Clinical technique for CLI amalgam restorations

**DEFINITION -**

- Class I Restoration - All pit and fissure restorations are Class I, and they are assigned to three groups.
  - A) Restorations on Occlusal Surface of Premolars and Molars.
  - B) Restorations on Occlusal Two-Thirds of the Facial and Lingual Surfaces of Molars.
  - C) Restorations on lingual Surface of Maxillary Incisors.
Principles of CL I cavity preparation

1- outline form:

IDEAL OUTLINE FORM

- Eliminating a weak wall of enamel by joining two outlines that come close together i.e. <0.5mm apart.
- Extending the outline form to include enamel undermined by caries.
- Using enameloplasty on the terminal ends of shallow fissures to conserve tooth structure.
- Establishing an optimal, conservative depth of the pulpal wall.
**FIGURE 17-8 Enameloplasty.**

A. Developmental fault at terminal end of fissure.  
B. Fine-grit diamond stone in position to remove fault.  
C. Smooth surface after enameloplasty.  
D. Cavo-surface angle should not exceed 100° angles, and marginal-amaigam angle should not be less than 90° degrees.  
E. Enamel external surface (e) before enameloplasty.
Conservative of tooth structure is the basis for all cavity preparation in order to preserve the strength of the tooth.
Eliminates defective tooth structure and eliminates areas (pit, fissures) which are susceptible to recurrent caries and facilities oral hygiene procedures **(extension for prevention)**
Bucco-lingual extension

**PRINCIPLE**
- extends far enough up B & L grooves to terminate on gentle contours

**RATIONALE**
- margin in sharp anatomy difficult to finish & keep clean

![Diagram of Bucco-lingual Extension](image-url)
Mesio-distal extension

**MESIO-DISTAL EXTENSION**

**PRINCIPLE**
- stop short of marginal ridge crests

**RATIONALE**
- preserve strength of marginal ridge (resistance form)
Resistance and retention form

A - depth = 1/2 mm into dentin (approx. 2mm measured at triangular ridges).
B - pulpal floor
1- smooth and flat
2- parallel to the occlusal plane
The resistance form here consists chiefly of a pulpal wall parallel to the occlusal plane (perpendicular to the long axis of the tooth) with dentin walls at right angles to it, i.e. Boxing the preparation.
Buccal and lingual walls

- Smooth and curved mesio-distally
- Smooth and straight pulpo-occlusally
- Converge slightly pulpo-occlusally under cusps to provide mechanical lock or retention
- Diverge slightly pulp-occlusally in buccal and lingual groove extension
Cavity finish

A: pulpo-occlusal line angle is well defined (no point angles are present) and follows general configuration of cavosurface outline.

B: cavo-surface margins 90-100 degree

Sharp (well defined) easier to visualize and carve

Sound (well supported) provides marginal integrity
Summary

Class I preparations

Cavosurface angles and margins
- Cavosurface angles are 90-110°
- Cavosurface margins are definite & free of irregularities
Cleanliness

cavity is free of debris and moisture, facilitates adaptation of amalgam to the cavity and improves the physical properties of the restoration by elimination of void or foreign material.
Mesio-distal extension, preserve of dentin support marginal ridge of enamel
A: molar  B: premolar
Buccal pit cavities:

Outline form for pit restorations
Round triangle oval
Occlusal pits of mandibular first premolars

Have two exception:

1- we can made 2 separated cavity one on mesial occlusal and other on distal with out including central fissure if this fissure not involved by caries because of presence of transverse ridge.

2- buccal horn of pulp is higher than lingual one, cavity floor should be inclined lingual (not flatted in order not to harm the pulp.
Bur tilted for entry
Buccal horn higher than lingual one
Cavity preparation of maxillary first molars

Which have 2 exception because of anatomy of the tooth

Present of oblique ridge in between disto-buccal and mesio-palatal gives the possibility to do 2 separated cavities.
2 separated cavity disto-buccal and mesio-occlusal.
VARIATIONS IN DESIGN FOR CLASS 1 MAXILLARY 1ST MOLAR
Buccal and lingual extension
Class I Cavity Preparation for Amalgam Restoration

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Establishing the depth of the cavity

Make 3 holes inside the cavity by use 1mm in diameter round bur

The bur must be perpendicular to the occlusal plane at the depth of the fossa

Depth of the cavity 1.5 to 2 mm

The depth must be uniformly

Use fissure bur to make out line form of the cavity

The buccal and lingual wall should be convergence occlusally, its done by tilted the bur 5 degree under the cusp to establish the retention form

The width of the cavity ¼ of the distance between buccal and lingual cusps

The mesial and distal wall should be perpendicular to the occlusal plane

Check the convenience form
Thank you