALL-CERAMIC CROWN PREPARATION

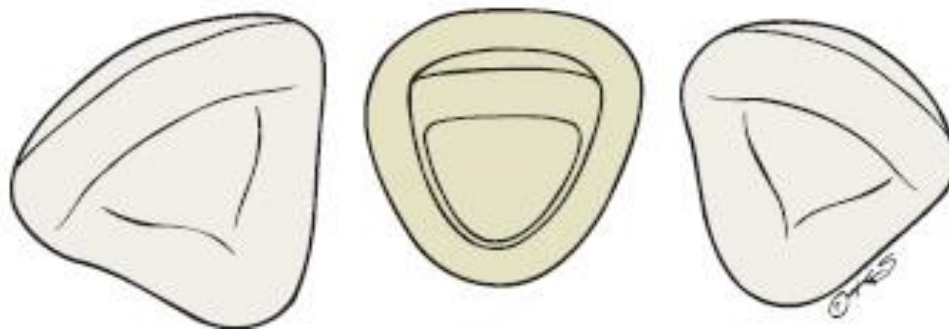
Indications	Contraindications	Advantages	Disadvantages
High esthetic requirement	When superior strength is warranted and metal-ceramic crown is more appropriate	Esthetically unsurpassed	Reduced strength in comparison with metal-ceramic crown
Considerable proximal caries	High caries index	Good tissue response even for subgingival margins	Proper preparation extremely crucial
Incisal edge reasonably intact	Insufficient coronal tooth structure for support	Slightly more conservative of facial wall than metal ceramic	Among least conservative preparations
Endodontically treated teeth with post and cores	Thin teeth faciolingually	—	Brittle nature of material
Favorable distribution of occlusal load	Unfavorable distribution of occlusal load	—	Can be used only as single restoration
	Bruxism	—	—



Note the rounded internal line angles.

Fig. 11-7

All-ceramic crown preparation. **A**, Labial view. **B**, Lingual view. To prevent stress concentrations in the ceramic, all internal line angles should be rounded. The shoulder should be as smooth as possible to facilitate the technical aspects of fabrication.



Preparation steps	Recommended armamentarium	Criteria
Depth grooves for incisal reduction	Tapered diamond	Approximately 1.3 mm deep to allow for additional reduction during finishing; perpendicular to long axis of opposing tooth
Incisal reduction	Tapered diamond	Clearance of 1.5 mm; check excursions
Depth grooves for facial reduction	Tapered diamond	Depth of 0.8 mm needed for additional reduction during finishing
Facial reduction	Tapered diamond	Reduction of 1.2 mm needed; two planes, as for metal-ceramic crown preparation
Depth grooves and lingual reduction	Tapered and football-shaped diamonds	Initial depth, 0.8 mm; recreate concave configuration; do not maintain any convex configurations (stress)
Depth grooves for cingulum reduction	Tapered diamond	Parallel to cervical aspect of facial preparation; 1 mm of reduction; shoulder follows free gingival margin
Lingual shoulder preparation	Square-tipped diamond	Rounded shoulder 1 mm wide; minimize “peaks and valleys”; 90-degree cavosurface angle
Finishing	Fine-grit diamond or carbide	All surfaces smooth and continuous; no unsupported enamel; 90-degree cavosurface angle

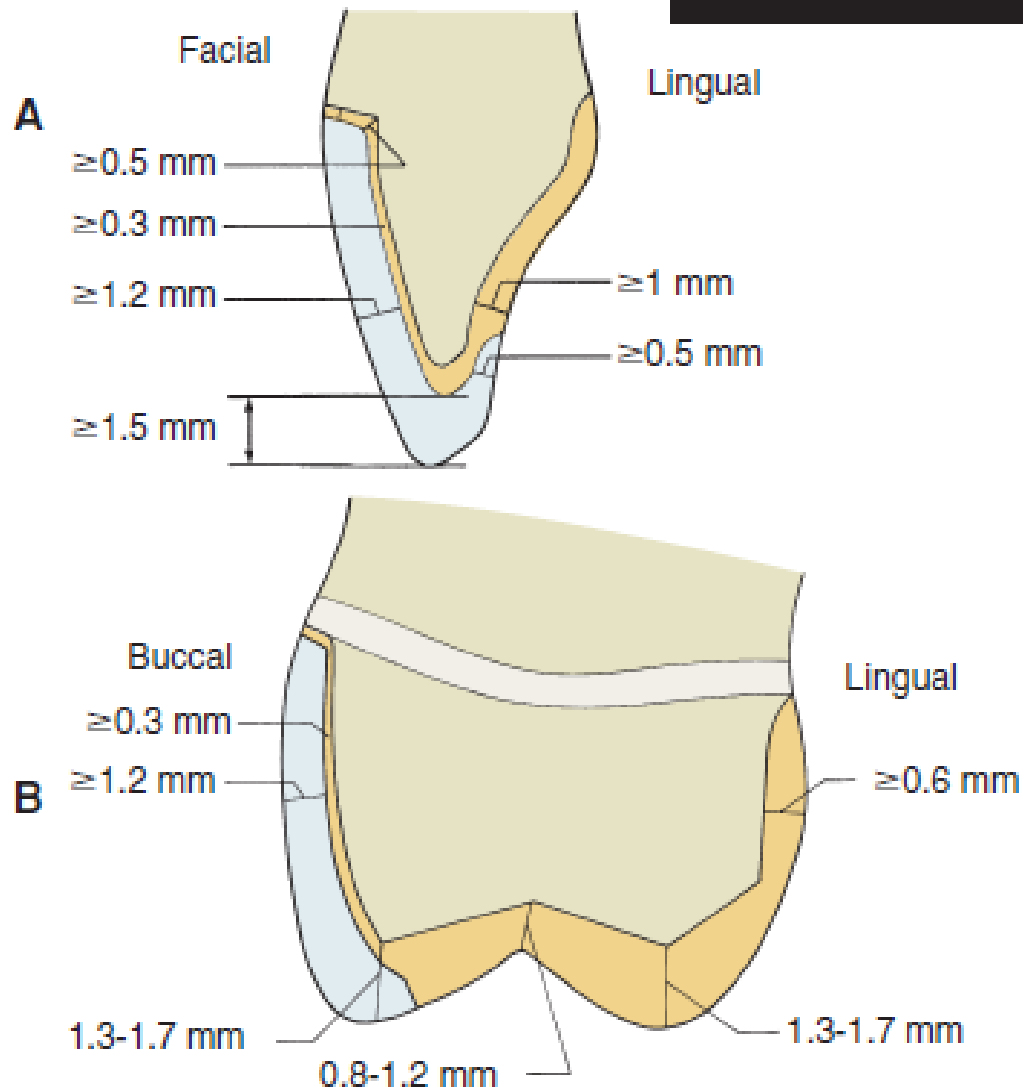
METAL CERAMIC

- Restorasi dengan substruktur / koping logam , yang dilapisi porcelain → kombinasi kekuatan dan estetika
- Pengurangan gigi harus adekuat → penutupan logam oleh porcelain
- Margin restorasi anterior di subgingiva → estetika, potensi perio disease
- Akurasi penentuan warna sulit

- INDIKASI :
 - a. Gigi yang membutuhkan perbaikan estetik
 - b. Gigi dengan kerusakan besar, karena karies, trauma, tumpatan yg sudah lama
 - c. Gigi yang membutuhkan kekuatan
 - d. Gigi dengan malposisi ringan

- KONTRAINDIKASI :
 - a. Gigi dengan penyakit periodontal
 - b. Gigi dengan karies aktif
 - c. Pasien usia muda → kamar pulpa
 - d. Gigi yg masih dapat direstorasi lain
 - e. Ruang edentulous yang panjang

To ensure good esthetics, substantial tooth reduction is necessary.



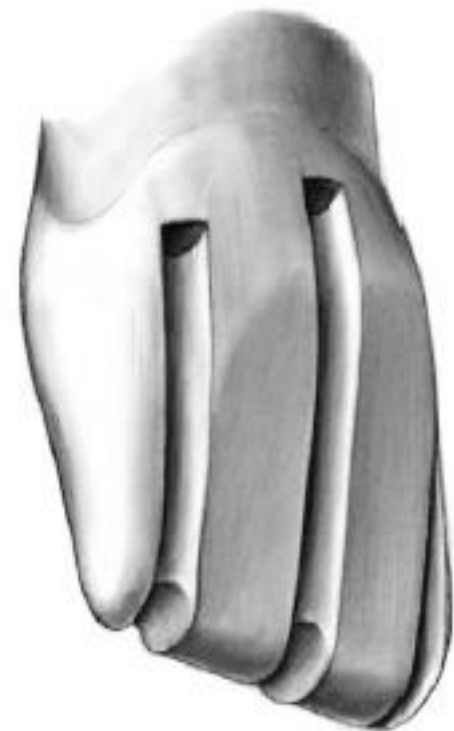
- TAHAPAN PREPARASI :
 - a. Guiding grooves
 - b. Incisal / occlusal reduction
 - c. Labial / buccal reduction
 - d. Proximal and lingual reduction
 - e. Finishing

- **GUIDING GROOVES :**

- a. Kedalaman bagian labial / bukal : 1,3 mm

- b. Kedalaman bagian insisal : 1,8 mm

- c. Kedalaman bagian oklusal : 1,3 mm



- **INCISAL / OCCLUSAL REDUCTION**
 - a. Pengurangan insisal 2 mm → ketebalan material porcelain → translusensi
 - b. Pengurangan posterior 1,5 mm → tidak perlu estetika

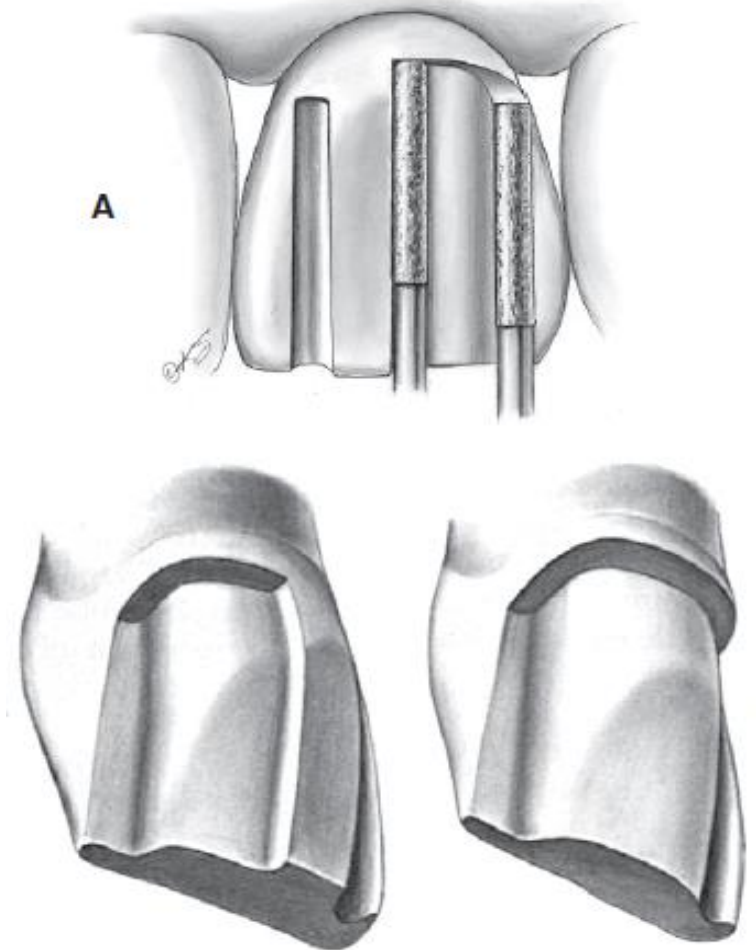


- LABIAL / BUCCAL REDUCTION

- a. Pengurangan 1,2 mm – 1,5 mm

- b. Pengurangan struktur gigi di antara groove

- finishing line

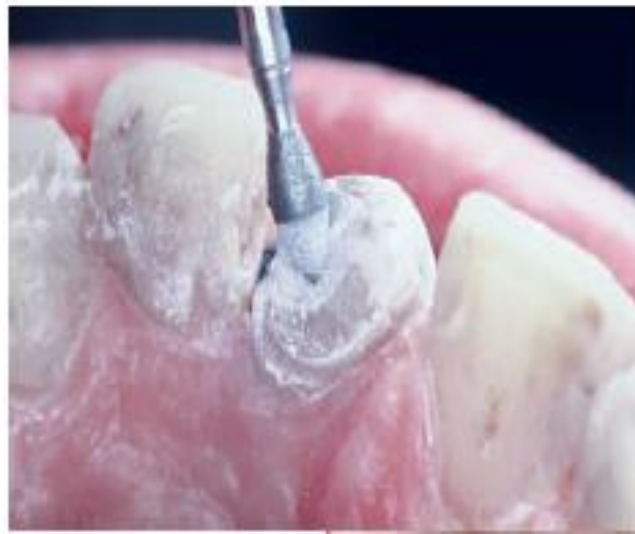


- Aspek periodontal → margin supragingival lebih baik
- Margin supragingival → low lip line, gigi posterior
- Margin subgingival → perlu retraksi gingiva → cord



- PROXIMAL – LINGUAL REDUCTION

a. Pengurangan struktur gigi 0,5 mm → chamfer



- FINISHING :
 - a. Bagian margin harus halus dan kontinyu
 - b. Retraksi gingiva kadang dibutuhkan
 - c. Semua sudut ditumpulkan

METAL-CERAMIC CROWN

Indications	Contraindications	Advantages	Disadvantages
Esthetics	Large pulp chamber	Superior esthetics in comparison with complete cast crown	Removal of substantial tooth structure
If all-ceramic crown is contraindicated	Intact buccal wall	–	Subject to fracture because porcelain is brittle
Gingival involvement	When more conservative retainer is technically feasible	–	Difficult to obtain accurate occlusion in glazed porcelain Shade selection can be difficult Inferior esthetics in comparison with all-ceramic crown Expensive

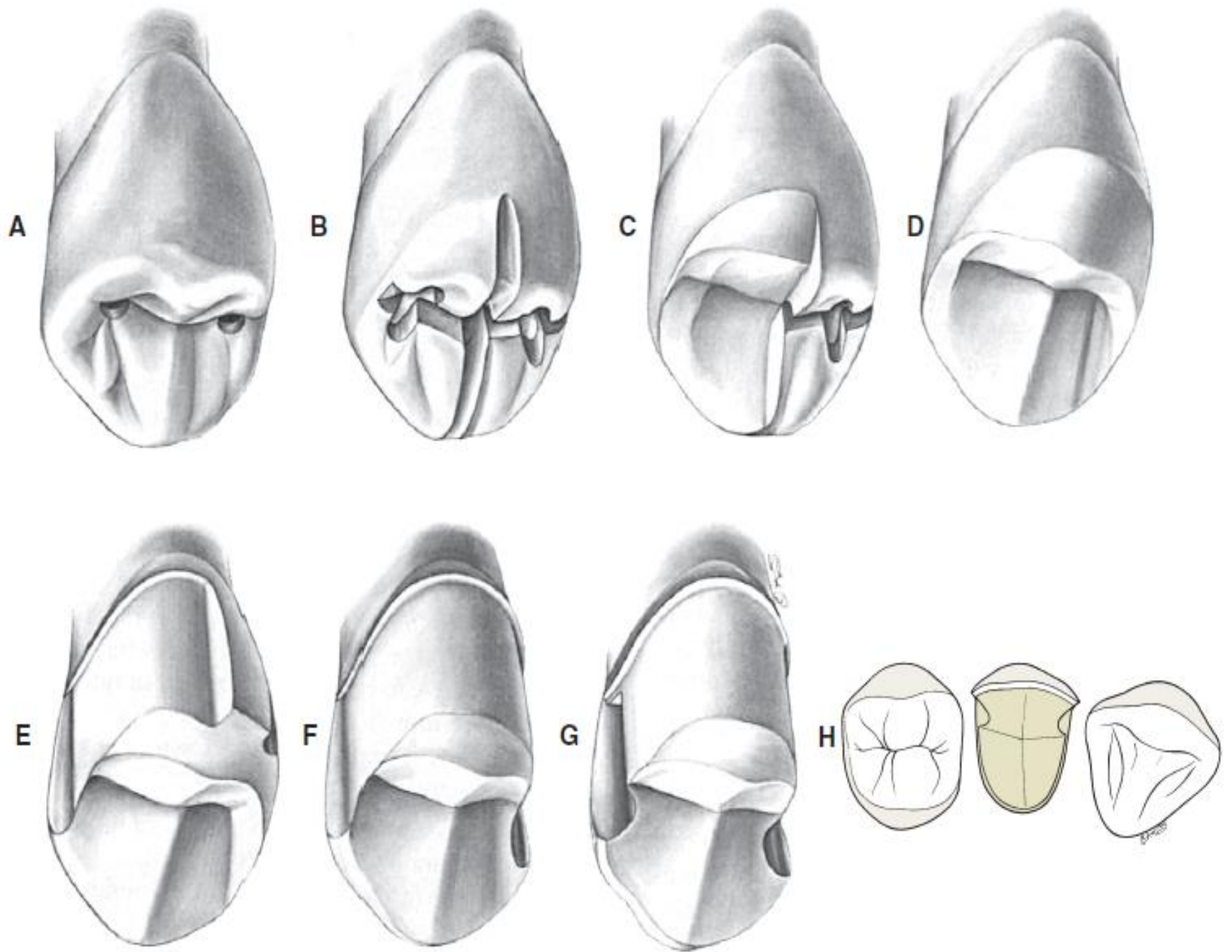
Preparation steps	Recommended armamentarium	Criteria
Incisal (occlusal) reduction guide grooves	Tapered, round-tipped diamond	1.5 to 2 mm of clearance in intercuspal positions and all excursions
Incisal (occlusal) reduction	Tapered, round-tipped diamond	1.2 to 1.5 mm of reduction for metal and porcelain (see Fig. 9-1)
Labial reduction guide grooves (two plane)	Tapered, round-tipped diamond	6 degrees of convergence, as measured as the angle between opposing axial walls
Labial reduction (two plane)	Tapered, flat-tipped diamond	Should provide 1 mm of clearance in all excursions and intercuspal positions (≥ 1.5 mm if occlusal is porcelain)
Axial reduction	Tapered, round-tipped diamond	Shoulder must extend at least 1 mm lingual to proximal contact area; bevel, if selected, should be as far incisal as possible in relation to epithelial attachment
Lingual reduction	Football-shaped diamond	All line angles rounded and preparation surfaces smooth
Finishing of shoulder (or beveled shoulder)	Tapered, flat-tipped diamond	–
Finishing	Hand instrument Tapered, round-tipped diamond or carbide	–
Incisal (occlusal) reduction guide grooves	Tapered, round-tipped diamond	1.5 to 2 mm of clearance in intercuspal positions and all excursions

PARTIAL CROWN

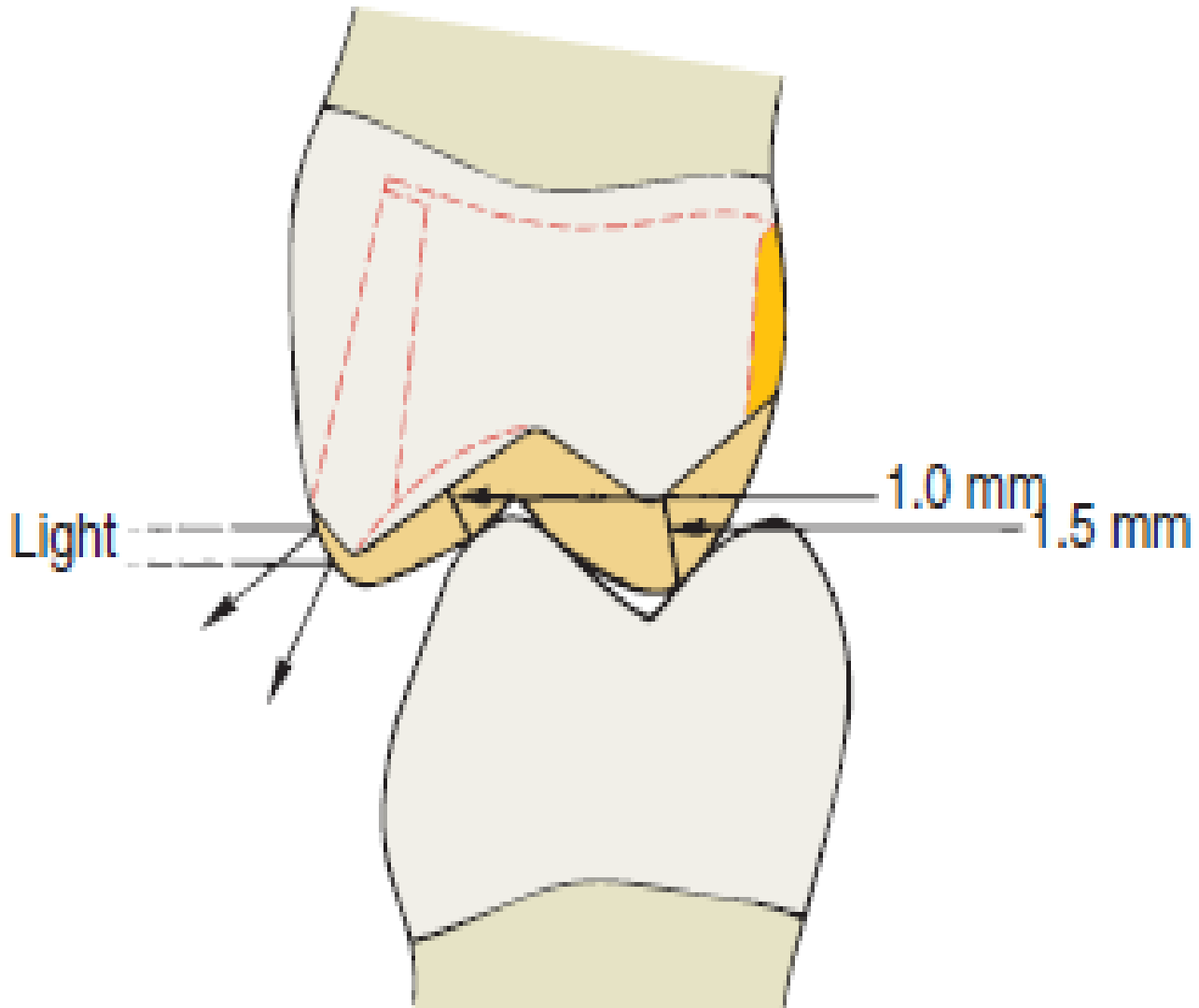
- Preparasi seluruh sisi gigi, kecuali bagian labial/bukal → konservatif thd gigi
- Proximal box dan groove → mencegah perpindahan bukolingual
- Gigi anterior → ketebalan harus cukup
- Retaner utk bridge pendek
- Tidak untuk gigi pasca PSA

- KEUNTUNGAN :
 - a. Konservatif thd struktur gigi
 - b. Mengurangi resiko kerusakan pulpa dan periodonsium
 - c. Pemilihan desain margin mudah → supragingival
 - d. Kontrol sementasi mudah

- KEKURANGAN :
 - a. Retensi – resistensi < complete crown
 - b. Preparasi lebih rumit → ketelitian arah masuk



- HUBUNGAN OKLUSAL



SUMMARY CHART

PARTIAL VENEER CROWN PREPARATION, POSTERIOR TEETH

Indications	Contraindications	Advantages	Disadvantages
Sturdy clinical crown of average length or longer	Short teeth	Conservative of tooth structure	Less retentive than complete cast crown
Intact buccal surface not in need of contour modification and well supported by sound tooth structure	High caries index	Easy access to margins	Limited adjustment of path of withdrawal
No conflict between axial relationship of tooth and proposed path of placement	Extensive destruction	Less gingival involvement than with complete cast crown	Some display of metal
	Poor alignment	Easy escape of cement and good seating	—
	Bulbous teeth	Verification of seating simple	—
	Thin teeth	Electric vitality test feasible	—

Preparation steps	Recommended armamentarium	Criteria
Depth grooves for occlusal reduction	Tapered carbide fissure bur or tapered round-tipped diamond	0.8 mm on nonfunctional cusps, 1.3 mm on functional cusps
Occlusal reduction	Round-tipped diamond	Clearance of 1 mm on nonfunctional cusps, 1.5 mm on functional cusps
Depth grooves for axial reduction	Round-tipped diamond	Chamfer depth of 0.5 mm (no more than half the width of diamond)
Axial reduction	Round-tipped diamond	Axial reduction parallel to long axis of tooth
Chamfer finishing	Large, round-tipped diamond	Smooth and continuous to minimize marginal length and facilitate finishing; distinct resistance to vertical displacement by periodontal probe
Proximal groove	Tapered carbide fissure bur	Distinct resistance to lingual displacement by probe; parallel to path of placement of restoration; 90-degree angle between prepared axial wall and buccal or lingual aspect of groove
Buccal and occlusal bevel (maxillae), chamfer (mandible)	Round-tipped diamond	Maxillary teeth: bevel extends just beyond cusp tip but remains within curvature of cusp tip
Finishing	Large, round-tipped diamond or carbide	Mandibular teeth: minimum of 1 mm of cast gold in area of centric stops All sharp internal line angles (except grooves) rounded to smooth transitions

SUMMARY CHART
PARTIAL VENEER CROWN PREPARATION, ANTERIOR TEETH

Indications	Contraindications	Advantages	Disadvantages
Sturdy clinical crown of average length or longer	Short teeth	Conservation of tooth structure	Less retentive than complete cast crown
Intact labial surface that is not in need of contour modification and that is supported by sound tooth structure	Nonvital teeth	Easy access to margins for finishing (dentist) and cleaning (patient)	Limited adjustment of path of insertion
No discrepancy between axial relationship of tooth and proposed path of placement of FDP	High caries index	Less gingival involvement than with complete cast crown	Some display of metal
	Extensive destruction	Easy escape of cement and good seating	Not indicated on nonvital teeth
	Poor alignment with path of withdrawal of FDP	Easy verification of complete seating	—
	Cervical caries	Electric vitality test feasible	—
	Bulbous teeth	—	—
Thin teeth			

Preparation steps	Recommended armamentarium	Criteria
Depth grooves for lingual reduction	Round-tipped diamond	Should allow for 1 mm of clearance
Lingual reduction	Football-shaped diamond	Should have 1 mm of clearance
Incisal bevel	Round-tipped diamond	Allows for metal thickness ≥ 0.7 mm
Depth grooves for axial reduction	Round-tipped diamond	Allows for 0.5 mm of metal thickness at margin
–	Round-tipped diamond	Extends into interproximal about 0.4 mm lingual of contact area; parallel to incisal two thirds of labial surface
Axial reduction	Tapered carbide fissure bur and half-round bur	Grooves parallel to incisal two thirds of labial surface; should resist lingual displacement; pinhole should be between 2 and 3 mm deep
Retention form (proximal grooves and lingual pinhole)	Fine-grit, tapered diamonds (large and small) or carbide	Lingual wall of groove meets proximoaxial wall at angle of 90 degrees
Finishing and flare		All surfaces smooth; buccal wall of groove flared to break proximal contact; resulting cavosurface angle is 90 degrees; no unsupported enamel remaining

TERIMA KASIH