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Radiation induced cataract in head and neck radiation therapy

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The opacification of the eye lens is cataract. Cataract is the leading cause of blindness worldwide, especially in the third world where surgical treatment is unavailable. There are three predominant forms of cataract, depending on their anatomical location in the lens; cortical, nuclear and posterior subcapsular. Major risk factors of cataract are ocular trauma, intraocular surgery, diabetes mellitus, corticosteroid usage and radiation exposure.

Radiation therapy in head and neck region remains an effective therapeutic option. The lens of the eye is recognized as one of the most radiosensitive structure. The probability of developing radiation induced cataract depends on the energy of radiation and the amount of the lens that has been irradiated. The absorbed dose for the induction of lens opacities is a significant factor in treatment planning because of their superficial location, direct contact with the X-ray beam and higher scattered radiation doses in head and neck radiation therapy. Cataracts have been classified as a deterministic effect of radiation exposure and the latent period between exposure and cataract formation ranges from months to years. Radiation induced cataract is no longer considered as a severe complication because visual acuity can be restored by surgical treatment without significant complications. The clinical presentation of a radiation cataract is different from most age-related or other form of lens opacity. International commission on Radiological Protection (ICRP) released a new statement that drastically reduced the putative human threshold values for radiation induced cataract to 0.5 Gy from previous values of 2-8 Gy (ICRP, 2011).

Biography

Thasanthan Loganathan has completed his B.Sc. in Radiotherapy at the Department of Radiography/ Radiotherapy, Faculty of Allied Health Sciences, University of Peradeniya and reading M.Sc. in Medical Physics at the Post Graduate Institute of Science, University of Peradeniya. He is a Lecturer and Radiation Protection Officer at the Department of Radiography/ Radiotherapy, Faculty of Allied Health Sciences, University of Peradeniya.

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