Implant-supported Overdenture

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ABSTRACT

An implant-supported overdenture may be practically advantages over conventional complete denture and removable partial denture; these reduce bone resorption, greater prosthesis stability, improved maintenance and better esthetics. Implant supported overdenture may reduce the amount of soft-tissue coverage and extension of the prosthesis. Hygiene condition and home maintenance procedures are improved with the overdenture compared with fixed prosthesis. Implant supported overdenture limits lateral movements and consequently minimize soft-tissue trauma. Greater stability of implant-supported overdenture drives from mechanical attachment of the implant support system retaining the restoration. In severe resorption cases, this is a better alternative than the fixed restoration.

Keywords: Implant, Denture, Ridge resorption, Prosthesis.

INTRODUCTION

Edentulous patients are a diverse group comprised of those who are anatomically deficient, medically compromised, economically depressed, geriatric, congenitally deformed, genetically affected as well as general population for a number of other reasons have been rendered edentulous. Edentulous patients have a severely resorbed mandible often experience problems with their conventional dentures because of an impaired load bearing capacity denture stability is believed widely to be resistance against other forces like anterior posterior forces, the patient satisfaction is directly influenced by the amount of denture retention. It has shown by several studies that several different strategies have been introduced to overcome the problem, one of which is use of dental implant, implant supported overdenture offer many practical advantage over conventional and removable partial denture, these include degree of bone resorption, reduced or eliminated prosthesis movements better esthetics, improved tooth positions and improved occlusal load directions.

Implant-supported Overdenture—An Overview

Overdentures are defined as a prosthesis that covers and is partially supported by natural teeth, tooth roots and dental implants. Implants-supported overdentures have practical advantages over conventional complete dentures and removable partial dentures. This included decreased bone resorption reduced or eliminated prosthesis movement better esthetics improved occlusion improved occlusion load direction increased occlusion function and maintenance of occlusal vertical dimension. Overdentures improve phonetics patient psychological outlook and quality of life. Conventional dentures rely upon residual alveolar ridge and mucosa for support and retention. Patient finds implant supported overdenture significantly more stable and rate their ability to chew a wide variety of food as significantly easier, this improves the nutrition state implant-supported overdentures may reduce the amount of soft-tissue coverage and extension of the prosthesis which is especially important for new dentures or those who have low gagging thresholds, less bone resorption, greater prosthesis stability, better esthetic, improved maintenance.

The Sequelae of Tooth Loss

The effect of tooth loss is two-fold which may affect the patients psychologically and clinically.

Psychologically

Psychologically, edentulism has been quoted as having characteristic of a chronic illness as it is incurable and functionally and physiologically disruptive. Reduced self confidence, taboo and the feeling of premature ageing have been also been reported by patients.

Clinically

Clinically, the effects of tooth loss are important. Alveolar bone resorption could be considered condition and can pose a prosthodontic dilemma for the restoration of edentulous mandible. Tallegren reported that mean decrease in anterior
mandibular ridge height was four times greater than that of the maxilla. Alveolar bone loss can be reduced by provision of implants, studies have shown that implant supported mandibular over dentures can preserve bone height in areas where implants are located. Treatment Modalities for Edentulous Mandible

Treatment modalities for the restoration of edentulous mandible include: mandibular complete denture preprosthetic surgery with mandibular complete dentures and implant supported mandible overdentures and implant supported fixed bridge. Classic treatment for the edentulous mandible is a mandibular complete denture; the pattern of bone loss associated with the complete dentures can result in dentures bearing area becoming compromised. Redford demonstrated that more than 50% of CD wearers have problems with the retention and stability of these mandibular complete dentures. When the patient experiences poor retention and stability, patient satisfaction, confidence and comfort will suffer.

The implant-supported mandibular overdentures have been investigated since 1987, Van Steerbergh being one of first authors to purpose the placement of two implants in mandible to support an overdentures. Within 52 months, a 98% success rate was achieved. Implant supported overdenture requires frequent maintenance, especially during their first year. Atterd et al concluded that cumulative survival rate of over dentures was 100% at 15 years with longevity of prosthesis being $10.39 \pm 5.59$ years. Albrektsson et al have argued that state of almost ‘restitution and integrum’, can be achieved with dental implants.

Quality of Patient Satisfaction

It is accepted in literature that satisfaction in dentures wearers depends upon the ability of patient to chew and speak and also on the appearance of prosthesis. Bergetal found that 66 of patients were dissatisfied with their complete denture due to discomfort suboptimal retention fit and pain associated with lower complete denture. Borringter et al assessed patient satisfaction in randomized controlled trials (RCTs), this study compared in complete dentures with the implant-supported overdenture; satisfaction was measured with a validated questionnaire which assessed esthetics retention comfort function of upper and lower dentures. The majority of implant-supported overdentures group was more treatment dissatisfaction in complete dentures group was due the poor retention of the lower complete dentures. Improved with the provision of implant-supported overdentures compared to complete dentures, from the above evidence, it can be concluded that patient satisfaction is improved with the provision of implant-supported overdentures patient were not only satisfied in short term but also at 10 years recall.

Quality of Life Nutrition

As tooth number decrease masticated is more difficult in patient are also more likely to practice form of food avoidance and dietary restriction. Moras et al revealed that patients provided with an implant supported mandibular overdenture reported in increased ability to bite eat chew without losing their dentures 6 months posttreatment. The process of dietary restriction among edentulous has studied Allen and McMillan that subjects who received implant-supported mandibular overdenture altered their food and choice hard to chew foods. The process of dietary restriction among edentulous patients has also been studied. Allen and McMillan found that subject who received implant-supported mandibular overdentures altered their food choices including hard to chew food.

Indications

- Severe morphologic compromise of denture supporting areas that significantly undermine denture retention
- Poor oral muscular coordination
- Low tolerance of mucosal tissues
- Para functional habits leading to recurrent soreness and instability of prosthesis
- Unrealistic prosthodontic expectations
- Active or hyperactive gag reflexes, elicited by a removable prosthesis, e.g. roofless maxillary denture
- Psychological inability to wear a removable prosthesis, even if adequate denture retention or stability is present
- Unfavorable number and location of potential abutments in residual dentition. Adjunctive location of optimally placed osseointegrated root analogs would allow for provision of a fixed prosthesis.

Contraindications

- Chemical dependency (like phenytoin)
- Uncontrolled systemic disorders
- Psychological (schizophrenia, dysmorphophobia).

Advantages

Prosthesis: The use of dental implants to provide support for the prosthesis offers a multitude of advantages compared with the use of removable soft-tissue-borne restorations. These are as follows:
- Minimum anterior bone loss; prevents bone loss
- Improved esthetics
- Improved stability (reduces or eliminates prosthesis movement)
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- Improved occlusion (reproducible centric relation occlusion)
- Decrease in soft-tissue abrasions
- Improved chewing efficiency and force
- Increased occlusal efficiency
- Improved retention
- Improved support
- Improved speech
- Reduced prosthesis size (eliminates palate flanges)
- Improved maxillofacial prosthesis.

Disadvantages

- The primary disadvantage of an overdenture is that it does not satisfy physiological need of the patient.
- Require proper plaque control and dental hygiene.
- Cost is more compared to complete denture.
- Bulkier than many other restorations.

DISCUSSION AND CONCLUSION

The standard treatment of the many years had been complete dentures. Many complete dentures wearers have significance problem in adapting to their mandibular prosthesis. The widespread use and abuse of dentures adhesives is a good indication that these prostheses are inadequate in relation to retention and stability. Such a continues complete dentures have a many disadvantages such a continued ridge resorption with fibrous replacement the stability of the complete dentures displacement of complete dentures treatment of edentulous mandible with a implant-supported mandible overdenture has been advocated by Mericster-Sten in elderly patients who require stabilization of their mandibular complete denture.

However, a panel of expertise the McGill consensus agreed due to overwhelming evidence that the implant overdenture should be considered as a first choice standard of care for the edentulous mandible.

From the evidence presented in the paper, it can be concluded that the edentulous patient restored with an implant-supported mandible overdenture experience more satisfaction with their prosthesis improved masticatory ability and nutrition along with improvement as psychosocial aspects of life. Prospective randomized studies with longer follow-up periods are required, it can also be concluded that the patients restored with an implant-supported mandible overdenture with expansive improvement in quality of life with regard to oral health-related quality of life.

REFERENCES