Outcomes of Iris Melanomas Treated at a National Ocular Oncology Centre

Dr J Lisle (Junior Clinical Fellow, Sheffield Ocular Oncology Service, Sheffield)
Mrs U Harley (Consultant, Sheffield Ocular Oncology Service, Sheffield)
Mr S M Salvi (Consultant, Sheffield Ocular Oncology Service, Sheffield)

Introduction

Iris melanomas are rare and account for approximately 5% of all uveal melanomas[1]. Treatment can be in the form of observation, brachytherapy, proton beam therapy and rarely surgical resection or enucleation for local invasion. This study aims to describe the presentation, management, and outcomes of treatment of patients diagnosed with pure iris melanoma in a Sheffield Ocular Oncology Service over a 10 year period.

Methods

A retrospective non-comparative case series of consecutive patients diagnosed with pure iris melanoma (i.e. without ciliary body involvement) from 2011 to 2021, using the Sheffield Ocular Oncology Service database and medical records**.** Notes were reviewed and analysed for presentation, management, and outcomes of treatment including mortality.

Results

41 patients with an MDT diagnosis of pure melanoma were identified, with a mean duration of follow-up of 94 months (range 8 -178). Stable iris naevi and indeterminate melanocytic naevi (IMLs) without any growth were excluded from the study.

Presentation

56% were referred with a known iris naevus or lesion which had shown signs of growth, and 44% incidentally, either during routine screening by local opticians or as part of investigation of associated signs, usually raised IOP. In two cases, the iris lesion was noted incidentally and biopsied during cataract surgery.

The majority of patients (78%) were asymptomatic at presentation (**Figure 2**). Patient demographics at presentation are shown in **Figure 1**. The mean age at diagnosis was 51 (range 13.6 to 86 years old), with 59% affecting the right eye and with all but 2 affected irises being a light colour. Two patients were heterochromic.

Clinical presenting signs included raised intraocular pressure in 10 (25%) patients, 13 patients (31%) had pupil irregularities (corectopia/irregular pupil/anisocoria/ectropion uvae). Two patients (5%) had a hyphaema at presentation. The location of the iris melanoma was inferior on the iris (4-7 o'clock) in 69% of all lesions. 10 melanomas had feathery margins (24%) and 4 were diffuse (10%).

Figure 1: Patient Demographics

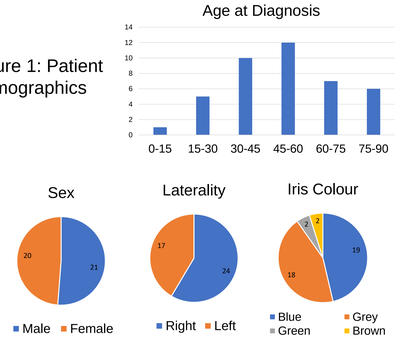


Figure 2: Presenting Symptoms

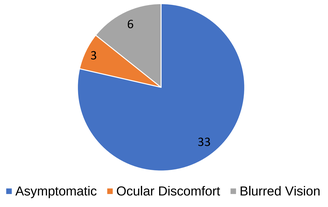


Figure 3: Management Modality

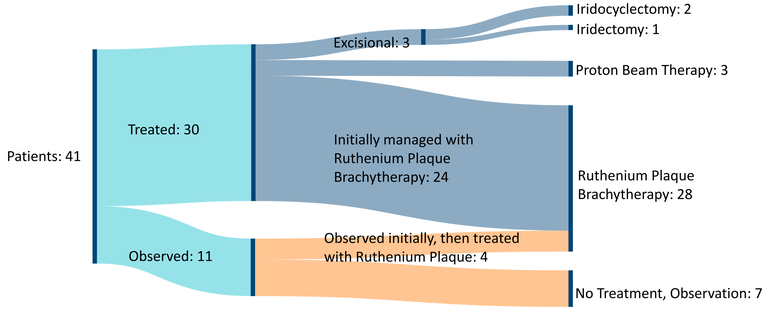
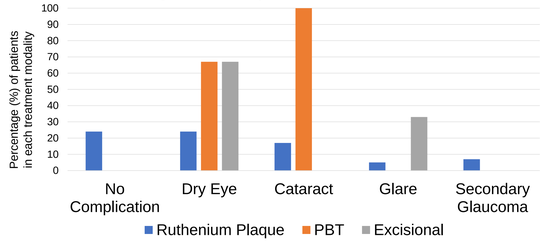


Figure 4: Complications of Treatment



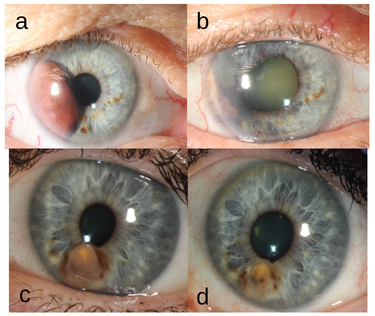


Figure 6: Iris melanoma
(a) Large iris melanoma
(b) Regressed following Ruthenium plaque brachytherapy – but with cataract
(c) Iris melanoma
(d) Following successful treatment with Ruthenium plaque, without complication

Management

The majority of patients were managed initially with ruthenium plaque brachytherapy (**Figure 3**). Four patients were treated with ruthenium plaque after growth was noted during the monitoring period. 23 cases were biopsy-proven, with the remainder diagnosed on the basis of clinical history, examination, and imaging.

Outcomes

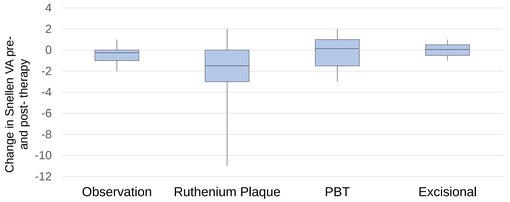
Visual Acuity: across all treatment modalities, visual acuity reduced by 1.5 lines on average in the affected eye, and was preserved in 78% **(Figure 5)**.

Tumour Control: In all cases of radiation therapy (PBT or ruthenium plaque), treatment was successful at regressing the melanoma.

Complications: Common complications **(Figure 4)** included cataract (10), dry eye (11), and glaucoma (5). One patient developed phthisis bulbi as a result of secondary glaucoma.

Metastasis and mortality: There were no cases of metastasis, recurrence of treated melanoma, or death attributable to the iris melanoma.

Figure 5: Visual Acuity outcomes by Treatment Modality



Discussion

Not all pigmented iris lesions are melanomas, and the majority of iris naevi or IMLs referred to ocular oncology centres are merely observed for any change. Conventionally, clinical features suggestive of malignant transformation follow the mnemonic ABCDEF (A = age young, B = blood, C = clock hour inferior, D = diffuse, E = ectropion, and F = feathery margin), and therefore with naevi demonstrating these features there is a predilection towards treatment over observation. Other factors favouring treatment are documented growth, or a tapioca or diffuse (as opposed to circumscribed) appearance, as these are more likely to metastasise.

This work shows that most iris melanomas present asymptomatically as growth of a known lesion. Outcomes of treatment are generally very good, with excellent local control and preservation of vision. The main complications of treatment are cataract, dry eye, and glaucoma. Iris melanomas carry a better prognosis than other uveal melanomas, with five to ten times lower mortality rates[3].

References

1. Krantz BA, Dave N, Komatsubara KM, Marr BP, Carvajal RD. Uveal melanoma: epidemiology, etiology, and treatment of primary disease. *Clin Ophthalmol.* 2017;11:279-289. doi:10.2147/OPTH.S89591
2. Shields CL, Kaliki S, Hutchinson A, Nickerson S, Patel J, Kancherla S, Peshtani A, Nakhoda S, Kocher K, Kolbus E, Jacobs E, Garoon R, Walker B, Rogers B, Shields JA. Iris nevus growth into melanoma: analysis of 1611 consecutive eyes: the ABCDEF guide. Ophthalmology. 2013 Apr;120(4):766-72. doi: 10.1016/j.ophtha.2012.09.042. Epub 2013 Jan 3. PMID: 23290981.
3. Kaliki, S., Shields, C. Uveal melanoma: relatively rare but deadly cancer. Eye 31, 241–257 (2017). https://doi.org/10.1038/eye.2016.275