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Implant on hyperthyroidism patient

Published by the Faculty of Medicine, University of Indonesia, Jakarta, Indonesia
ISSN 0853-1773
The influence of hyperthyroidism on implant restoration treatment outcome

Suhandi, Siti, Sitiawati, Boenawan, Nurrohman, Undari, J. T., Tano

DOI: http://dx.doi.org/10.13183/mji.v15i3.233

Abstract
# Medical Journal of Indonesia

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Pulmonary veins diameter is increased in hypertensive patients with evidence of left ventricle hypertrophy. It might be one explanation of high prevalence of atrial fibrillation in hypertensive patients.
Job stressors and other risk factors related to the risk of hypertension among selected employees in Jakarta

Moderate or heavy qualitative and quantitative job stressors as well as career development increased the risk of hypertension.

Duration of works, flight hours, and blood pressure related to noise-induced hearing loss among Indonesian Air Force helicopter pilots

Total flight for 500 hours or more, total duration works of 11-24 years, or prehypertension and hypertension stage 1 increased risk noise-induced hearing loss (NIHL).

The influence of hyperthyroidism on implant restoration treatment outcome

Implant on edentulous patient with hyperthyroidism history is a compromised treatment. Serutinized case selection, implant placement, and restorative construction should be done properly and carefully.
The influence of hyperthyroidism on implant restoration treatment outcome

Suhandi Sidjaja,* Soenawan,† Retno Pontjowulandari,* Ira Tanti*

Abstract

There is limited information about bone implant restoration treatment on edentulous patient with hyperthyroidism. This clinical report is presenting the making of dental bone implant restoration on patient with hyperthyroidism history. A 60 years old male patient with hyperthyroidism came to Prosthodontic Clinic Faculty of Dentistry University of Indonesia to improve his ailing denture. After comprehensive evaluation we treated the patient with Implant-Tissue-Supported Overdenture (4 Implants) for rehabilitating upper edentulous jaw, and 2 Implant-Tooth-Supported Fixed Partial Dentures for rehabilitating Kennedy class II lower edentulous jaw respectively. Short term clinical and radiographic evaluation based on Buser’s criteria showed positive result. (*Med J Indones 2006; 15:191-5)

Keywords: Hyperthyroidism, implant restoration.

METHODS

A 60 years old male lecturer with upper edentulous and lower bilateral free end partial edentulous came to Prosthodontic Department clinic Faculty of Dentistry University of Indonesia, to improve his ill fitting dentures. Clinical and radiographic finding showed; patient wore unstable narrow upper acrylic full denture and double free-end acrylic lower denture; sensitivity to heat irritability, decrease in bone density and loss of some area of edentulous bone. Therefore bone implant treatment on edentulous patient with hyperthyroidism history is a compromised treatment due to bone condition (bone loss and osteoporosis). However when hyperthyroidism is under control, with normal thyroid function and no symptoms of disease within the past 6 months, a normal protocol may be used for all dental implant surgery and restorative procedures. The success rate of osseointegration phase is 97.8%. The purpose of this clinical report is to evaluate the outcome of implant restoration treatment on patient with hyperthyroidism hystory.
excessive flabby mucosa on upper anterior and lower left posterior jaws; compromised bone quantity and quality on upper edentulous jaw; large occlusal space (distance is measured from upper ridge crest-lower occlusal surface), 15mm, 16mm and 11mm respectively on anterior, left, and right posterior. It was indicated from patient’s appearance that vertical dimension was reduced (Figure. 1, 2, 3, and 4).

Figure 1. Before treatment (February 2004)
Figure 2. Upper and Lower old denture
Figure 3. Patient’s appearance in his old upper and lower denture
Figure 4. Patient’s profile in his old upper and lower denture
Treatment plans were based on comprehensive medical and dental review, which consisted of mucosa plasty for upper anterior and lower left posterior, Implant-Tissue-Supported Overdenture (four implants) and two Implant Tooth Supported Fixed Partial Dentures for upper and lower jaws respectively. Implant denture designs were based on stability, bone volume and quality, and patient’s financial status. Patient had been well-informed with the risks associated with the treatment and had given his consent to accept this treatment plans. Premedication for minor surgery was given prior to implant placement. Implants length, location, and direction were decided based on panoramic (Yoshida) and periapical (Asahi and Digore) radiographs, as well as study cast and clinical inspections. Osteotomy was performed according to Branemark’s standard and implant manufacturer instruction. Two root form implants were placed on regions of 35 and 36 on Nov 9, 2004 (Figure 5); one root form implant was placed on region 46 on March 19, 2005 (Figure 6); two root form implants were placed on region 23 and 27 on June 25, 2005 (Figure 7); two root form implants were placed on region 14 and 17 on August 6, 2005 (Figure 8); one PFM Implant-Tooth-Supported Fixed Partial Denture (33, 34, 35, 36) was constructed on February 4, 2005; and one PFM Implant-Tooth-Supported Fixed Partial Denture (44, 45, 46) was constructed on August 30, 2005 (Figure 9, 10).

Figure 5. November 2004

Figure 6. Mei 2005

Figure 7. July 2005

Figure 8. August 2005

Figure 9. After treatment (2005)

Figure 10. Upper old full denture and lower new two ITSFPDs.
All superstructures were designed with minimum occlusal and lateral load. The upper old denture was modified and adjusted to 4 implant healing screws to act as temporary overdenture. The permanent overdenture was constructed on February 6, 2006, vertical dimension was increased 4 mm from the previous denture. Labial flange was thickened according to neutral zone. Low incline cusp, disclusion scheme was selected. Survival evaluation was performed according to Buser’s criteria.³

RESULTS

After 3 and 6 months all implant-bone osseointegrations on lower and upper jaws, respectively, were successful (Figure 11). No signs of mucosal inflammation, altered sensation or other abnormalities were detected in all implants (Figure 12). Two lower PFM ITSFPD were well function up to the present day. The temporary and permanent overdentures showed improved stability and comfort, as well as facial and lip support (Figure 13, 14).
DISCUSSION
Bone implant treatment on edentulous patient with hyperthyroidism history is a compromised treatment.\(^1\) In this case hyperthyroidism is already under control, with normal thyroid function and no symptoms of disease within the past one year. The main problem of this patient was his difficulty in speaking due to unstable upper denture. As lecturer patient needs a stable denture by which he could speak clearly and fluently to the students. Excessive bone resorption and hypersensitivity on upper jaw were the reason for upper denture instability and inadequate retention.

Two ITSFPD were selected for lower jaw because of compromised bone volume, cost effectiveness, and high survival rate.\(^6\) The ITSFPD on posterior left and right lower jaw increases patient’s comfort on speaking and masticating, and reduces the bone resorption rate. Implant-Tissue-Supported Overdenture was selected for upper edentulous jaw instead of fixed denture or Implant-Supported Overdenture because of compromised bone quality and volume, cost effectiveness, in order to minimized vertical and lateral load, and to fulfill facial and lip support.

The upper Implant-Tissue-Supported Overdenture is a complex restoration, as well as compromising bone-implant stability due to bone resorption pattern, proximity to maxillary sinuses, and nasal cavity.\(^7,8\) Therefore scrutinized case selection is needed, and implant placement and restorative construction should be done properly and carefully. Low cusp inclined, disclusion, and shortened dental arch are important factors to minimize mastication force.

CONCLUSION
Short term clinical and radiographic evaluation based on Buser’s criteria shows good prognosis in implant restoration treatment on patient with hyperthyroidism history. The treatment plan and clinical execution was done carefully and properly. Further evaluation and study are needed for medium and long term prognosis.

REFERENCES