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A Seven Year Single-Centre Study of Dental Implant Survival in Head and Neck Oncology Patients

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Abstract : Oral rehabilitation of head and neck cancer patients plays a crucial role in the quality of life for such individuals post-treatment. Placement of dental implants or implant-retained prostheses can help restore oral function and aesthetics, which is often compromised following surgery. Conventional prosthodontic techniques can be insufficient in rehabilitating such patients due to their altered anatomy and reduced oral competence. Hence, there is a strong clinical need for the placement of dental implants. With an increasing incidence of head and neck cancer patients, the demand for such treatment is rising. Aim: The aim of the study was to determine the survival rate of dental implants in head and neck cancer patients placed at the Restorative and Maxillofacial Department, Royal Stoke University Hospital (RSUH), United Kingdom. Methodology: All patients who received dental implants between January 1, 2013 to December 31, 2020 were identified. Patients were excluded based on three criteria: 1) non-head and neck cancer patients, 2) no outpatient follow-up post-implant placement 3) provision of non-dental implants. Scanned paper notes and electronic records were extracted and analyzed. Implant survival was defined as fixtures that had remained in-situ / not required removal. Sample: Overall, 61 individuals were recruited from the 143 patients identified. The mean age was 64.9 years, with a range of 35 – 89 years. The sample included 37 (60.7%) males and 24 (39.3%) females. In total, 211 implants were placed, of which 40 (19.0%) were in the maxilla, 152 (72.0%) in the mandible and 19 (9.0%) in autogenous bone graft sites. Histologically 57 (93.4%) patients had squamous cell carcinoma, with 43 (70.5%) patients having either stage IVA or IVB disease. As part of treatment, 42 (68.9%) patients received radiotherapy, which was carried out post-operatively for 29 (69.0%) cases. Whereas 21 (34.4%) patients underwent chemotherapy, 13 (61.9%) of which were post-operative. The Median follow-up period was 21.9 months with a range from 0.9 – 91.4 months. During the study, 23 (37.7%) patients died and their data was censored beyond the date of death. Results: In total, four patients who had received radiotherapy had one implant failure each. Two mandibular implants failed secondary to osteoradionecrosis, and two maxillary implants did not survive as a result of failure to osseointegrate. The overall implant survival rates were 99.1% at three years and 98.1% at both 5 and 7 years. Conclusions: Although this data shows that implant failure rates are low, it highlights the difficulty in predicting which patients will be affected. Future studies involving larger cohorts are warranted to further analyze factors affecting outcomes.

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