

## INTRODUCTION

Endocrown is first described by Bindl and Mörmann in 1999 as an alternative method to restore endodontically treated teeth with substantial amount of structural loss. Endocrown is characterized as a monolithic ceramic prosthesis comprising core and crown in one single unit that can be anchored to the pulp chamber and cavity margin.

Macromechanical retention is achieved through the support of pulpal walls and micromechanical retention is obtained through the use of adhesive cementation. This present study aims to review the preparation technique, clinical indications, contraindications and advantages, as well as current research about the success and survival of endocrown restorations.

## Preparation technique

- A minimum of 2mm occlusal reduction
- Cervical sidewalk surrounding central retention cavity with depth at minimum 3mm inside the pulp chamber
- The thickness of the ceramic occlusal portion of endocrown is usually 3-7mm
- Margin should be kept supragingival unless esthetic concerns or other clinical factors require a different cervical level
- Undercuts in central cavity need to be eliminated
- In premolars, due to the reduced surface area for adhesive bonding in comparison with molars, intraradicular extensions in preparation design might be a prerequisite



Fig.1 Occlusal reduction



Fig.2 cervical sidewalk preparation



Fig.3 elimination of undercuts on pulpal walls

## Advantages of endocrowns

- Removal of less amount of sound tooth structure
- Low cost
- Short preparation time
- Ease of application
- It can be milled using CAD-CAM

## Research studies

- A systemic review and meta-analysis conducted by Al-Dabbagh, R. A. reveals that endocrowns appear to be a promising restorative option for endo-treated posterior teeth with strong long-term survival rate.
- A systemic review conducted by Govare and Contrepolis reveals that following a rigorous adhesion protocol and preparation design, endocrowns can be a reliable alternative to the conventional post-retained restorations on molars. Endocrowns also seem promising on premolars.
- In a research study conducted by Guo et al. comparing the fracture resistance of endo-treated mandibular premolars restored with endocrowns and glass fiber post-core retained conventional crowns, endocrown shows no advantage in fracture resistance in comparison with the conventional restoration. Neither endocrowns nor conventional crowns can rehabilitate the endo-treated teeth to the same fracture resistance that intact mandibular premolars originally present.

## Indications of endocrowns

- Excess loss of tooth structure
- Limited interproximal space where traditional rehabilitation with post and crown is not possible due to inadequate ceramic thickness
- Teeth with short clinical crowns, as well as teeth with calcified, curved or short root canals that make conventional post application impossible

## Contraindications of endocrowns

- If adhesion is insufficient (when the depth of pulp chamber is <3mm)
- If the thickness of peripheral walls is <2mm
- Unfavorable occlusion associated with parafunction

## Reference

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