Comparison of high risk pathological features (HRPF) between primary and secondary enucleation for retinoblastoma King Hussein Cancer centre - Jordan

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Objectives

- To compare the risk and pattern of High-Risk Pathologic Features **(HRPF**) in retinoblastoma between **primary** (removal without any prior treatment) and **secondary** (removal after systemic chemotherapy failure) **enucleation**.

Methods

- A retrospective analysis of **121** eyes from **118** patients
- Underwent enucleation at the King Hussein Cancer Center **(KHCC)** Amman, Jordan
- Between November **2009** and January **2020**.
- Demographic information, tumor stage, time from diagnosis–to-enucleation,
- results of pathology, metastasis, and mortality were retrieved

Results

- **Primary** enucleation was performed on **72** eyes (**60 %**) of 70 patients (59%), and **secondary** enucleation was performed on **49** eyes (**40%**) of 48 patients (41%)
- Of the group as a whole, **43** eyes (**35.5%**) had **HRPF** were detected in **27** eyes that underwent **primary** enucleation (**37.5%**), and in **16** eyes that underwent **secondary** enucleation (**32.7%**); with no statistically significant difference between the two groups (p =0.585)
- Patients in the **secondary** group (49/121 eyes, **40%**) were considerably **younger** at diagnosis (**p =0.0014**), had **bilateral** disease (p=0.0001), and had **less-progressed** disease at presentation (**p =0.016**) compared to the primary.
- **Primarily** enucleated eyes were more-likely to have **massive choroidal invasion** (p **=0.0315**) and **post-laminar optic nerve invasion** (**p=0.027**). The likelihood of **anterior chamber invasion**, was considerably higher in **secondary** enucleated eyes (**p =0.013**).
- We evaluated primary and secondary enucleation for each subgroup (**D and E**) of the International Intraocular Retinoblastoma Classification (**IIRC**) and found the prevalence of **HRPF** was comparable (p =0.58, 1.0, respectively).
- The difference in time between diagnosis-to-enucleation in secondary enucleation did not predict HRPF (p =0.50).

Conclusion

- Systemic chemotherapy could reduce the extent of tumor expansion that has been pathologically identified.
- **Primary and secondary** enucleated eyes are **comparable** in **low metastatic** risk only when strict examination and management guidelines are followed.

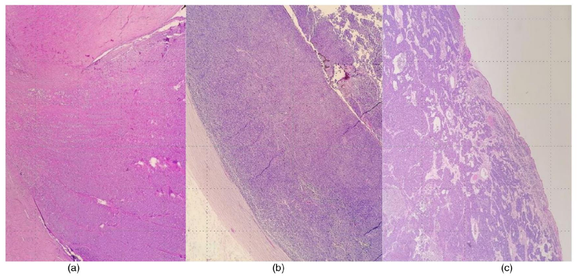


Figure. Retinoblastoma with HRPF, Hematoxylin and Eosin stain. (a) Tumor posterior to lamina cribrosa (b) massive choroidal invasion, (c) invasion of the cornea by retinoblastoma with surface ulceration

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