**Cons Sheet no. : 8**

* **Amalgam Treatment options:**

 1. Pin retained amalgam

 2. Slot retained amalgam

 3. Amalgam foundations

 4. Bonded Amalgam

**2.Slot retained amalgam:**

* **A slot is a retention groove placed in dentine in a horizontal plane.**

If the groove placed in vertical position, it called lock.

If the groove placed in horizontal position, it called slot.

* **Slots are particularly indicated in short clinical crowns and in cusps that have been reduced 2-3 mm for amalgam.**

So, if the crown of posterior teeth very short, it’s preferable to use slot.

* **More tooth structure is removed in making slots than pins.**
* **Slots are less likely to create micro fractures, to perforate the tooth or penetrate the pulp**

|  |  |  |
| --- | --- | --- |
|  | conservation | complication |
| slot | Less conservative | Less perforation and penetration the pulp. |
| pin |  More conservative |  More Perforation and penetration the pulp. |

* They are usually placed **on any aspects of the preparation on the gingival floor** **0.5mm axial to the DEJ.**

Slot is a horizontal groove .therefore, the only way to make slot horizontal is placed slot in the **gingival floor** of the cavity.

 

In this picture, slot placed in mesio-lingual , horizontally on the gingival floor of the cavity.

* It may be **continuous or segmented** depending on the amount of tooth structure missing and whether pins are to be used or not.
* It should be **at least 0.5mm in depth and 1mm long.**

You should use inverted bur

***3- Amalgam foundations***

* **The tooth is restored so that the restorative material used will serve in place of the missing tooth structure to provide retention and resistance forms for the placement of the definitive indirect restoration.**
* **It should provide resistance against forces that might fracture the remaining tooth structure.**

**There’s** a large amount of tooth structure is missing , therefore we apply amalgam as a foundation. Functions of amalgam foundation:

 1.resist fracture of remaining tooth structure.

 2.replace part of the tooth structure that will be covered by indirect restoration later on.

***Tooth preparation for amalgam foundations***

* **The technique for tooth preparation depends on the type of retentive mean to be used: pins, slots or chamber retention.**

-pin and slot that Treatment options use as **DEFENETIVE TREATMENT** ;which means that these pin and slot are alternative treatment for patient ,will not cover by indirect restoration.

Pin and slot (in amalgam foundation) used for retention, and use under the indirect restoration, it’s **NOT THE DEFENETIVE TREATMENT**, it’s the first step in treatment.

 **A-Pin retained foundation**

* **Used in severely broken teeth with few or no vertical walls where an indirect restoration is indicated.**
* **The main difference from using pins for definitive restorations is the distance of pin holes from the external surface of the tooth, and more bending of the pins may be necessary.**

**B- Slot retained foundation**

* Foundation slots are **placed slightly more axial.**
* They are usually **0.5-1mm in depth and width, and 2-4mm in length.**

**C- Chamber retention**

* **Used in multi-rooted endodontically treated teeth.**

Chamber for non vital tooth.

* **Should only be used when the dimension of the pulp chamber is adequate to provide retention, and the thickness of dentine in the area is enough.**
* **If the height of the pulp chamber is less than 2mm extension into the root canal (2-4mm), the use of prefabricated post, cast post & core, pins and slots should be considered**.

**4- Bonded Amalgam**

* **Reduce the need for mechanical retention** features and resistance form which conserves sound tooth structure.
* Assist in the **improvement of the marginal seal** with potentially **less sensitivity**.
* **Self or dual cured bonding agent or resin cement** placed on conditioned tooth structure, then Amalgam is condensed immediately.
* **micromechanical bond.**

**#**Why we don’t use bounded amalgam in our general practice in amalgam restoration?

 1. (**NEED A GOOD ISOLATION**).

 2. **INCREASE THE COAST**.

#can we consider the dentine bonding agent varnish for amalgam? YES

Varnish used for marginal seal (seal the space between amalgam and cavity walls)

Dentin bounding agent also provide marginal seal

* **Restorative technique**

, we can use:

1.Universal matrix

2. Automatrix

3. Compound supported copper band:

 A. place the matrix around the tooth.

 b. Heat compound martial.

 C. Inject the compound around the matrix in order to fix the matrix during

 Procedure.

* **The use of Complex composite restorations**

**Indications for the use of composite:**

for grossly caries lesions because; the mechanical properties of the composite are good enough.

* Wear resistance and polymerization shrinkage are the main problems of the composite, but in general It has the **1.** **Ability to strengthen weakened tooth structure**
* **2.An interim restoration (control restoration) while waiting to determine pulpal response**
* **3.As a foundation for indirect restorations**
* For very large composite restorations **secondary retention is usually required** because of
1. The increased amount of missing tooth structure
2. The decreased amount of tooth structure available for bonding
3. The increased concern for retaining the composite in the tooth
* **Retentive means include**
1. Grooves
2. Slots
3. Locks
4. Pins (not as esthetic as previous options).
5. Wider bevels in or flares on accessible enamel margins(on the non stress area) to increase the surface available for bonding
6. Using the root canals.
* **Cavity preparation for Posterior Composite**
1. **Conventional class I preparation:**
* Indication: large preparations of restorations subjected to heavy occlusal forces(no root)
* Design: box like amalgam and some flat walls ┴ occlusal forces.
* Uniform depth.
* pulpal floor is usually flat and follows the DEJ.

**#**don’t place bevel on the occlusal surface of class 1 (conventional); [thin layer of composite on the occlusal surface will broken].

* Preserve the strength of the cuspal and marginal ridge areas as much as possible.
* extensions into marginal ridges should result in 1.6mm thickness of remaining tooth structure in premolars and 2mm in molars.

If extension is required toward the cusp tips, the same approximate 1.5mm thickness is maintained.

**2- Beveled Conventional class I preparation**

* Indication: large Class I with groove extension.

Beveled Conventional class I preparation rarely used, except in the case of GROOVE EXTENTION Design: box like form and beveled walls on the groove extension walls.

* Uniform depth.
* pulpal floor is usually flat and follows the DEJ.

**3- Modified class I tooth preparation**

* Indications: minimally involved class I or faults.
* Design: less specific in form/ scooped out appearance.
* The initial depth is 1.5mm or .0.2 mm inside dentine, but the pulpal floor may not be uniform.
* **Proximal composite restorations**

 You can either preserve the marginal ridge or remove it:

* Access through the marginal ridge (remove it, as class2 amalgam cavity preparation. (MO, DO, box only(on the proximal surface), MOD)
* Marginal ridge is preserved.
* **Access through the marginal ridge**
* Access to carious dentine is by removal of enamel over the marginal ridge
* Cleaning of the dentino-enamel junction using a low speed round bur
* Excavation of caries over the pulp
	+ - Unsupported enamel is left in the cavity if there’s no heavy occlusion
* Bevel or not? No need to place bevel(except in case of buccal or lingual extension you can place bevel).
* **Marginal ridge is preserved**

1.Occlusal approach. 2.Buccal approach

* **Placing the matrix and restoration**

Matrix band should use especially with class2.

The best choice is SECTINAL MATRIX BAND.

You can use universal matrix band but the problem is this matrix band is thick so, it lead to overcontact.

You can use mylar strip and fix it by wedges.

Good luck ☺