Lecture.6 Crown &Bridge

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Complete Ceramic Crown (All ceramic Crown)

The most esthetically pleasing fixed restoration. Because, there is no metal understructure to block light transmission, it can resemble natural tooth in term of color and translucency than can any other restoration.

Since it made entirely from ceramic substance, it is the weakest type of crown restorations (more susceptible to fracture). It isn't conservative type of crowns. **Most of the time** it used as single restoration on upper or lower incisors.

Advantages;

1. Superior esthetic.
2. Good tissue response even for subgingival margins.
3. Slightly more conservative of facial wall.

Disadvantages;

1-Reduced strength compared to MCR (PFMC).
2-Proper preparation extremely critical.
3-Among the least conservative preparations.
4-Britle nature of the material.
5-Can be used as single restoration only.

Indications:

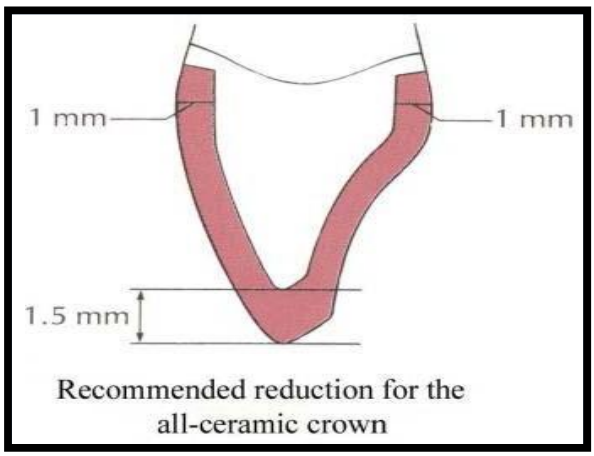
1. High esthetic requirements.
2. Considerable proximal caries.
3. Endodontically treated teeth with post & cor.
4. Incisal edge reasonably intact.
5. Favorable distribution of occlusal load

Contra-Indications;

1-When superior strength required & PFMC more appropriate.
2-Thin teeth faciolingually.
3-Unfavorable distribution of occlusal load.
4-Insufficent coronal tooth structure for support. (Very short teeth)
4-Edge to edge occlusion.
5-Bruxism

Tooth Preparation (PJC)

Recommended dimensions



Recommended reduction for the all-ceramic crown

Preparation requirements:

1. The preparation must be as long as possible to give support to porcelain. Short prep ---- stress concentration in lingual area ----- fracture in this area.
2. A shoulder of uniform width (1mm) is used as gingival FL to provide a flat seat to resist force directed from incisal.

3. Incisal edge is flat and should prepared with slight inclination toward the lingual. , for the lower – labial inclination.
4. All sharp angles of preparation should be slightly rounded to reduce the danger of fracture by point of stress concentration.
5. It should be avoided on teeth with edge to edge occlussal relation.
6. The occlusion on all ceramic crown is critical for avoiding fracture. Centric contacts are best confined to the middle third of the lingual surface.

Steps in preparation;

Prior to tooth reduction a silicon index is constructed.

1. Incisal Reduction;

-- Complete reduction of incisal edge should provide 1.5 – 2mm of clearance for porcelain in all mandibular movements, this important to have cosmetically pleasing restoration with adequate strength.
Flat end taper diamond bur is used, placed parallel to the incisal inclination. (For post. teeth 2mm.occl clearance is needed ion all cusps).
1))) Depth orientation grooves (D.O.G.) 1.3mm in depth are made on the incisal edge using a flat end T.F.B, parallel to the incisal inclination of the prepared incisal edge
2))) Any tooth structure between D.O.G should be removed using the same bur at the same angle. (1.5 mm)
3))) Incisal clearance then checks in centric & eccentric occlusal relations.

2. Labial (Facial) Reduction

Two planes reduction

Because of the anatomy of the tooth labially it should be reduced in two planes corresponding to the two geometric planes of the labial surface gingival plane and incisal plane.

Incisal plan;

1. Three D.O.G. (1mm.) are placed, the angle of these grooves should be parallel to the inclination of this area.
2. Any tooth structure between D.O.G were then removed following the contour of the tooth (keep the bur at the same angle)
Gingival plan;
1. D.O.G.(1mm) are placed in gingival part of L.S. parallel to the long axis of the tooth.
2. Any tooth structure between D.O.G should be removed using flat end T.F.B to create shoulder F.L.

3. <u>Lingual reduction:</u>
As for **PFM** but with **deeper reduction** (1mm)
a. Cingulum area reduction;
-----D.O.G. of 0.8mm placed in the center.
----small wheel diamond is used (following the inclination of the tooth) to reduce this area.
a. Lingual axial reduction;
a. Cingulum area reduction;
-----D.O.G. of 0.8mm placed in the center.
----small wheel diamond is used (following the inclination of the tooth) to reduce this area.
a. Lingual axial reduction;
-----D.O.G. of 0.8mm placed parallel to the long axis of the tooth.
----Flat end T.F.B is used to reduce this area using the same angle (to create shoulder F.L.).

4. <u>Proximal reduction.</u>
Preparation of the proximal surfaces is done in the same manner as in the full
metal crown preparation.
----Silicon index can be used now to check tooth reduction

----- ***Smoothing of the preparation*** *finally you should smooth the preparation to remove any sharp angle.*

<u>Types of finishing lines used for PJC (all ceramic crown)</u>

Shoulder or RS all around has been advocated as gingival finishing line to be use with PJC. The depth and contour of shoulder is established with the tip of flat end tapered fissure bur. *Sharp angles should be rounded to avoid creation of point of stress concentration.*

Acrylic Jacket Crown

AJC is totally made from tooth colored acrylic resin; it can be near perfect in appearance when fitted but later on discoloration, loss of contour take place. Poor adaptation is great disadvantagesof acrylic crowns----------Coefficient Thermal Expansion.

AJC is used in treatment of selected patient such as young patient for whom other type of crown restoration are planned but delay until complete eruption of tooth take place.

Most of time, AJC is used as temporary crown restoration.

The preparation of the tooth is basically the same as that for PJC .

Disadvantages;

1. Poor marginal fitness.
2. Poor tissue response.
3. Discoloration with time.
4. Loss of contour (wear easily).