Abstract

**Ruthenium-106 Plaque Brachytherapy for Ocular Tumours- A Review of 327 Cases**

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**Purpose**: To study the long-term outcomes of Ruthenium-106 (Ru-106) plaque brachytherapy for ocular tumours in the Indian population.

**Method**: Retrospective review of case records of 327 patients who were treated with plaque brachytherapy between 2012 to December 2017.

**Results**: 327 patients with uveal melanoma (n=112), choroidal hamenagioma (n=91), retinoblastoma (n=44), ocular surface squamous cell neoplasia (OSSN n=56), choroidal metastasis (n=10), conjunctival melanoma (n=4), retinal capillary haemangioma (n=3) and others (n=8) were treated with Ru-106 plaque brachytherapy (notch= 217, round= 110). The mean dose of radiation was 9863±801.6 cGy for uveal melanoma, 3856±604.9 cGy for choroidal haemnagioma, 4747±667.3 cGy for retinoblastoma and 5275±545.2 cGy for OSSN. Tumour regression was noted in 85%, 97%, 87% and 56% cases of uveal melanoma, choroidal haemangioma, OSSN and retinoblastoma respectively. Eye salvage was achieved in 87%, 60%, 91% and 100% cases of uveal melanoma, retinoblastoma, OSSN and choroidal metastasis respectively. Visual acuity improved or remained stable in 91%, 94%, 62% and 53% cases of choroidal haemangioma, retinoblastoma, OSSN and uveal melanoma respectively. Life salvage was 99% in cases with uveal melanoma and 100% for OSSN. Radiation retinopathy developed in 6% cases with uveal melanoma and 6.5% with choroidal haemangioma. Cataract was seen as a complication in 6% patients with uveal melanoma. 14% of patents with retinoblastoma had vitreous haemorrhage post radiation.

**Conclusion**: Ru-106 plaque brachytherapy is a safe and effective treatment modality for a multitude of ocular tumours with good outcomes in terms of life, eye and vision salvage.