

# Combination Implant Crown : A Cement and Screw Retained Restoration

**Dr. Tanu Mahajan**  
Professor

**Dr. Shweta Saini**  
P.G. Student

**Dr. D. Singh**  
P.G. Student

**Dr. R. Sangur**  
Professor & HOD

**Dr. P.S. Chawla**  
Senior Lecturer

**Dr. A. Mehrotra**  
Senior Lecturer

Department of Prosthodontics  
Rama Dental College, Hospital & Research Centre, Kanpur, U.P

#### Address of Correspondence

Dr. Shweta Saini  
Rama Dental College  
A-1/8, Lakhanpur, Kanpur, U.P- 208024  
[dr\\_shweta2010@yahoo.com](mailto:dr_shweta2010@yahoo.com)

#### Abstract

The purpose of this article is to describe a technique for fabrication of combination implant crown and its cementation. To overcome the drawbacks of conventional implant crown, "Combination implant crown" is fabricated which has the advantages of both. This type of implant restoration has access hole on the occlusal surface. More esthetic and functional result can be achieved by minimizing the size of this "access hole" which enables total future retrievability. Cementation between implant crown and abutment reduces screw loosening through even force distribution. This literature illustrates the advantages and disadvantages of both conventional crowns and steps in fabrication of "Combination Implant Crown".

#### Introduction

Rehabilitation of an edentulous site using implants to retain a fixed prosthesis is a predictable restorative procedure. A single tooth implant restoration is an optimal choice for such replacement. The implant supported restorations can be secured to implants with screw or they can be cemented to abutments.

#### Screw Retained Implant Crowns

##### Advantages

- Retrievability.
- Ability to be used with limited inter-occlusal distance.
- Predictable retention.
- Absence of cement under the gingival tissues as a potential irritant.

##### Disadvantages

- Esthetics.
- Screw access compromise of occlusal function.

#### Cement Retained Implant Crowns

##### Advantages

- Esthetics.
- Passive Fit of the Implant Crown.
- Flexibility of fixture placement.
- Ideal occlusal form.

##### Disadvantages

- Cleaning of Excess Cement.
- Crown Retention.
- Subgingival Cement Line.

It has been observed that retained cement around implant abutments is a common occurrence that can be an injurious etiologic agent affecting soft and hard tissues. Cement is a bacterial retentive surface not easily seen or captured on a radiograph and can be impossible to detect with an explorer. Cement

retention is an important etiologic factor that can lead to soft-tissue inflammation, bone loss around implants, and implant failure.

Providing the patient with a reliable and lasting restoration is essential in today's highly competitive dental market. The long-term clinical success of an implant-supported restoration depends on a multitude of biological and component-/material related factors. Choices concerning the type of connection and the retaining system between an implant and the prosthetic restoration are two key aspects of the clinical decision making process.

#### Combination Implant Crown

##### Technique of Fabrication

##### Steps In Fabrication

1. Screw the abutment to the implant analogue on the model (Fig. 1).
2. After completion of metal ceramic crown place small cotton plug over the screw and trial fit the crown (Fig. 5).
3. Line the crown with cement (Fig. 6).
4. Seat the crown on the abutment (Fig. 7).
5. Remove the cotton with an endodontic file, exposing the screw (Fig. 8).
6. Remove excess cement with brushes (Fig. 9).
7. Allow adequate time for cement setting prior to polishing and delivering the restoration (Fig. 10 & 11).

##### Discussion

Extraoral cementation of crown provides easy and complete cement removal and the opportunity to polish the abutment-crown interface after cementation and prior to intraoral placement. In addition, the abutment-crown connection can be placed

subgingivally, approaching the implant-abutment interface without the concern of intraoral cement removal. This allows for porcelain to be placed subgingivally, hiding any metal in a shallow sulcus and obviating the possibility of metal exposure due to any future gingival migration. Because the cementation will take place on the model, the emergence contours can be ideally created in the crown without regard to gingival margin position (Fig. 12). The screw can be protected with cotton and/or gutta-percha and the access cosmetically closed with a combination of composite resins and opaque modifiers (Fig. 14). With intraoral cementation, there is usually cement expression apically along the abutment-crown margin but with extraoral cementation, this potentially destructive material can be easily and completely removed, as the excess cement is removed prior to complete seating of abutment.

##### Summary

Combination implant crown utilizes extraoral cementation technique in which stock abutment and a laboratory fabricated crown is cemented extraorally. This method eliminates the possibility of apical migration of cement due to hydrostatic forces and allows the restorative dentist complete control over cement removal. In addition, post-cementation polishing of the abutment-crown interface is possible. Extraoral cementation reduces the risks of soft-tissue inflammation, bone loss around implants, and implant failure related to retained cement around implants.

**References**

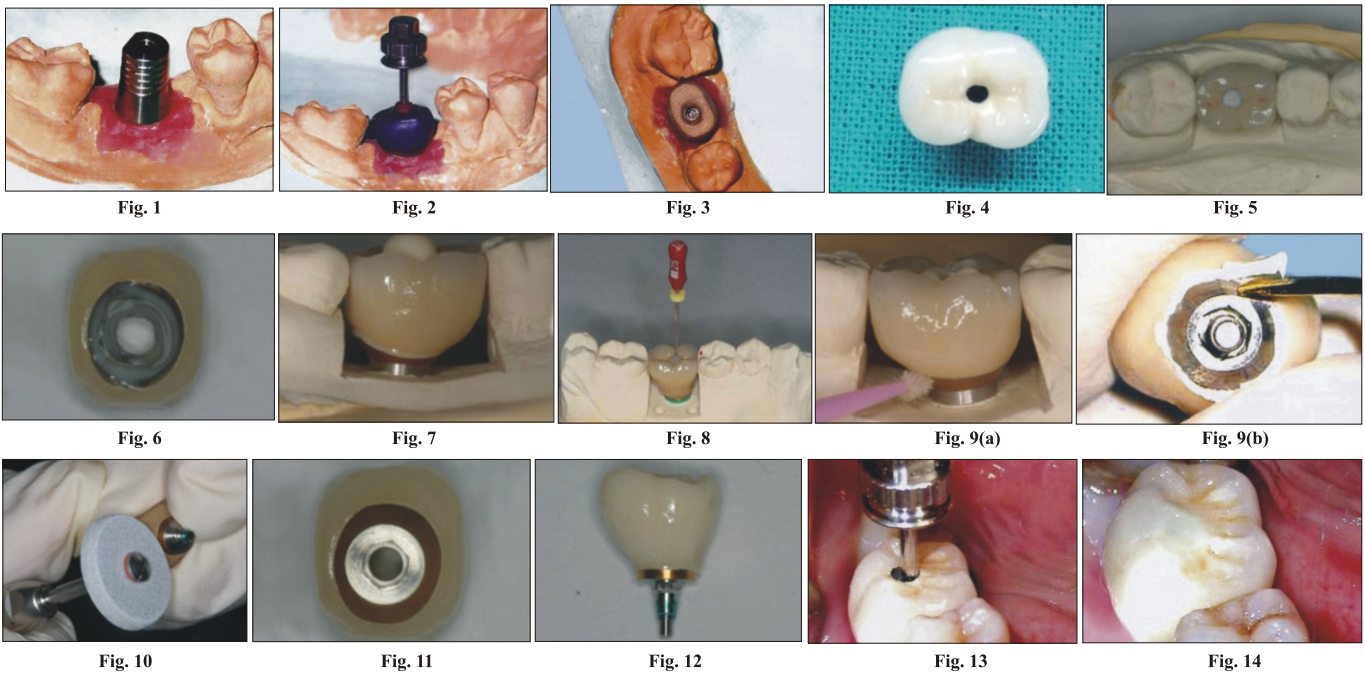
1. McGlumphy EA, Papazoglou E, Riley RL. The combination implant crown: a cement- and screw-retained restoration. *Compendium* 1992;13(1): 34,36,38.
2. Kim RG, Song EH, Choi BG, Kim HC, Ahn HJ. Single tooth implant restoration using combination implant crown:A CASE REPORT. *J Korean Acad Prosthodont* 1999;37(3):375-382.
3. Pauletto N, Lahiffe BJ, Walton JN. Complications associated with excess cement around crowns on osseointegrated implants: a clinical report. *Int J Oral Maxillofac Implants* 1999;14:865-868.
4. Thomas GW. The positive relationship between excess cement and peri-implant disease: a prospective clinical endoscopic study. *J Periodontol* 2009;80:1388-1392.
5. Gapski R, Neugeboren N, Pomeranz AZ, et al. Endosseous implant failure influenced by crown cementation: a clinical case report. *Int J Oral Maxillofac Implants* 2008;23:943-946.
6. Dushyant. Screw versus cement retained implant restorations: current concepts.

7. William F. Campbell, Marc W. Herman. Choosing between screw- retained and cement retained implant crowns.
8. Rola Shadid and Nasrin Sadaqa. A Comparison Between Screw- and Cement-Retained Implant Prostheses. *A Literature Review. Journal of Oral Implantology* 2012;(3):298-307.
9. Screw versus cemented implant supported restorations. W.Chee and S.Jivraj, *British Dental Journal* 2006;201(8).
10. Kenneth S. Hebel and Reena C. Gajjar. Cement-retained versus screw-retained implant restorations: Cement-retained versus screw-retained implant restorations: Achieving optimal occlusion and esthetics in implant dentistry. *J Prosthet Dent* 1997;77:28-35.

**Legends**

- Fig.1.** Screw the abutment to the implant analogue on the model
- Fig.2.** Metal-ceramic waxing of coping on prepared abutment using hexagonal screwdriver
- Fig.3.** Metal casting with occlusal screw access channel

- Fig.4.** Completed metal-ceramic crown
- Fig.5.** Place the cotton over the screw and trial fit the crown.
- Fig.6.** Line the crown with cement.
- Fig.7.** Seat the crown on the abutment
- Fig.8.** Remove the cotton with an endodontic file, to exposed the screw
- Fig.9. (a)** Remove excess cement with brush
- Fig.9. (b)** Allow adequate time for cement setting prior to complete seating of abutment
- Fig.10.** Polish the crown- abutment margin
- Fig.11.** Because cementation takes place on the model, the emergence profile can be ideally created in the crown without regard to gingival margin position
- Fig.13.** Crown used as guide to screw abutment into place
- Fig.14.** The final restoration : To close the screw access hole, the screw can be protected with cotton and the access is cosmetically closed with a combination of composite resin and opaque modifiers



**Product Gallery**

**Ortho Products**

R & D Impex, Ludhiana (India) Launches Complete Range of Ortho Products-

Ceramic Brackets, Self-ligating, Lingual, Mim, Composite & Metal Brackets With Laser Mark.

Buccal Tubes, Wires (NITI) Round & RCS, Molar Bands, Lingual Buttons, Lingual Retainers, All Accessories & Ortho Pliers, Complete Range of Elastics.



High Speed Air Turbine Handpiece

**High Speed Handpieces**

Launches High Speed Handpieces

1. Speed 350000 to 400000 RPM.
2. Ceramic Bearings
3. Warranty 1 Year
4. Wrench/Push Button

**Endo Instruments**

**WA-1 File Single File System**



Ask For Samples

**R & D IMPEX**

B36/146, Pakhowal Road, Opp. PNB, Near Vishal Nagar Chowk, Ludhiana-141002

Contact: Mohit : 009295998500 Deepali : 09295998400, Munish: 08872313000, Sonika:09592996800, Sonia : 09592996700

