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Radiation Injuries: Reemphasizing the Usage of Radiation Protection Prosthesis

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Sir,

I write in regard to Nayar S *et al* article 'The Effect of a Radiation Positioning Stent (RPS) in the Reduction of Radiation Dosage to the Opposing Jaw and Maintenance of Mouth opening after Radiation Therapy'.[1] I wholeheartedly agree to that patients undergoing radiotherapy who had an Radiation Positioning Stent (RPS) would show a significant reduction in radiation dosage to the opposing jaw and maintained their mouth opening in the short-term. As we know that oral cancer has emerged to be one of most deadliest cancer nowadays. In India, around 40% of the cancers detected are oral cancer among which 95% of them are oral squamous cell carcinoma. It can occur on the tongue, gums, floor of the mouth, lips, minor salivary glands (which often occur in the roof of the mouth) and other sites in the oral cavity.[2] Radiation therapy can be used as the main treatment for small cancers or also as an adjunct to surgery and chemotherapy. It uses high-energy x-rays to destroy cancer cells and slow their rate of growth hence the aim of radiation therapy is to damage as many cancer cells as possible while restricting harm to healthy tissue. Undesirable tissue reactions linked with the use of radiotherapy in the management of patients with oral cancer are agonizing and may diminish the quality of life.[3]

Protection of the adjacent healthy tissues from unnecessary radiations is no doubt difficult but very significant. Radiation of the mouth area can cause several short-term side effects including skin changes, hoarseness of the voice, loss of taste sensation, mucositis and fungal infections. Long-lasting side effects could result due to damage to the salivary glands which can cause xerostomia resulting in difficulty in eating and swallowing, osteoradionecrosis of the jaw bone and even damage to the pituitary or thyroid gland can occur if exposed accidently to radiation.[3,4] The utilization of shielding prostheses to cover uninvolved tissues decreases the number of potential post treatment sequelae caused by the administration of therapeutic radiation for head and neck tumors.

A maxillofacial prosthodontist can play a dynamic role during radiation therapy by fabricating different type of radiation protection prosthesis. Prosthetic devices used during radiation therapy are positioning stent which can be used to lower the tongue to separate maxilla from mandible thus sparing maxilla and parotid gland from radiation effects, shielding stent to protect or shield the uninvolved adjacent tissues, radiation docking device to place the cone of radiation machine in a repeatable position during the therapy, bolus compensator to convert irregular tissue contours into flat surface inorder to improve the quality of radiation delivered, radiation carriers can be used to place radiation source near or into the small tumor volume and template for direct implantation which serves to position radiation needles directly into the tumor site.[5,6]

Radiation therapy is the boon for treating malignant conditions. I personally feel that usage of such maxillofacial prosthesis can be of a great help to oncologist and radiation therapist in improving the quality of treatment, thereby preventing post irradiation morbidity which in turn reduces the odds of long-term survival. This way by having a thorough knowledge of these appliances we can improve the quality of life of the patients undergoing radiation therapy. Thus, the aim of this letter is to aware all the radiotherapist to use the radiation protecting devices consistently.

Conflict of interest: Nil

REFERENCES

1. Nayar S, Brett R, Clayton N, Marsden J. The Effect of a Radiation Positioning Stent (RPS) in the Reduction of Radiation Dosage to the Opposing Jaw and Maintenance of Mouth opening after Radiation Therapy. Eur J Prosthodont Restor Dent. 2016 Jun;**24**(2):71-7.
2. Johnson NW. Orofacial neoplasms: Global epidemiology, risk factors and recommendations for research. Int Dent J. 1991; **41**:365–75.
3. Koch WM, Stafford E, Bajaj G. Cancer of the Oral Cavity. Part A: General Principles and Management. In: Harrison LB, Sessions RB, Hong WK, eds. Head and Neck Cancer: A Multidisciplinary Approach. Philadelphia, Pa: Lippincott Williams and Wilkins; **2009**: 250-65.
4. Plevová P. Prevention and treatment of chemotherapy and radiotherapy-induced oral mucositis: a review. Oral Oncol. 1999; **35**: 453-70.
5. Coleman AJ. A technique for shielding electron beams used in radiotherapeutic management of head and neck cancer. J Prosthodont. 1996; **5**: 129-32.
6. Hecker DM, Brosky B. The importance of prosthodontics in radiation therapy. Northwest Dent. 2001; **80**:26-7.

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Response to the Letter

The authors would like to thank (the writer) for the support of this article. The authors wholeheartedly agree with (the writer) that the information obtained from this study must be made known to more cancer centres and radiation oncologists so that the side effects of radiotherapy can be minimised which should improve the quality of life for these patients. It is essential that a maxillofacial prosthodontist is part of the cancer team and works with the radiation oncologist in the management of these patients.