X-ray followed-up of peri-implant bone level at dental implants in rehabilitated patients after combined surgical and radiotherapy of oral cancer

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Background: Surgical intervention and radiotherapy (RT) due to oral cancer caused also removing of teeth. It presents a huge functional and aesthetically deficit. With prosthetic solutions on implants this could be resolved. Oxygen-hyperbaric-therapy (HBO) is necessary before and after implantation.

Aim/Hypothesis: Our aim was to follow up changes of periimplant vertical bone level after 2 years with orthopantomogram x-rays at patients who were under combined surgical intervention and RT.

Material and Methods: Our population consists of 7 complete edentulous patients (3 females 4 males), who have had combined surgical intervention and radiotherapy (56–60 Gy) of cancer in oral cavity. Implants with conical connection were inserted in mandible more than 1 year after radiotherapy. Patients had 2 or 4 implants being inserted into mandible (2 5). Two-phase protocol with HBO (20 10) was used before implantation. Patients received removable prosthetics 6 months after implantation.

Results: Panoramic radiograph was taken 1 week and 24 months after implantation. X-rays were examined with Image-J program (http://rsb.info.nih.gov). Vertical changes of periimplant bone level were observed on mesial (M) and distal (D) site of the implant body. Average resorption rate (M D) was- 2.191 2.166 with standard deviation (M D)- 1.391 1.143. No clinical signs of inflammation were found in that period.

Conclusions and Clinical Implications: We concluded that resorption of marginal bone cannot be completely avoided at patients with RT. Implant placement below marginal bone level are desired but despite HBO resorption cannot be avoided. It is also seen that absence of clinical inflammation cannot guarantee no lost of marginal bone.