Onlay and Inlays : A Predictable Approach

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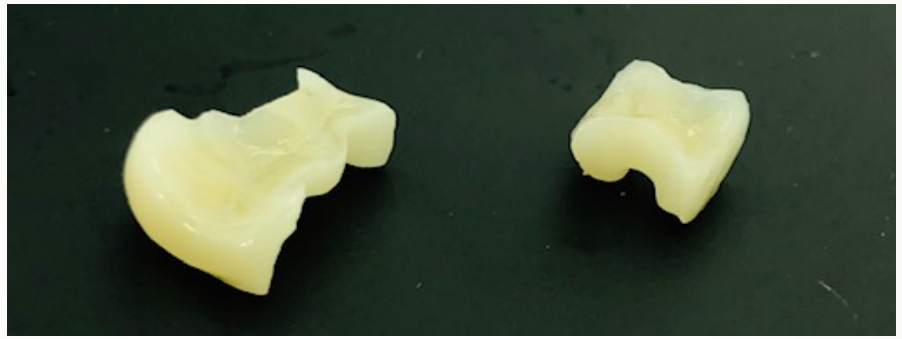
RADIA OF RINGS
STANTLEY
OUR
FOUNDER
1909

What Are Inlays/ Onlays?



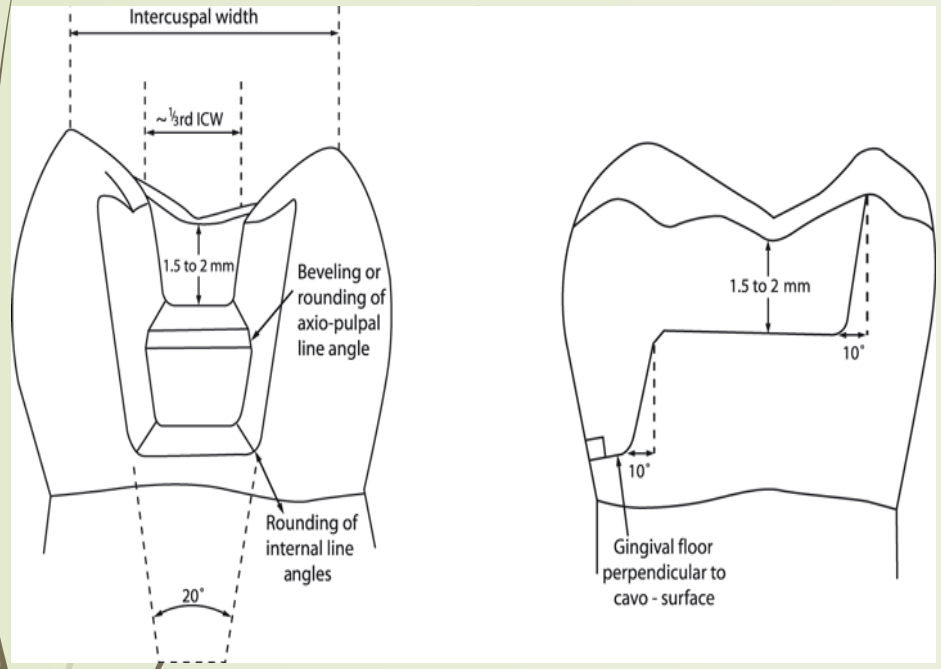
Indirect restoration fabricated outside the mouth and cemented in.

They restore the function of the tooth, strengthen it, achieve great esthetics, and are more conservative than crowns.

Indications for Inlays/Onlays

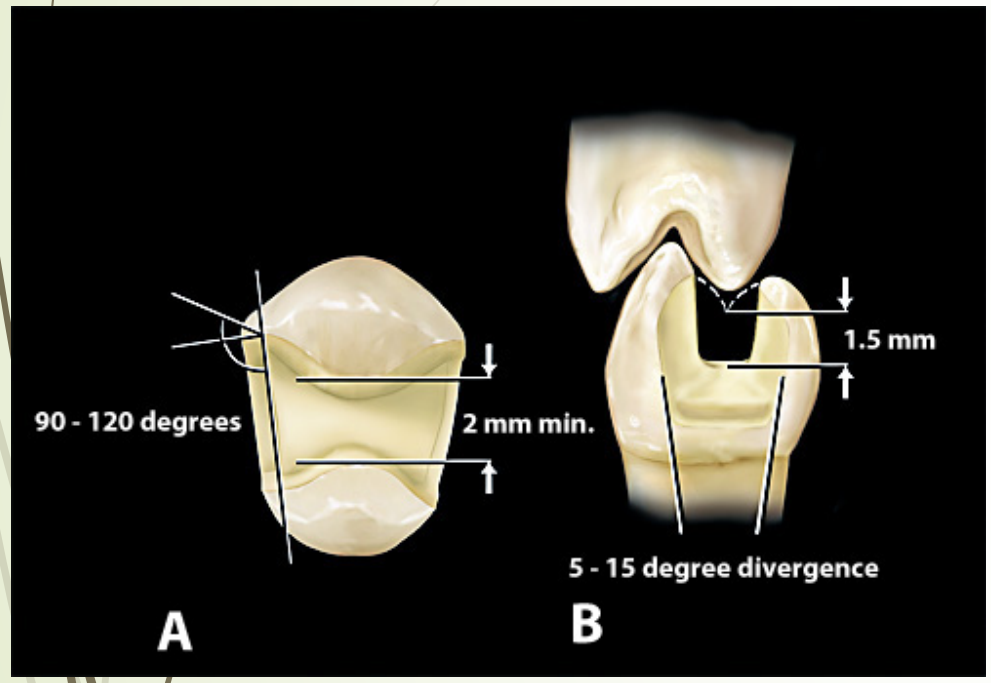
- Replacing Large Silver Fillings
- Large II or III class failing restoration and/or decay
- Replacing old fillings that lack proper contour and contact
- Broken teeth/cusps
- Cosmetically enhancing/replacing old restorations

Guidelines for Inlays/Onlays



- Enamel margins should be supported by sound healthy dentin or a filling material.

- • Smooth finish lines with rounded and soft internal line angles are required for properly fitted inlay and onlay restorations.
- • Preparation of axial walls should provide roughly 10° to 15° of taper
- • All proximal walls should be flared or diverged 5° to 15° (no undercuts).
- • Butt joints or shoulder margins are a necessity and must be placed, whenever possible, supragingivally. Finish lines should be prepared at 90° angles and should not exceed 110°.
- • Beveled and feathered edges should be avoided.



- Gingival floor depth should be 1.0 mm to 1.5 mm to provide for interproximal and marginal ridge material strength.
- Isthmus width should be 1.5 mm to 2.0 mm in the premolar region; molars require an isthmus width of 2.5 mm to 3.0 mm.
- Pulpal floor depth should be reduced 1.5 mm to 2.5 mm ideally to provide the laboratory technician ample space for aesthetic contours and characterization while maintaining material strength.
- For onlay restorations, all cusps should be covered with at least 1.5 mm to 2.0 mm of material while maintaining a minimum wall thickness of 1.0 mm to 1.5 mm for optimal strength.
- Occlusal margins should not coincide with occlusal contact points.

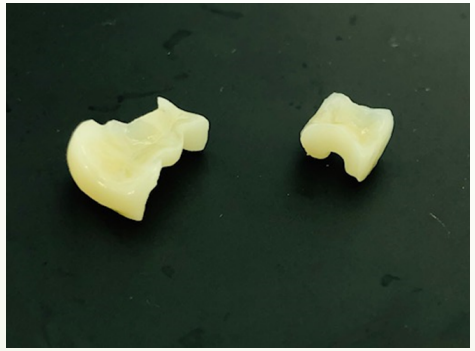
- (Baratieri, 2001; Chalifoux, 1998; Jackson, 1999; Koczarski, 1998; Leinfelder, 2005; Miara, 1998; Meyer, Cardoso, Araujo, & Baratieri, 2003; Ritter & Baratieri, 1999; Terry & Touati, 2001; Touati, Miara, & Nathanson, 1999)

Advantages of Inlays/Onlays

- Proper contacts and proper proximal contours are achieved
- They maintain anatomic contour over time
- Marginal leakage or gap formation due to polymerization shrinkage is not an issue
- Superior strength of the inlay (versus composite material)
- Color stability
- Polymerization shrinkage is minimized b/c thin cement layer
- Conserve tooth structure
- Thermal conductivity similar to tooth structure
- Esthetics

Disadvantage of Inlays/Onlays

- 2 visit appointment (unless CAD/CAM)
- Cost (Patient & Doctor)
- Temporary phase, sensitivity, patient has to be careful
- Treatment plan acceptance
- Technique sensitive preparation, cementation, and handling
- Dependent on operator skill
- Brittle and risk of fracture (especially during try in)



Contraindications of Inlays/Onlays

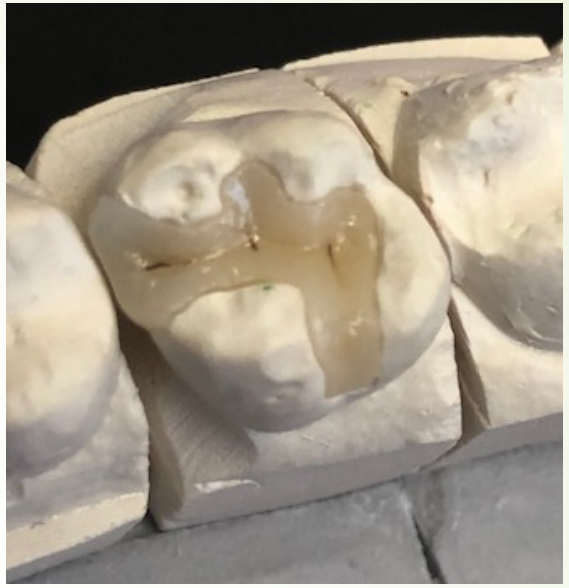
- Inability to obtain moisture free environment
- Deep subgingival preparations
- Heavy occlusal forces or parafunctional habits
- Poor Oral Hygiene / Rampant Caries

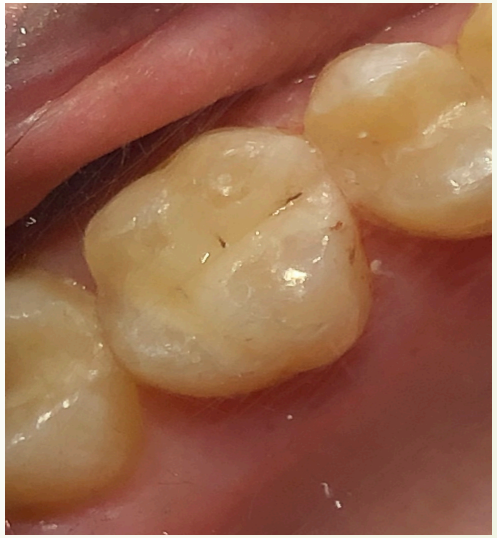
Essentials of Operative Dentistry by I Anand Sherwood , P427

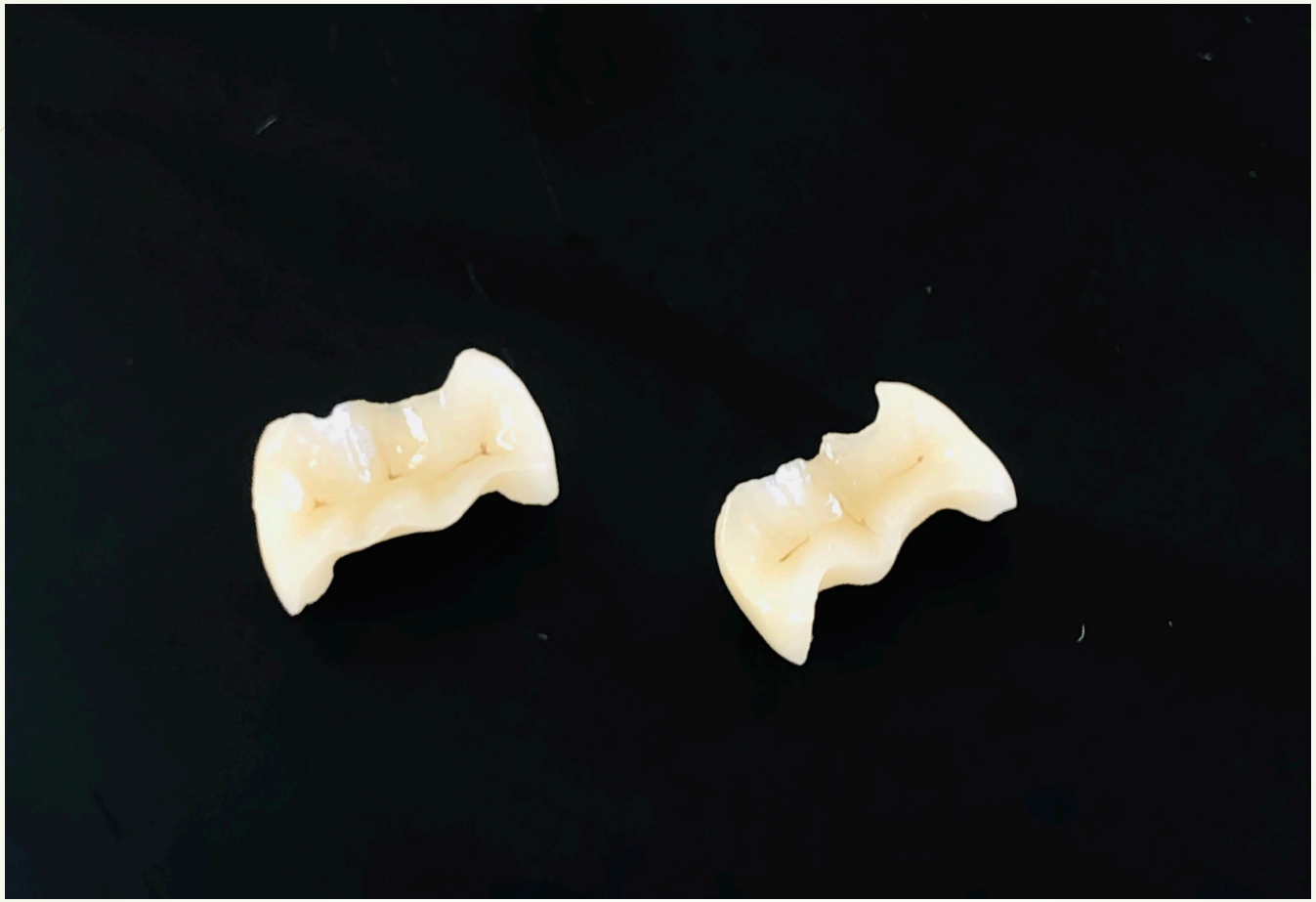
Fill

inlay

crown







Temporization

Telio CS

Syringe delivery

Place directly into inlay/onlay prep

Contour as needed

Light cured

Can be difficult to remove

Minimal marginal shrinkage/tooth sensitivity

Cementation

Restoration Pre-Treatment

After try-in, thoroughly rinse the restoration with water spray and dry with oil-free air.

Cover the entire bonding surface of the restoration with a layer of **Ivoclean** using a microbrush or bush.

Allow 20 seconds for the cleaning action of Ivoclean to take effect, then thoroughly rinse with water spray and dry with oil-free air.

Next, prime the bonding surface of the restoration with a suitable bonding agent (e.g. Monobond Plus).

What kind of effect does the contamination of the bonding surface with blood and saliva have on the adhesive bond of the restoration?

Body fluids such as blood and saliva contain proteins that show a very high affinity to dental ceramics, metals and alloys. Therefore, they form a very difficult to remove film on these types of surfaces. As a result, the reaction of the bonding agent (e.g. Monobond Plus) or self-adhesive composite cement (e.g. SpeedCEM) on the restoration surface is impaired. Laboratory tests show that the bond strength is considerably reduced as a result. In clinical situations a weak bond of this kind is responsible for a high rate of lost restorations, particularly with regard to non-retentive preparation geometries.

Priming of Restoration

Monobond Plus is a universal primer promoting an adhesive bond between luting composites (particularly the Variolink and Multilink product lines) and all indirect restorative materials (glass and oxide ceramics, metal, composites, fiber-reinforced composites).

Apply a thin coat of Monobond Plus with a brush or a microbrush to the pre-treated surfaces (avoid pooling when treating crowns). Allow the material to react for 60 seconds. Disperse any remaining excess with a strong stream of oil-free air.

Tooth Preparation for Cementation

Dry working field mandatory!!!!

Mixed in a 1:1 ratio

Application of the mixed **Multilink Primer A/B** to the enamel, the dentin and the build-up, using a microbrush, starting with the enamel surface, scrub it into to the surface for 30 seconds, dentin 15 seconds.

Disperse excess with oil and water free air until the mobile liquid film is no longer visible. As the Primer is solely self-curing, no light-curing is necessary!

Cement Application

Apply **Multilink** directly to restoration

Work fast as cement is self curing

Gentle pressure to restoration

Floss interproximals, and remove excess with a microbrush

Light cure 2 seconds each side

Floss, clean up

Final cure

Bite check

INLAY BRIDGE!!!!

Thank you!