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PROGRAMME: BS (DENTAL TECHNOLOGY)
SUBJECT: OPERATIVE DENTISTRY.
SUBMITTED TO: SIR USMAN.

QNO: 2

In which conditions inlays and onlay are indicated and contraindicated?

ANSWER:-

INTRODUCTION:-

Dr. Phill brook in 1897, was the first to introduce Inlay in dentistry who gave the concept of forming an investment around a wax pattern, eliminating the wax, and filling the resultant mold with a gold alloy.

In 1907 Taggart changed the practice of restorative dentistry his technique for cast gold dental restorations.

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DEFINITION:- Inlay is a Indirect restorations. Inlay is defined as "An inlay may cusp none, or may caps all but one cusp".

OR

Inlay may be used as single-tooth restorations for proximo-occlusal or gingival lesions with minimal to moderate extensions.

OR

A restoration which has been constructed out of mouth from gold porcelain, or other material & then cemented into the prepared cavity of a tooth.
It is used as filling material.

COMPOSITION OF INLAY OR ONLAY:- There are the following composition of inlay and onlay.

1. Paraffin wax
2. Ceresin
3. Gum dammer
4. Carnuba wax
5. Candelila wax.
6. Gold porcelain
7. Metal alloy
8. Cementation
9. Fixed in the root.

COLOUR OF INLAY:-

There are the following colous of inlay:-

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1- Gray
2- Violet
3- Blue
4- Red
5- Green.

Now a day they will be replace with porcelin material.

In old day there was used in inlay were gold.

INDICATIONS OF INLAY:-

There are the following indication of inlay.

1- A cavity width does not exceed one-third the intercuspal distance.

2- Strong self-resistant cusps remain

3- Minimum or no occlusal facets and if present, are confined to the occlusal surface.

4- The tooth is not to be used as a abutment for a fixed or removable prosthesis.

5- Occlusal or occluding surface are not be changed by the restorative procedure.

6- The inlay are used in the large restoration.

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7- Teeth are at risk for fracture

8- Dental rehabilitation with cast metal alloys.

9- It is a tooth colour restoration that why they can be used as filling material.

10- They will be use in Diastema closure and occlusal plane

11- Removable prosthodontic abutment

CONTRAINDICATIONS:-

There are following contraindications of inlay.

1- They will be not used in High caries rate because they will not cover the ~~large area~~ caries deep of tooth. In the deep caries the tooth pulp are exposed.

2- They will be not use in high plaque / caries indices.

3- Occlusal disharmony.

4- Dissimilar metals.

5- Esthetics.

6- They will not be used in

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small and shallow cavities.

7. They will not be used in young patients.

ONLAY:-

INTRODUCTION:-

When decay or fracture incorporate areas of a tooth that make amalgam or composite restorations inadequate, such cuspal fracture or remaining tooth structure that undermines perimeter walls of a tooth, an onlay might be indicated.

DEFINITION:-

Onlay is defined as "It is the type of restoration which caps all the cusps of a posterior tooth, can be thoughfully designed to strengthen a tooth that has been weakened by caries or previous restorative experiences"

OR

"It is the type of restoration in which all cusps involve in this restoration."

"The onlay is essentially an inlay that covers one or more cusp and adjoining occulusal surface of the tooth".

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TYPES OF ONLAY:-

There are two type of onlay restoration:-

1. Cast metal onlay restorations.
2. Esthetic onlay restorations.

1- CAST METAL ONLAY RESTORATIONS:-

- Devetailed internally
- Follow cuspal anatomy externally
- Proximally - Box shaped or cone shaped.
- Shoeing of the non-functional cusp.

2- ESTHETIC ONLAY RESTORATIONS:-

- The various other esthetic restorations for class I and Class II tooth preparations are.
- Indirect composite Inlay and onlay
- Ceramic Inlay and onlay.
- CAD/CAM or CAD/CIM (computer Aided Designing computer Aided Machining)

CLASSIFICATION:-

- Esthetic Restorative Systems:
- Direct composites.

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- Indirect systems.
- Composite Inlays & Onlays
- Ceramic Inlays & Onlays.

- Direct systems
- Composite Inlays & Onlays

TOOTH PREPARATION DESIGN:-

- Some as in cast restoration without bevell flares.
- Occlusal reduction be 2mm and axial reduction be 1.5mm.
- All internal line angles are rounded to prevent stress formation.
- Occlusal divergence of 10°
- Occlusal step depth 1.5-2mm.
- Pulpal floor flat & smooth.

LUTING PROCEDURE:-

- The preparation is etched for 15-20sec then dried.
- Bonding agent applied and cured for 30 sec.
  Then silane Applied and cured for ceramic restorations or air abraided composite restoration is applied with dual cure resin luting cement and placed in

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preparation : excess is remove and cured.
- Self etching dual cure resins are available e.g Relyx (3M ESPE).

INDICATION OF ONLAY RESTORATION:-

There are the following indication of onlay restoration.

- Large restoration
- Better strength
- Control of contours and contacts.
- Better alternative to a crown to teeth then have been greatly weakened by caries.
- They will not reduce the structure of tooth.

CONTRAINDICATIONS OF ONLAY RESTORATION:-

There are the following contraindication of onlay restorations.

- High caries rate
- Facial and Lingual tooth surface must be free of caries or previous restorations. If present, the tooth cot must be restorated with a full crown.
- They will contrajndication in poor oral hgiene.
- They will not used in teenager.

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Q NO: 5

Briefly explain composite and porcelain veneers.

ANSWER:-

COMPOSITE VENEER:-

DENTAL VENEERS:-

Dental veneers are cutom made shells from tooth colored materials that facilitate covering the front surface of the tooth. Veneers are used in the anterior teeth. Dental veneers also known as dental laminates.

DERIVATION:- The first veneers was developed in 1930's.

COMPOSITE VENEERS:-

Composite veneers cover the facial surface of teeth to change tooth colos, position or shape.

- Composite veneers can be applied dosing a single office visit.
- Composite veneer can be build up the mouth by directly.

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placing.

INDICATION OF COMPOSITE VENEER:-

There are the following indication of composite veneer:-

1- Tooth that are discoloured
2- Teeth that are worn down.
3- Teeth that are chipped or broken
4- Teeth that are misaligned, uneven, or, irregularly shap (for example, have craters or bulges in them).
5- Teeth with gaps between them (to close the space between these teeth.
6- Anatomically malformed teeth
7- Enamel hypoplasia,
8- Stained teeth (intrinsic/extrinsic.

DESIGN CONSIDERATIONS:-

1- Face shape
2- Facial proportions
3- Midline
4- Symmetry.

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5- Harmony.

SUCCESS OF VENEERS:- COMPOSITE AND DIRECT VENEERS 90%:-

Ultimately ceramic is always going to deliver a more cosmetic result. But how much more cosmatic? The new resins have a higher degree of polishability, excellent stain resistance and are tough.

DIRECT COMPOSITE VENEERS 74%:-

The direct resin veneers will start to look tired in 8-12 years. In this time frame, there will be surface deterioration of the resin but the bond to tooth structure should still be good.

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COMPOSITE VENEER (TECHNIQUE):-

1- First they will anesthigation to the tooth give
2- Then they will fill the isolation to the tooth.
3- Then they select the shade of composite which they match to the original tooth.
4- Assessment on a central incisor.
5- Any existing the decay is removed from tooth.
6- The tooth is roughened and a slight finish line is created.
7- The tooth is then etched and a dentin bonding agent is applied.
8- The basic shape is formed with a finishing diamond bur.
9- Interproximal areas are shaped with abrasive straps.
10- The additional polishing and shaping are completed three days later.

ADVANTAGES OF COMPOSITE VENEER:-

There are the following advantages of composite venees.

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1- It is the one visit procedure
2- They have less expensive.
3- They have repair potential.
4- The chair side control of the anatomy.
5- Minimal irreversible loss of tooth structure.

DISADVANTAGES OF COMPOSITE VENEER:-

1- Tend to discolor
2- Wear out quickly
3- Marginal staining
4- Shade matching difficulty.
5- Often require repair and replacement.

PORCELAIN VENEER:-

INTRODUCTION:-

A nice smile, that reflects self confidence and self esteem, is an important part of the face beauty.

- The beauty of the teeth, when show when laughing, through their sh

A Shape
B Color.

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- Position and alignment is an important part of the smile.
- Alteration of these elements, separately as together, can be done by;
- Bleaching
- Orthodontic treatment
- Crowning
- Porcelain facings (veneers)

DERIVATION:-

Porcelain veneer were introduced into dentistry as Hollywood veneers by Pincus (1930).

INDICATIONS OF PORCELAIN VENEER:-

There are the following indications of porcelain veneer.

1- Stained or darkened teeth.
2- Tooth hypocalcification
3- Multiple diastemas.
4- Peg lateral
5- Chipped teeth.
6- Lingual positioned teeth.
7- Malposed teeth not requiring orthodontic.

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CONTRAINDICATION:-

1- Available enamel; at least the periphery of the laminate veneer should be surrounded by enamel, lack of enamel support indicates crowing of the concerned tooth.
2- Oral habits; bruxism and nails and foreign objects bite, Porcelain withstands compressive force than shearing stress.
3- Patients with high caries index
4- Compromised periodontal health.
5-6- Tooth with extensive restoration and small triangular teeth.
6-7- A reduced inter occlusal distance and sleep overlap higher tensile and shear stress.
7- Poor dental care and hygiene
8- Para. Unsuitable occlusion.

PORCELAIN VENEER:-

The porcelain veneer cannot be built in mouth and hence fabricated outside of the mouth and fitted later.

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PORCELAIN VENEER (TECHNIQUE):-

- First appointment (veneer preparation procedure)

1- Shade selection:-
They will select the shade of the veneer according to the tooth color.

2- Then clean teeth with pumice and water.
Pumice is in liquid they will clean the tooth from Bacteria etc.

3- Select a tentative shade with your patient participating.

TOOTH PREPARATION:-

A uniform 0.5mm intra enamel reduction is sufficient.
Incisor edge 0.7mm, labial is 1mm.

IMPRESSION:-

They will use a polysiloxane or polyether material will use for taking the impression.

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TEMPORARY VENEERS:-

They are placed when necessary as desired.

SECOND APPOINTMENT:-

VENEER CEMENTATION PROCEDURE:-

- Remove temporary Care must be taken not to damage margin areas of preparations clinical try-in contacts need to be carefully assessed.
- Proximal contacts can be adjusted.

ADVANTAGES OF PORCELAIN VENEER:-

- Esthetic stability.
- Stain resistant
- Stronger and durable.
- Gum tissue tolerates porcelain well.
- The color of a porcelain veneer can be selected such that it makes dark teeth apear whiter.

DISADVANTAGES OF PORCELAIN VENEER:-

1- The process is irreversible.

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2- More costly than composite veneers.
3- Not suitable for patients with clenching or grinding habits
4- Not repairable should they chip or crack.
5- Tooth may become more sensitive to hot and cold food and beverages
6- They can dislodge and fall off
7- Technique sensitive.

Q NO: 3

Define Veneer, explain direct and indirect veneer technique

ANSWER:-

VENEER:-

Veneer are tooth colored material place over the tooth to restore functional and facilitate covering the front surface of the tooth.

OR

In dentistry, a veneer is a layer of material placed over a tooth. Veneers can improve the aesthetic of a smile and protect the tooth surface from damage.

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Dental veneers are custom shells made from tooth colored materials that facilitate covering the front surface of the tooth and these are alternatively known as dental veneer.
Dental veneer also known as dental laminates.

DIRECT VENEER TECHNIQUES:-

- Are indicated for the restoration of localized or areas of intrinsic discoloration.

These defects can be restore in one appointment with light cured composite.

PARTIAL

STEPS OF DIRECT VENEER TECHNIQUE:-

There are the following steps of direct partial veneer technique.

- Fisst they will clean the teeth
- The second they will select the shade of veneer → Etching of the tooth
- They will isolation of the tooth
- Then they will removal of the

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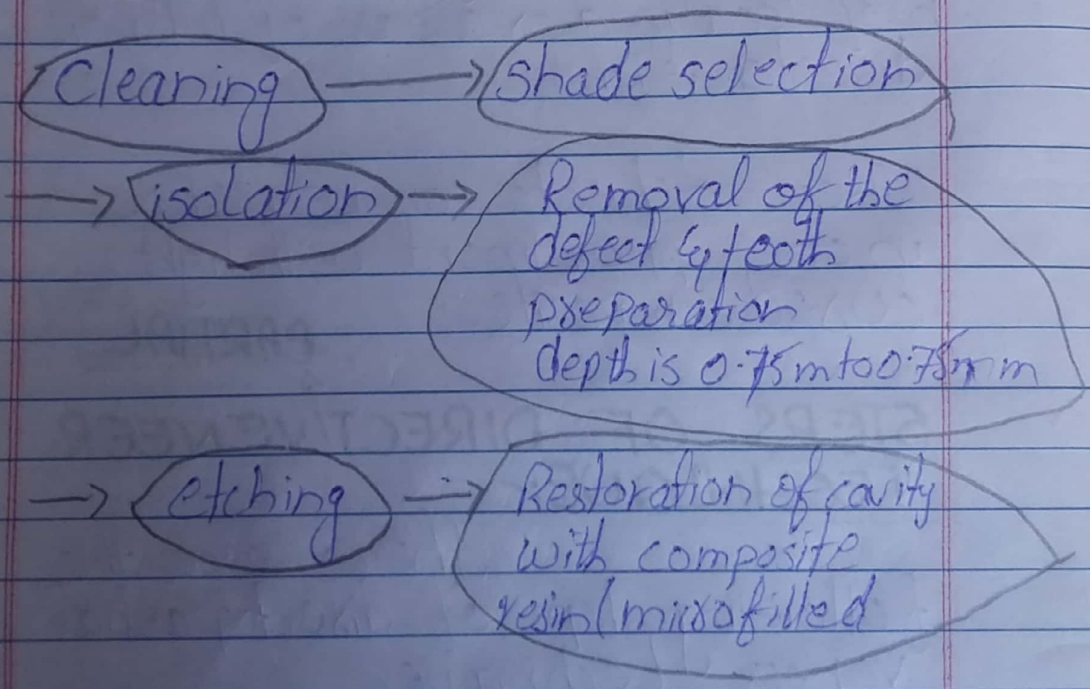
defect & then preparation of the depth is 0.5 to 0.75mm.
- Then they will restore the cavity with composite resin (microfilled

INDICATIONS:-

- Extensive enamel hypoplasia of anterior tooth
- Diastema
- Tetracycline stained teeth.

STEPS:-



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DIRECT FULL VENEER:-

One or two visit procedure.

STEP:-

cleaning

↓

shade selection

↓

Isolation & gingiva is retracted

↓

Window tooth preparation with coarse round the diamond bur depth is 0.5-0.75mm mid facially & tapering down to a depth of 0.2-0.5mm along gingival margin

↓

After etching, rinsing and drying procedure applied the composite

INDIRECT VENEER TECHNIQUE:-

Indirect veneer are made of

1. Processed Composite
2. Feldspathic porcelain
3. Cast or pressed ceramic
4. Two appointment are required.

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COMPOSITE VENEER.

- One visit procedure
- Less expensive
- Repair potential
- Chair side control of the anatomy.
- Minimal irreversible loss of tooth structure.

PORCELAIN VENEER:-

- Esthetic stability
- Stain resistant
- Stronger and durable
- Gum tissue tolerates porcelain well.
- The color of a porcelain veneer can be selected such that it makes dark teeth appear whiter
- Veneers offer a conservative approach to changing a tooth's color and shape.

PROCESSED COMPOSITE VENEERS:-

1- First appointment.

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- Window preparation recommended due to limited bond strength.
- Incisal lapping if incisal defect.
- Intraenamel preparation
- Elastomeric impressions.
- No temporization.

SECOND APPOINTMENT:-

- Evaluate fit of veneer
- Tooth side of veneer / pre etched is primed.
- Tooth etched, rinsed and dried Adhesive is applied but not cured
- Adhesive cement applied.
- Veneer placed and excess cement removed from the gum line
- Light cured for 40 to 60 sec facial and Lingual.
- Check for fit with no explorer

ETCHED PORCELAIN VENEER:-

A etched porcelain veneer is a thin piece of porcelain that is bond to the front of a tooth. Porcelain is durable, translucent, strong, natural-looking and beautiful material.

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FIRST APPOINTMENT:-

Shade selection
↓
Tooth preparation
↓
Impression
↓
Temporary veneers.

SECOND APPOINTMENT:-

Remove temporary veneers
↓
clinical try in
↓
cementation.

TOOTH PREPARATION:-

- Labial reduction
- Interproximal reduction
- Incisal reduction
- Cervical definition

- Place a horizontal facial depth cut, it is usually 0.3mm from proximal line angle to proximal line angle. Make this depth cut at the junction

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of the cervical and middle one-third of the facial surface of the tooth.

- Paralleling the entire gingival margin, prepare a definitive chamber finish line.

- Continue the definitive chamfer finish line with diamond bur, ~~from~~ from the papilla tip toward the incisal edge on both the mesial and distal proximal towards.

- The facial depth cuts are removed with the diamond bur, and the long axis of the diamond bur is "rolled" into the proximal chamfer area to eliminate any sharp line angles.

- Labial reduction interproximal reduction. Incisal ~~reduction~~ modification, Cervical definition

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IMPRESSION:-

The retraction cord should be left in place if possible during the impression. Use a polysiloxane or polyether material for the impression.

TEMPORARY VENEERS:-

- They are placed when necessary or desired.
- Hand sculpted using composite kept supragingival and attached by spot etching.

SECOND APPOINTMENT:-

Remove temporary. Care must be taken not to damage margin areas of preparations.

↓

clinical try in contacts need to be carefully assessed Proximal contacts can be adjusted.

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CEMENTATION:-

Try in paste allow you to make any underlying colour abnormalities and select cement shade.

↓

Apply saline solution to the internal aspect of the veneer.

↓

Etch, rinse, dry but do not desiccate.

↓

Apply primer / adhesive to the tooth and lightly air dry.

Apply cement to the interproximal aspect of the veneer, seat the veneer. clean off excess cement light cure.

↓

Floss contacts and adjust the occulsion of the tooth.

QNO:4

Suppose you have a crown that can be virtually indistinguisable from unrestored teeth and is most esthetically pleasing identify the type of crown and write the advantages and disadvantages and indications

ANSWER:-

In this case the ceramic crown are used:

ADVANTAGES OF CERAMIC CROWN:-

- Superios esthetics
- Comfortable feel by the patient; because they fit better than metal crowns, and are not sensitive cause by the tempered use.
- Beautiful; made of translucent porcelain, they reflect light and look almost exactly like your natural teeth.
- Reasonable to use with a post and core
- Better appearance than a

metal ceramic crown

DISADVANTAGES OF CERAMIC CROWN:-

- In the ceramic crown more tooth will reduction for fitting the crown.
- Less durable.
- No repair is possible in this crown.
- They have expensive as compared to other crown.
- In this more tooth preperation is required.

INDICATION OF CERAMIC CROWN:-

- High esthetic requirement
- Specially indicated in the anterior teeth.
- where there are high esthetic demands.
- On patient demands.
- Considerable proximal caries
- Favorable distribution of occlusal load.
- Incisal edge reasonably intact.

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Q NO: 1

Differentiate.

a- Three Quarter Crown
b- Metal Cermic Crown
c- Seven & eighth Crown.

ANSWER:-

THREEQUARTER CROWN:-

They will cover four-fifth of the tooths surface, buccal surface remains intact. They are retained by grooves on mesial, distal and occlusal surface. They are always made of cast metal.

METAL CERAMIC CROWN:-

Metal ceramic crown are a traditional type of crown often used in bridges plus crown and bridge cases. They are often onto back teeth and are considered a strong, robust otype of crown.

Another name for this is a 'porcelain fused to metal' crown.

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They consist of a metal interior or base which is fused to porcelain crowns. The metal interior can be produced from a range of metals e.g alloy and this is what gives the crown its strength.

- Dental porcelain can be bounded to a variety of metal alloys such as gold, silvis, nickle etc.

ADVANTAGES OF METAL CERAMIC:-

- Strength - It has good strength because of the metal layer covering the tooth.
- Esthetics It has good esthetics because of the porcelain bounded to the metal.
- Porcelain can be used on buccal and occlusal surfaces of lower teeth.

DISADVANTAGES OF METAL CERAMIC:-

- In most clinical crowns there come a problem of retention.

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SEVEN QUARTER CROWN:-

- Covers all but meisal buccal cusp of an upper molar teeth.
- Retained by intracoronal features or adhesive techniques.
- The seven-eight crown preparation includes, in addition the surfaces covered by the three-quarter crown, the distal halfs of the buccal surface.

ADVANTAGES:-

- More conservative
- Possible to test vitality of tooth via buccal surface.
- Periodontal problems are less occurs in this type of crown.

~~DISAVANTAGES:-~~ INDICATIONS:-

- Teeth with sufficient bulk
- Can be used for retainers for fixed partial denture, bridge or spring cantilever design.

CONTRAINDICATIONS:-

- Malpositioned teeth
- Short clinical crowns.

DISADVANTAGES:-

- Preparation is bit difficult
- Less retention.

- Young Patient
- Old age Patient
- Esthetics.

ADVANTAGES:-

There are the following advantages:-

- Strength
- Biocompatibility
- Low wear
- Control of contours and contact.
- less chances of voids and internal stress.

DISADVANTAGES:-

There are the following disadvantages.

- Microleakage
- Number of Appointments and more chair time.
- Provisional restoration is required
- Costs
- Technique sensitive
- Difficult repair.

DIFERENCES:-

THREE - QUARTER CROWN:-

The three quarter crown on a posterior teeth probably one of the most demanding of all the tooth preparation. As with such preparations on other teeth, on a posterior molar it involves the proximal and lingual surface and leaves the facial surface intact. These are always made of cast metal.

B- METAL CERAMIC CROWN:-

Dental porcelain can be bonded to a variety of metal alloys such as Gold, Silver, nickel etc.

C- SEVEN EIGHTH CROWN:-

The seven eighth crown preparation includes, in addition to the surface covered by the three quarter crown. The distal half of the buccal surface Therefore the mesial aspect of this preparation resembles that for a three quarter crown. The distal

resembles that for a complete
cow.