Implant's Esthetic Flaws Erased

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Abstract

Metallic parts in dental implants often post an aesthetic problem to many a patient. An anatomically thin gingiva exposes the underlying metal parts of a conventional titanium implant. This results in a severe aesthetic compromise for related patients. Currently zirconium is an aesthetically superior material which is being used in fabricating implants which mimic natural teeth as closely as possible. This paper deals with various aspects of zirconium implants and its uses in oral rehabilitation procedures.

Key Words: Implants, Esthetics Flaws, Erased.

Introduction

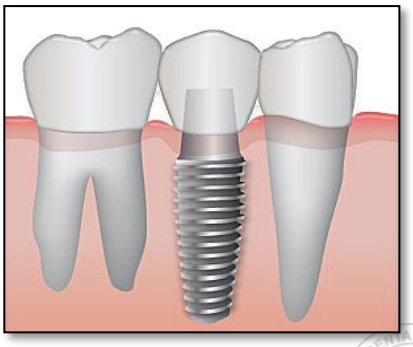

Fig. 1: animated image of metallic implant placed in 2nd premolar region

Since implant introduction over 40 years ago , dental implants have been used to support fixed or removable dentures and have become an established treatment modality. Pure titanium is generally used for dental implants because of its biocompatibility and suitability for tooling. Implant placement and restoration to replace single or multiple teeth in the esthetic zone is an especially challenging area for the clinician, particularly in sites with multiple missing teeth and with deficiencies in soft tissue or bone. Many important factors detect the success of implant among them esthetic factors play a important role .A thin gingival biotype dictates placement of the implant in a slightly more palatal position to reduce the chance of recession and prevent a titanium ''shadow'' from showing through the thin gingival tissue.

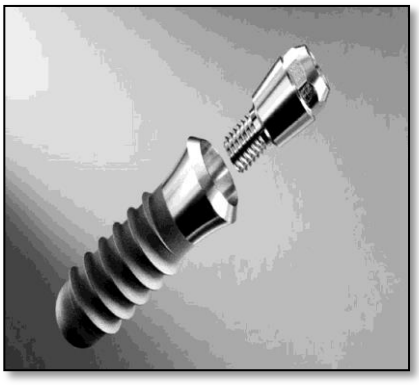

Fig. 2: Image of an Titanium Implant Model

An adequate volume of soft tissue provides a good emergence profile of the implant restoration and serves to mask the underlying metal implant.

Why Zirconia Implants?

Increasing the volume of gingiva is rather a tough task with poor prognosis. Thus placing a zirconium implants with teeth like color will overcome all the esthetic failure. With good osseointegration potential and esthetic advantages. Zirconia will be a boon for esthetic zones.

New in Market-Zirconia Implants

1. CERAROOT (SPAIN)
2. SIGMA (SWITZERLAND)
3. WHITE SKY (GERMANY)
4. Z- SYSTEMS (GERMANY)
5. ZIT-Z (GERMANY)

Fig. 3: Ceraroot Zirconia Implants.

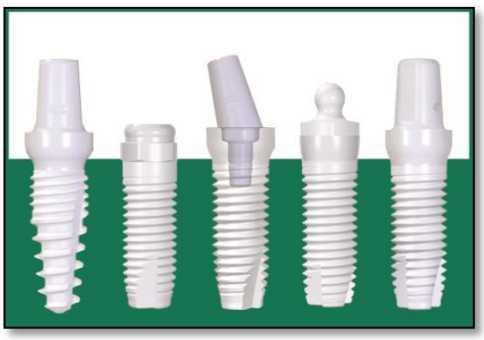

Fig. 4: Z-System Zirconia Implants

Fig. 5: White Sky Zirconia Implants

Case Reports

Case Report-1

A female patient named Manimegalai 25-yeasr-old came with a chief complaint of a missing right central incisor that had been fractured in a traffic accident. The periapical radiography showed no apical lucency in the area of the missing tooth. A two-piece zirconia implant was placed into the maxillary anterior region. After a 6-month osseointegration period , a 15 degree angled zirconia abutment was chosen, prepared, and cemented onto the implant . After using a provisional crown for 2 weeks, a definitive zirconia crown was made and cemented.

Fig. 6: Missing Right Central Incisor, Clinical Picture.
Fig. 7&8: Radiograph before and after Placement of Zirconia Implant.

Fig. 9&10: Placement of Zirconia Abutment & Crown
Fig. 11: Post Treatment Radiograph

Discussion

As the patient met with road traffic accident,the buccal side bony margins were thin and there is more chance of titanium shadow. To overcome this, zirconium impant with abutment were placed and esthetically restored succesfully

Case Report-2

Fig 12: Pre-Treatnent Picture.
Fig13&14: Post Treatment After Implant, Abutment and Crown Placement

A female patient named abida begum 43-year-old came with a chief complaint of missing left lateral incisor. a two-piece zirconia implant was placed into the missing tooth region.The implant was uncovered, and the abutment was connected 6 months following implant insertion. An aesthetic and functional result was achieved with the zirconia crown.

Discussion

When there is a marginal tissue loss in the extracted site, zirconium implants provide better marginal tissue adaptation and esthetic result over titanium implants.

Advantages of Zirconia

1) Titanium is a metal, and suffers corrosion. Corrosion, the gradual degradation of materials by electrochemical attack is a concern particularly when a metallic implant is placed in the hostile electrolytic environment provided by the human body. The clinical importance of degradation of metal implants is evidenced by particulate corrosion and wear products in tissue surrounding the implant, which may ultimately result in a cascade of events leading to periprosthetic bone loss. Furthermore, many authors have reported increased concentrations of local and systemic trace metal in association with metal implants. Zirconia is a ceramic and does not suffer any corrosion. (Gahlert M etal 2007)
2) Zirconia can be used in patients with metal allergies who may have problems with titanium. In addition to excellent cosmetic results, zirconia implants allow a degree of Osseo integration and soft tissue response that is superior to that of titanium dental implants. {Oliva et al 2007} The mean fracture strength and stress distribution of zirconia implants ranged within the limits of clinical acceptance comparable to titanium implants. {Kohal et al 2002}
3) ZIRCONIA are considered to be inert in the body and exhibit minimal ion release compared with metallic implants. Yttrium-stabilized tetragonal zirconia polycrystals appear to offer advantages over titanium oxide for titanium implants because of their higher fracture resilience and higher flexural strength. {Sennerby L etal 2005}

4) LAST BUT NOT LEAST: The principal disadvantage of titanium is its dark grayish color, which often is visible through the peri-implant mucosa, therefore impairing esthetic outcomes in the presence of a thin mucosal biotype. Unfavorable soft tissue conditions or recision of the gingiva may lead to compromised esthetics. Thus Zirconia seems to be a suitable dental implant material in esthetic zones because of its toothlike color, mechanical properties, and biocompatibility {Depprich R etal2008}

Conclusion

Thus to prevent titanium shadow in thin bone support and marginal tissue compatibility zirconium implants have aedge in esthetics over titanium implants.

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