

# Endocrown - Post Endodontic Restoration - A Questionnaire Survey

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## Abstract:

**Background:** Endocrown is a restorative option for root canal treated teeth. It consists of a circular butt-joint margin and central retention cavity inside pulp chamber. The goal is to achieve minimally invasive preparations and to protect existing tooth structure. The evolution of ceramic technology especially Dental CAD/CAM systems and adhesive cementations have increased opinions to produce single all ceramic endocrowns with high biocompatibility and optimal mechanical properties.

**Aim:** The aim of this survey was to study the level of awareness and current state of knowledge and opinions towards Endocrown as Post Endodontic restoration amongst the Dentists in Chennai.

**Materials and methods:** A total of 146 Dentists were included in this survey. The first part contained questions regarding profile of respondents including Gender, age group, field of practice, years of experience. And the second part contained 16 questions regarding knowledge and opinion towards Endocrown as post endodontic restoration.

**Results:** Dental residents in chennai lack theoretical knowledge of endocrown, they were enthusiastic about incorporating it in clinical practice.

**Keywords:** Endocrown, Post endodontic restoration, Questionnaire survey

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## INTRODUCTION:

One of the most common problems dentists face is the restorative treatment of endodontically treated teeth with extensive coronal destruction, whose esthetic and functional recovery leads to confusion.

Traditionally, the functional and esthetic recovery of endodontically treated teeth with extensive coronal loss has been achieved with fabrication of full veneer crowns supported on cast metal cores [1-3].

The development intraradicular fiber posts and the technique for bonding to dentin & restoring endodontically treated teeth has been simplified, in addition to less cost and being biocompatible [4,5]. However, the use of intraradicular posts alone does not strengthen the restorations, and the fabrication of filling cores is necessary for ensuring the stability [5,6].

This was particularly true in the case of posterior teeth in which the masticatory forces are oriented parallel to the long axis of the tooth. In this case, the core filling favors retention of the restoration, even in cases of more extensive restorations such as total crowns [7]. Moreover, the placement of posts in root canals could be limited by root anatomy, such as dilacerations or reduced root portions [8].

To overcome these drawbacks, Endocrown is an alternative restorative option for endodontically treated teeth. It consists of a circular butt-joint margin and central retention cavity inside pulp chamber. The goal is to achieve minimally invasive preparations and to protect existing tooth structure. The evolution of ceramic technology especially Dental CAD/CAM systems and adhesive cementations have enhanced opinions to produce single all ceramic endocrowns with high biocompatibility and optimal mechanical properties [9-11].

The aim of this survey was to study the level of awareness and current state of knowledge and opinions towards Endocrown as Post Endodontic restoration amongst the Dentists in chennai.

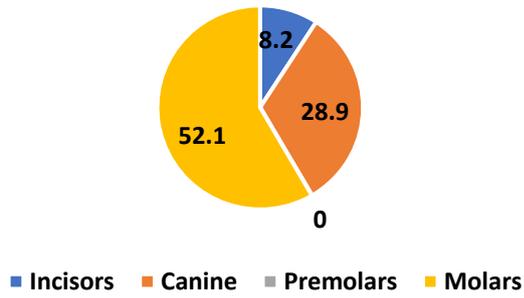
## MATERIALS AND METHODS:

This cross-sectional survey was conducted in the month of September 2015. The participants were centered to dentists in chennai. So, the institutional Review Board approval was not required for the same. A specially designed questionnaire consisting of 15 questions for the purpose of collecting data were used in this survey. The first part contains questions regarding profile of respondents including gender, age group, field of practice and years of experience. And second part of questionnaire contains 10 questions regarding endocrown. 146 questionnaires were handed over to dental practitioners across Chennai city, out of which all 146 filled questionnaire forms were returned. All the responses were recorded on individual survey forms for each practitioner. For specialist group practitioners, a single response was duplicated for the other members of the group where the respondent indicated the same concentration of the solution and identical procedures were followed by all the members of the group. If the response was not the same, then individual details were collected from the practitioners. An initial approach to the selected practices was made by telephone or a visit to their practice. Recourse was made to the practitioner only if clarification was required.

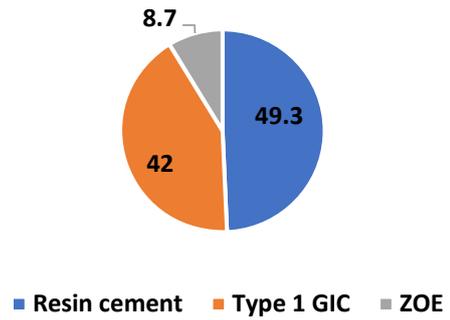
## RESULTS:

Responses were obtained from all the 146 dentists across the Chennai city. Of the 146 general dentists surveyed, all the dentists responded giving the success rate of 100%.

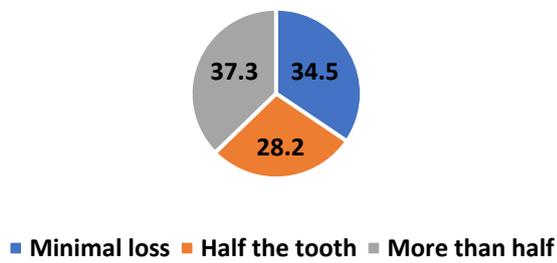
### Indicaton for Endocrown



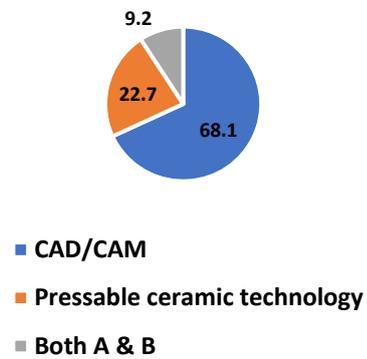
### Cementation of Endocrowns



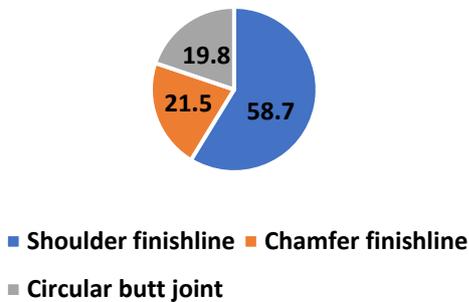
### Clinical application of Endocrown with coronal tooth structure loss



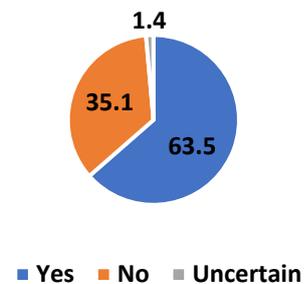
### Endocrowns are fabricated using



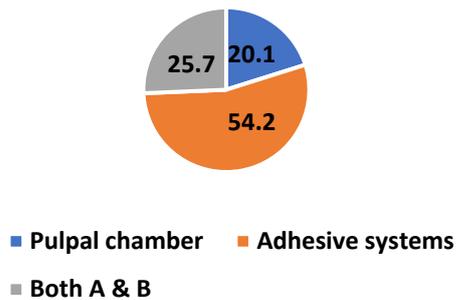
### Finishlines for endocrowns



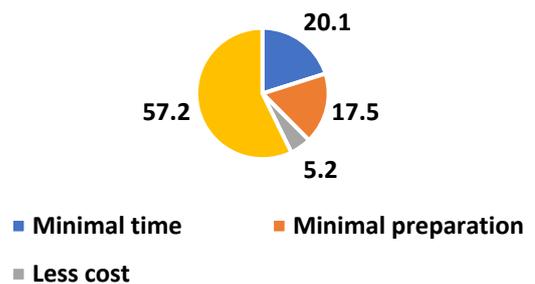
### Can endocrown be an alternative to conventional post and core



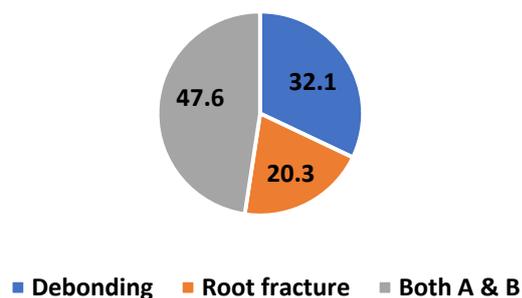
### Principle retention for endocrown



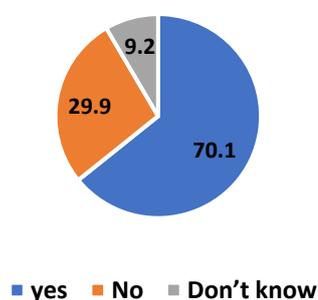
### Advantage of Endocrown over conventional crown



### Disadvantage of Endocrown



### Have you practiced endocrown :



### DISCUSSION:

Though the dentists in Chennai have good theoretical knowledge on Endocrown, they lack clinical practice. General practitioners did not seem to keep up with the new materials being introduced, but they use conventional methods.

Endocrown is an alternative option for teeth with gross destruction of coronal structure. Endocrown - post endodontic restoration is possible in all the teeth but it should be restricted only to molars, since the masticatory forces for premolars has not been the same as that achieved in molars. It is believed that the smaller pulp chamber of premolars, limits the bond strength of adhesive systems and resin cements [12]. The configuration of premolar crowns in which the height of the piece is greater than the width may create a long lever arm, increasing the risk of adhesive rupture and displacement [13]. However, when restricted to molars, endocrown shows good performance in relation to action of occlusal forces, esthetic recovery and bond strength [14,15].

The principles which is used for preparing the endocrown follow the same pattern as for indirect Inlay and Onlay restorations: slightly expulsive axial walls (10-12°), and a flat pulp chamber floor. To facilitate the subsequent steps of impressiontaking, adjustment and cementation, this option was taken to maintain a supragingival cervical termination.

A monolithic, lithium disilicate-based ceramic, IPS e.max (Ivoclar Vivadent, Schaan, Liechtenstein) was used for fabrication for endocrown, which has adequate physical

properties and greater translucence. According to the manufacturer, there are two types of ceramics IPS e.max system: the monolithic type with an occlusal dimension of 1.5 mm thickness, without the need for a later porcelain coating; and the lithium disilicate coping (minimum 0.8 mm) covered with a porcelain coating (maximum 0.7 mm). Both have sufficient strength for the restoration of posterior teeth ( $\approx$  400 MPa), in addition to not promoting excessive wear of the antagonist teeth [16].

There is also the possibility of using CAD/ CAM for fabricating restorations in a single block. However, considering that the walls of the preparation were very thin, the option was to use ceramic injection by the lost wax technique [17].

Till date the resin cements composed of Bis-GMA or UDMA resin matrix and inorganic filler particules are the most popular types of cements. When compared to conventional cements, resin cements have superior mechanical and aesthetic properties, so it has increasing use in cementation of ceramic and composite indirect restorations [18].

### CONCLUSION:

Dental residents in chennai lack theoretical knowledge of endocrown , they were enthusiastic about incorporating it in clinical practice . Endocrown can be an alternative option for extensively damaged crowns

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