

Symposium : **Eye/orbital brachytherapy: from organ sparing to function sparing**

Brachytherapy Choice of the best approach for eye melanoma

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Melanoma of the eye can be intraocular (uveal), ocular surface, in the orbit or on the eyelid. There is a range of possible treatments for uveal melanoma. These include laser (thermotherapy or photodynamic therapy), radiotherapy (brachytherapy, proton beam radiotherapy, stereotactic radiosurgery) and surgery (tumour resection or enucleation).

Plaque brachytherapy is designed to deliver radiotherapy to uveal melanoma in a controlled way. The aim is to treat the tumour, and to minimise risks of vision or eye loss. The Collaborative Ocular Melanoma Study (COMS) described the standard for brachytherapy using ¹²⁵I, defined the size of melanomas and importantly showed equivalent survival in a randomised controlled trial between brachytherapy versus plaque radiotherapy for medium sized melanomas.

The American Brachytherapy Society's consensus guidelines for the treatment of intraocular tumours suggest certain parameters. For uveal melanoma the dose prescribed is 70 to 100 Gy to the tumour apex. The prescription isodose line should encompass the entire tumour. Dose rates should not be less than the COMS historical standard of 0.60 Gy/hour. Isotope choice is limited by the size of tumour, with ¹⁰⁶Ru plaques for tumours less than 6mm height. ¹²⁵I or ¹⁰³Pd can treat larger tumours, but tumours greater than 12 mm in apical height or 20 mm in base carry guarded prognosis for retaining useful vision. Alternatives to brachytherapy for unsuitable cases where the plaque cannot be placed easily or the tumour is too large, include proton beam radiotherapy, stereotactic radiosurgery or enucleation of the eye. Failure

of brachytherapy can be managed by further radiotherapy (brachytherapy or proton beam), laser (usually thermotherapy) or enucleation of the eye.

Plaque radiotherapy is an established technique for the treatment of uveal melanoma. Many eyes that would otherwise be lost are treated with this method. The challenge remains to minimise complications and to save more lives.