

## Review Article

### Esthetics in Implant Dentistry: A Review

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#### ABSTRACT:

The evolution of Implant dentistry occurs over the years. Re-establishment of lost function, esthetics, and harmony of dentition is the prime concern of implantology. Esthetics is very important for the success of implant-supported prostheses. Morphology of the peri-implant soft tissue adjoining the implant components plays a important role in displaying the implant esthetics. The ultimate goal of a creating an implant restoration that cannot be distinguished from the rest of the natural dentition. This article aims to review the various considerations that help the dentists in increasing the esthetics in implants.

**Key words:** Implant dentistry, Esthetics, natural dentition.

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#### Introduction:

The success of osseointegration of a dental implant is not enough for treatment success because esthetics of restoration are important for patient satisfaction.<sup>1,2</sup> Esthetics depend on some factors that should be assessed during diagnosis to reveal and overcome previous limitations of the treatment. After this phase, the implant can be safely positioned for prosthesis insertion according to the biological distance and satisfactory architecture of the peri-implant tissues.<sup>3</sup> The ability to preserve the architecture, modify and even improvise the soft tissue contour lie in the hands of the periodontist and this can greatly improve the overall restorative result. Four potential time points can be differentiated for soft/hard tissue are: at the time of implant placement, during healing of the implant, during second stage surgery, and finally at the maintenance phase.<sup>4</sup> This article aims to review the various considerations that help the dentists in increasing the esthetics in implants.

#### Treatment planning

When the case diagnosed to be implant compatible one, the next phase is treatment planning. It is basically the primary and most important phase concerned with esthetics. During treatment planning rechecking the following fundamentals are considered essential:

adequate bone volume i.e., horizontal, vertical and contour; optimal implant position i.e., mesiodistal, apicocoronal and buccolingual angulation; stable and healthy peri-implant soft tissues; aesthetic soft tissue contours and ideal emergence profile.<sup>5</sup>

#### I. Optimal implant positioning

Proper positioning of implant fixture and restoration are important requirements for functionally and esthetically successful implant rehabilitation. The implant insertion occurs in an optimal 3 dimensional position that relates to final restorative phase of treatment.<sup>6</sup>

#### Mesiodistal position

Spacing is influenced by periodontal width of adjacent teeth although it fails to consider aesthetically important factors like cervical and coronal width of replaced tooth, presence or absence of diastema and necessity of maintaining the interdental papillae.<sup>7</sup> Now it has been recommended to keep a distance of 2 mm between cervical implant face and natural tooth and greater than 3 mm cervical distance between two implants to minimize the amount of crestal bone loss, better soft tissue fill and proper papilla bone support.<sup>8</sup> If this distance is compromised there is a chances of resorption of interproximal alveolar crest to the level of implants. This

loss of interproximal bone causes reduction of papillary height, impede the emergence profile, and leads to compromised clinical outcomes.<sup>9</sup>

### ***Buccolingual position***

Spray et al had proposed critical bone thickness of 1.8 mm buccolingually to maintain optimum aesthetic outcome.<sup>10</sup>

### ***Apico-coronal position***

According to Saadoun et al the apicocoronal positioning of implant shoulder is dependent on cervical bone resorption morphology, the diameter of the implant, the size discrepancy between the root and diameter of the implant, the thickness of the marginal gingival and proximal tissues. The implant collar to be located 2 mm apical to the cemento-enamel junction of the adjacent teeth if no gingival recession is present and 3 mm from free gingival margin when there is gingival recession, for proper emergence profile maintenance and better aesthetics.<sup>8</sup>

## **II. Adequate Bone Volume**

The essential conditions to be considered are the ridge height, width and trajectory to the proposed location of the final restoration. Comparable ridge height to adjacent teeth is important in establishment of natural mucogingival architecture. The adequate width of alveolar ridge is judged as 1.5 mm bone on both labial and lingual implant surfaces. Leaving a thin labial bone plate at the time of implant placement may lead to periimplantitis or an unaesthetic metal showing through the gingiva.<sup>11</sup>

### ***Hard tissue reconstruction***

To achieve natural aesthetic results, it is necessary to determine whether adequate bone is available for the planned prosthesis.<sup>12,13</sup> The choice of the graft material depends on the objective of the surgical procedure. If the objective is to fill an osseous defect then any graft material can be used, but if it is to restore with a living bone<sup>14,15</sup>, an osseointegrative material like autograft or freeze dried bone must be the choice.<sup>16-18</sup>

## **III. Soft tissue grafting**

The lack of crestal soft tissue and an intact papillae, advocates the need for soft tissue grafting. The two common situations requiring adjunctive soft tissue procedures are gingival recession around implants and concave ridge profile caused by thin, deficient gingiva.<sup>19</sup> Soft tissue augmentation procedures using patient's masticatory mucosa (palate) have been routinely performed, to create a new zone of attached keratinized gingiva.<sup>20,21</sup> Depending on the cause of recession, various surgical procedures such as, double split papillae<sup>5</sup>, lateral sliding pedicle flaps<sup>22</sup> and coronally repositioned flaps<sup>23,24</sup> are used. Soft tissue augmentation procedures are used when a concave rather than a convex profile of gingiva at the implant site is seen after the resolution of swelling, following implant placement.<sup>25</sup> Soft tissue augmentation

procedures using epithelial-connective tissue graft<sup>26</sup>, interpositional connective tissue graft<sup>26</sup>, roll technique<sup>27</sup>, double papillae repositioned flap<sup>28</sup> etc. can be used for papillary reconstruction.

## **IV. Emergence profile**

Development of proper emergence profile begins after second stage surgery, with placement of a properly contoured provisional restoration. This restoration should facilitate ideal gingival scalloping and papilla formation while creating a natural emergence profile to a great extent<sup>29-35</sup>.

## **Conclusion:**

The biological, functional, esthetic needs of the individual patient are very important for the implant prostheses. The selection of better implant and implant placement techniques help is to achieve a naturally looking and esthetically appealing gingiva and associated structures.

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