

Implant Placement Using Socket Shield Technique – A Review

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ABSTRACT:

Conservation of edge after extraction is greatest test to implant dentistry as it meddles with ideal implant placing and its general esthetical outcomes also. Another technique called as socket shield technique was presented in which a halfway root piece was held around an immediately placed implant determined to keep away from tissue changes after tooth extraction. This review article presents outline of careful strategy, benefits, disadvantages. Likewise, this article gives short outline of difficulties of utilizing socket shield technique in clinical practice and more current modified form of socket shield technique.

Key Words: Socket shield technique, Immediate implant, Modified socket shield technique, Implant Ridge preservation, Oral and Maxillofacial Surgery.

INTRODUCTION:

It is grounded that tooth extraction is trailed by horizontal along with vertical dimensional changes of alveolar ridge. It is recommended that after tooth extraction, the blood vessels in periodontium to the thin bone walls are cut off, along these lines causing facial bone plate resorption as periodontal layer essentially vascularizes bundle bone of tooth¹. Subsequently, conservation of edge after extraction is greatest test to implant dentistry as it meddles with ideal implant placement and its general esthetical outcomes also. All together to beat the adverse results of tooth extraction, different treatment approaches like immediate implant, socket preservation and guided bone regeneration have been recommended². Clinical investigations have tried the speculation that root retention, both of vital or

nonvital teeth, might have the option to keep away from tissue changes after tooth extraction. Filippi et al, proclaimed that decoronation of an ankylosed tooth protected the alveolar bone before placing implant³. Additionally, conservation of decoronated establishes in the alveolar process not just aides keeping up with existing bone volume yet additionally empowers vertical bone development, which can be noticed coronally to the decoronated root^{2,3}. A root submergence method is shown to keep up with the regular connection mechanical assembly of the tooth in the pontic site, which in turn considers total protection of the alveolar bone frame and aids the making of a tasteful outcome in adjacent various tooth-replacement cases⁴. Periodontal regeneration including new attachment framework, cementum, connective tissue, and bone could be conformed to a

lowered root whose surface was pathologically exposed⁵. Another strategy called as socket shield technique was presented by Hurzeler et al (2010), in which a partial root piece was held around a immediately placed implant with the point of staying away from tissue modifications after tooth extraction. This confirmation of principle explore affirms that buccal root maintenance in combination with immediate implant placement can accomplish osseointegration without causing irritation and resorption⁶.

Fundamental Principle of Socket Shield Technique:

The guideline of socket shield technique is to make a protect (alleged buccal shield) by setting up the base of a tooth demonstrated for extraction so that the facial root segment stays in-situ with its physiologic connection to the buccal plate intact. The periodontal attachment framework (periodontal ligament, vascularization, attachment filaments, cementum of root, bundle bone, alveolar bone) of tooth root is expected to stay vital and safe to prevent the post extraction alveolar bone loss and to support the facial tissues⁸.

Indications:

1. To help and protect buccofacial bone plate of extraction socket in instances of immediate implants.
2. socket shield technique is demonstrated in vertical fractures of teeth without pulpal pathologies, where the tissue protection and aesthetics are a need.
3. To save papilla between the dental implants.

Contraindication

1. As broad contraindications, the standard limitations for oral surgeries.
2. Local contraindications incorporate
 - Loss of buccal bone because of vertical fracture
 - Loss of buccal bone because of periodontitis

-- Caries on root fragment to be held.

Instruments used:

Periotome

Black's excavator

Gingival scissors

Needle holder

surgical forceps

diamond burs (Round bur of diameter 1 mm or tapered fissure bur)

Clinical Steps of Surgical Technique

Under Local anaesthesia, following strategy is done:

1. With a diamond bur, clinical crown of the tooth is cut off over the gingival level.
2. The tooth was segmented vertically utilizing long tapered fissure diamond bur
3. Moderate extraction of the palatal root section was finished with periotomes and forceps without putting pressure on buccal tissues. This outcomes in an unblemished lamella of the root in the space of the buccal bony attachment.
4. That root section is dispersed to a thickness of 2-3 mm utilizing round diamond bur alongside copious irrigation with saline.
5. Whenever anticipated an immediate implant placement, then, at that point, an osteotomy is arranged successively and implant is placed palatal to the socket shield.
6. The space between the shield and implant surface was left to empower blood clot formation.
7. socket can be secured with sutures.

After the method, patient is encouraged to flush the mouth with 0.2% chlorhexidine mouthwash a few times every day for one minute over a time of no less than ten days. During this time, mechanical oral cleanliness is kept away from

in the surgically treated region and just restarted after the follow up and suture removal following ten days⁸.medications prescribed as needed.

Advantages:

- a. Assists with preserving buccal/facial bone constructions if implant is put in touch to the normal tooth piece what's more, forestalls lamellar bone resorption.
- b. Guarantees protection of peri-implant tissues.
- c. Assists with keeping up with aesthetics.
- d. Flawless buccal shields additionally directs in placing implants in right position.
- e. Complete osseointegration can be accomplished by this method.
- f. Accommodating in keeping away from development of fibrous tissue around implant.
- g. This treatment is practical as no costly armamentarium is required.
- h. This is method presents insignificant intrusiveness.
- I. Least material necessity.
- j. Presents reasonable treatment for vertically fractured teeth⁹.

Disadvantages and constraints:

- a. Resorption related with common biological long-haul entanglement that might happen particularly in the presence of prior or creating periodontal or endodontic contaminations or irritations of the retained root fragments.
- b. Strategy touchy.
- c. Dislodging of buccal root piece or buccal lamellar bone.
- d. long term conduct of the buccal shield has not yet been totally explained.

Discussion:

To smooth out the cycle and lessen treatment time, immediate implant conventions have been presented. They can additionally furnish a satisfying esthetical outcome with great capacity in chosen circumstances, yet not on an anticipated premise and have a higher danger for mucosal recession and volume loss. This is where the socket shield technique was acquainted in a work with have a constructive outcome. Baumer et al introduced volumetric examination of case treated by socket shield technique and it showed a low level of form changes from extraction and implant placement to the follow ups. Mucosal recession at the implant restoration was equivalent to that of the adjoining teeth. They closed that socket shield technique offers diminished intrusiveness at the time of surgery and high esthetical results with powerful protection of facial tissue contours.¹⁰ Siormpas KD et al announced information from 46 patients who were treated by immediate implant placement with concurrent purposeful maintenance of the buccal part of the root. Every one of these embeds effectively kept up with osseointegration toward the finish of the subsequent period for a 100% aggregate endurance rate, in view of clinical and radiographic rules. It was finished up that the purposeful maintenance of the buccal part of the root with its periodontal structure during immediate implant placement can prompt unsurprising and practical osseointegration of implants put in the maxillary anterior region¹¹.Hurzeler et al (2010) histologically and under backscatter examining electron microscopy, assessed a beagle canine treated by socket shield technique. They presumed that holding the buccal part of the root during implant placement doesn't seem to meddle with osseointegration and might be advantageous in saving the buccal bone plate².Abadzhiev et al (2014) looked at regular immediate implant placement including hard and soft tissue grafting with socket shield method utilizing 25 patients. They discovered that customary methodology was plainly mediocre in regards to the esthetical results and tissue changes¹².Protection of inter-implant papilla is

basic in instances of multiple adjoining implants is aesthetic region. Not many investigations have been finished utilizing modified socket shield method with point of making unsurprising tasteful progress for nearby multiple immediate implants. Kan et al have detailed a case with a modified socket shield method with the shield situated in the interproximal regions as opposed to the buccal region for inter-implant papilla protection and they got great accomplishment in keeping up with the bone level and the periodontium¹³. Cherel et al noticed total protection of the papilla between two adjoining central incisors with next to no unfriendly occasions at 11 months after implant placement utilizing modified socket shield technique¹⁴. Gluckman et al. additionally utilized the modified socket shield method for a circumstance with two implants other than one another and detailed aesthetically great outcome by this method.⁷ Glocker et al (2014) completed three cases utilizing an modified socket shield method and postponed implant placement was arranged. Following a half year, during re-emergence the new bone arrangement in the alveolar bone and the residual ridge was clinically assessed as verification of guideline. It was illustrated that the bone was clinically saved with this method.¹⁵ Anas B et al deduced in their audit that socket shield method gives a promising treatment subordinate to better deal with the dangers of extraction and safeguard post extraction tissue in esthetical testing cases⁹. As the level of the papilla can be kept up with by the proximal periodontium¹⁶, modified socket shield technique is likewise utilized in different examinations and case reports. Cherel F applied the socket shield procedure on two adjoining hopeless teeth. Nonetheless, rather than buccal root retention, proximal root parts were left undisturbed to protect the papilla bone peak, in blend with immediate implant placement and immediate provisionalization¹⁷.

CONCLUSION:

Aside from influencing esthetical result, alveolar ridge atrophy following tooth extraction has, over each of an adverse consequence on the ensuing prosthetic or implant restoration. In a perfect world a strategy for conservation of alveolar ridge resorption ought to be practical and negligibly obtrusive, with just insignificant material necessities. Be that as it may, these models are not altogether met by any of the techniques accessible today. The designated maintenance of root sections by means of socket shield procedure has all the earmarks of being the main methodology equipped for accomplishing these models and complete alveolar ridge preservation. This strategy dodges resorption of bundle bone by leaving a buccal root section (socket shield) set up. The socket shield method gives a promising treatment extra to better deal with the dangers of extraction and safeguard post extraction tissue in esthetical testing cases.

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