

Ophthalmology and Ionizing Radiation



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Editorial

Due to the sensitive nature and low radiation tolerance of eye and its contents radiation to eye is sparingly and selectively used. Delivering ionizing radiation to eye associated with complications, however the intraocular tumors are highly radiosensitive and radiation can be delivered both by external beam therapy and brachytherapy. Due to recent advances in radiotherapy now particle beam therapy is preferred for best vision sparing therapy due to its selective nature. External and brachytherapy can radiation used with intent of radical, adjuvant and palliative intent to most common intraocular tumors like retinoblastoma, choroidal melanoma and metastatic tumors. Brachytherapy rarely is used only in selective centers with high technical expertise due to high professional exposure to ionizing radiation. Radiation plaques are used in brachytherapy and these are the preloaded sources kept near the tumors either temporarily or permanently. Brachytherapy most commonly used for choroid melanomas [1]. Brachytherapy plaques come in different sizes and shapes or can be customized according to the needs. Brachytherapy basically delivers high radiation to tumor and less radiation to surrounding normal tissues.

There are different brachytherapy radio isotopes used most commonly iodine-125, palladium-103, ruthenium-104. most important factor in delivering radiation by brachytherapy is minimum tolerable dose to macula, fovea and optic nerve so that that good adequate vision and visual acuity can be maintained [2].

External radiation can be delivered by 3DCRT, IMRT or by SRS-SRT and more recently proton beam therapy, the last one preferred because of its accuracy due to its bragg-peak. Due to the non-invasive nature, reproducibility and easy availability external RT preferred over brachytherapy. External radiation produces most commonly anterior eye side effects and brachytherapy produces posterior eye side effects. Conventional and best supportive care by radiation and ophthalmologic care is needed post treatment for 3-4 weeks [3]. Radiation induced cataract is one of the most common side effect in ophthalmology cancer survivors and professional ionizing radiation exposure to eye ball. Recently NCRP recommended that the professional exposure of ionizing radiation to eye ball should be less than 50 milli Sieverts annually. The good thing about radiation induced is completely treatable and curable [4].

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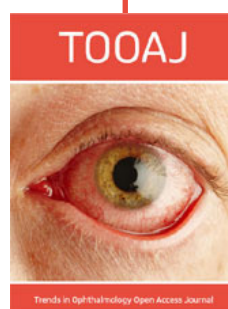
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