

Histopathology of Retinoblastoma: a Study of 35 Cases



Medical Science

KEYWORDS : Retinoblastoma, histopathology

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ABSTRACT

AIMS AND OBJECTIVES: To study the various demographic and histopathological features of Retinoblastoma in specimens submitted after enucleation and to compare the obtained results with relevant data from previous studies.

MATERIAL AND METHODS: 35 cases with histopathological diagnosis of retinoblastoma were included in the study. Data related to age at the time of enucleation, sex, laterality, tumor size, choroidal, scleral, vitreous and optic nerve invasion, extra ocular spread, tumor differentiation and presence of necrosis and calcification was obtained.

OBSERVATIONS: The median age of enucleation in patients was 22 months, (mean 30.9 months) ranging from 3 months to 107 months. 22 (62.85%) children were males with M:F ratio 1.69:1. Unilateral Retinoblastoma was found in 74.28% of cases. Necrosis (77.14%), Choroidal invasion (68.57%) and Differentiation (65.71%) were the most common Histopathological findings. Vitreous seeding was seen in 42.85% and Scleral and Optic nerve invasion in 40% each. Extra ocular spread and Optic nerve invasion to line of transection was seen in 14.28% and 8.57% respectively.

CONCLUSION: Retinoblastoma is the most common intraocular tumor of childhood and it is important that attention be given to the details of the histopathological report in Retinoblastoma, particularly optic nerve invasion, extra ocular spread, scleral and choroidal invasion to determine post-enucleation therapy and prognosis.

INTRODUCTION

Retinoblastoma is the most common primary intraocular malignancy in children. Enucleation for retinoblastoma is done in patients with advanced intraocular disease and if there has been failure of conservative treatment. Histopathological reporting of retinoblastoma is critical because certain macroscopic and microscopic features contribute to the staging of the tumor that determines prognosis and post-enucleation therapy.

AIMS AND OBJECTIVES

- ⊙ To study the various demographic and histopathological features of Retinoblastoma in specimens submitted after enucleation.
- ⊙ To study the high risk factors and evaluate their frequency in Indian children enucleated for advanced intraocular retinoblastoma.
- ⊙ To compare the obtained results with relevant data from previous studies.

MATERIAL AND METHODS

This is a retrospective study conducted at a Tertiary care centre, Ahmedabad from January 2013 to June 2014. 35 cases with histopathological diagnosis of retinoblastoma were included in the study. Data related to age at the time of enucleation, sex, laterality, tumor size, choroidal, scleral, vitreous and optic nerve invasion, extra ocular spread, tumor differentiation and presence of necrosis and calcification was obtained.

OBSERVATIONS

A) DEMOGRAPHIC VARIABLES

VARIABLES	Age (months)
Median	22
Mean	30.9
Range	3-107
SEX	
Male	22 (62.85%)
Female	13 (37.15%)
LATERALITY	
Unilateral	26 (74.28%)
Bilateral	9 (25.71%)

- ⊙ The median age of enucleation in patients was 22 months, (mean 30.9 months) ranging from 3 months to 107 months.
- ⊙ 22 (62.85%) children were males with M:F ratio 1.69:1.
- ⊙ 26 (74.28%) had Unilateral Retinoblastoma.

B) AGE DISTRIBUTION

Age Interval	Cases
0-12 months	8 (22.85%)
13-24 months	10 (28.57%)
25-36 months	9 (25.71%)
37-48 months	2 (5.71%)
49-60 months	2 (5.71%)
>60 months	4 (11.43%)

C) HISTOPATHOLOGICAL VARIABLES

Variable	Present
Scleral invasion	14 (40%)
Choroidal invasion	24 (68.57%)
Optic nerve invasion	14 (40%)
Optic nerve invasion to line of transection	3 (8.57%)
Vitreous seeding	15 (42.85%)
Differentiation	23 (65.71%)
Calcification	12 (34.28%)
Necrosis	27 (77.14%)
Extraocular Spread	5 (14.28%)
Average Tumor Size	1.69*1.29*0.92 cm ³

⊙ Necrosis (77.14%), Choroidal invasion (68.57%) and Differentiation (65.71%) were the most common Histopathological Findings.

⊙ Vitreous seeding was seen in 42.85% and Scleral and Optic nerve invasion in 40% each.

⊙ Extra ocular spread and Optic nerve invasion to line of transection was seen in 14.28% and 8.57% respectively.

DISCUSSION

A) COMPARISON OF DEMOGRAPHIC VARIABLES

Variable	Gupta et al(n=140)	Kashyap et al(n=160)	Arif et al(n=13)	Present Study (n=35)
Mean age (months)	29.74	32.88	43.44	30.94
Median age(months)	24	30	NA	22
Male	83 (60%)	400 (65.7)	8 (61%)	22 (62.85%)
Female	57 (40%)	209 (34.3)	5 (39%)	13 (37.15%)
Unilateral	91 (65%)	449 (73.7)	9 (69%)	26 (74.28%)
Bilateral	49 (35%)	160 (26.3)	4 (21%)	9 (25.71%)

B) COMPARISON OF HISTOPATHOLOGICAL VARIABLES

Variable	Gupta et al (n=140)	Kashyap et al (n=160)	Arif et al (n=13)	Present Study (n=35)
Scleral invasion	13 (9%)	83 (13.7)	4 (30%)	14 (40%)
Choroidal invasion	57 (40%)	289 (47.45%)	4 (30%)	24 (68.57%)
Optic nerve invasion	63 (45%)	302 (49.58%)	8 (60%)	14 (40%)
Optic nerve invasion to line of transection	11 (8%)	45 (7.4%)	NA	3 (8.57%)
Differentiation	61 (42.95%)	120 (19.7%)	7 (53%)	23 (65.71%)
Necrosis	NA	NA	8 (61%)	27(77.14%)
Extraocular Spread	9 (6%)	25 (4.1)	NA	5 (14.28%)

CONCLUSION

Retinoblastoma is the most common intraocular tumor of childhood and it is important that attention be given to the details of the histopathological report in Retinoblastoma, particularly optic nerve invasion, extraocular spread, scleral and choroidal invasion to determine post-enucleation therapy and prognosis.

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