11th INTERNATIONAL MEETING OF RIO
Research Institute of Ophthalmology

CATARACT IN RETINOBLASTOMA

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Retinoblastoma

What is Retinoblastoma?

- Malignant tumor of the Embryonic neural retina (fetal Retinoblasts)
  that normally differentiate into post-mitotic retinal photoreceptor cells and neurons.

Retinoblastoma

INCIDENCE

- 11% of Ped. Cancer in the 1st year but only 3% of all Ped. Cancers up to 15 years.
- 1/13000 birth.
- Nearly 120 new case/year in Egypt.
- 250 case/year in USA.
- Increased in Africa – South America.

RETINOBLASTOMA

CLASSIFICATION

- There are three overlapping parameters for classifying retinoblastoma:

1. *Laterality: Tumours may be unilateral or bilateral*
2. *Focality: Tumours may be unifocal or multifocal*
3. *Genetics: Tumours may be hereditary (40%) or nonhereditary (sporadic 60%)*

Unifocal Vs Multifocal

RETINOBLASTOMA

CLASSIFICATION

- Other Method to Classify RB according to pattern of growth:

1-Endophytic

2-Exophytic

3-Surface infiltration

4-Combined

Endophytic Vs Exophytic

RETINOBLASTOMA

CLINICAL PRESENTATION

-Leukocoria

-Squint

-Impaired vision

-Others:

Glaucoma-Hyphema- Uveitis - Orbital

LEUKOCORIA

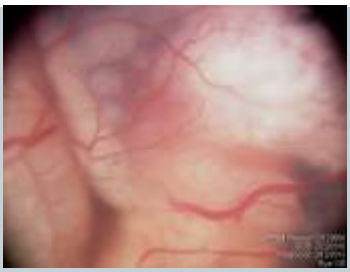
Group A

Group B

Group C

Group D

Group E



RETINOBLASTOMA MANAGMENT

Treatment Options

1- Chemotherapy
2- Radiotherapy
3- Local treatment
4- Combined approaches

RETINOBLASTOMA MANAGMENT

2- Radiotherapy

A-External Beam Radiotherapy(ERBT)
-Radiosensitive
-Major Complications
- Dry eye
- Cataract
- Retinopathy
- Retarded orbital development
- Restrictive motility

RETINOBLASTOMA MANAGMENT

Scleral implantation of radioactive seeds transiently with 40-Gy

- **Cataract Surgery and Intraocular Lens Implantation in Patients With Retinoblastoma**

Maria Portellos, MD; Edward G. Buckley, MD

Arch Ophthalmol. 1998;116:449-452

- **Intraocular Surgery After Treatment of Retinoblastoma**

Santosh G. Honavar, MD; Carol L. Shields, MD; Jerry A. Shields, MD; Hakan Demirci, MD; Thomas J. Naduvilath, MS

Arch Ophthalmol. 2001;119(11):1613-1621. doi:10.1001/archopht.119.11.1613

- **Cataract surgery and intraocular lens implantation in a retinoblastoma case treated by external-beam radiation therapy**

Harsha Bhattacharjee, MS, Kasturi Bhattacharjee, MS, DNB, Debdulal Chakraborty, MBBS, Mrinmoy Talukdar, DO, Dipankar Das, MS

J Cataract Refract Surg 2003; 29:1837–1841 © 2003 ASCRS and ESCRS

- **Pars Plana Lensectomy and Intraocular Lens Implantation in Pediatric Radiation-Induced Cataracts in Retinoblastoma**

Daniel M. Miller, MD, PhD,1 Timothy G. Murray, MD,1,2 Nicole L. Cicciarelli, COMT,1 Hilda Capo, MD,1 Arnold M. Markoe, MD, DSc2

Ophthalmology 2005;112:1620–1624

- **Modern cataract surgery for radiation-induced cataracts in retinoblastoma**

Ihab M Osman,1 Hana Abouzeid,2,3 Aubin Balmer,2 Marie-Claire Gaillard,2 Philippe Othenin-Girard,2 Alessia Pica,4 Rapha el Moeckli,5 Daniel F Schorderet,3,6 Francis L Munier2,3

BJO Online First, published on June 24, 2010 as 10.1136/bjo.2009.173401

Precaution or Guidelines in surgery

- cataract surgery in this age group. During surgery, care was taken not to break the posterior capsule and disturb the vitreous face.
- Unlike cataract surgery of other pediatric cataracts, primary posterior capsulorhexis and anterior vitrectomy were not performed as the vitreous might contain retino-blastoma seedlings that could disseminate.
- lensectomy by pars plana route was not used. Reports have documented the spread of retinoblastoma through the sclerotomy wound of the pars plana incision.

NO	STAGE	CAUSE OF CATARACT
1	C	POST RADIO
2	B	UNKNOWN
3	C	POST RADIO
4	B	POST VITRECTOMY
5	B	POST VITRECTIMY

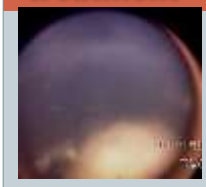
Age at surgery and duration of stability

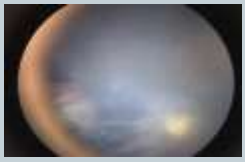
Age at surgery	Mean age
34ms-51ms	45ms

Period of stability of tumours	mean
3-36ms	25ms

Post radiotherapy case

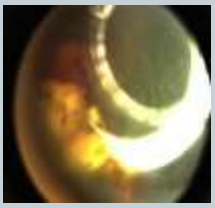
Initial and response to treatment



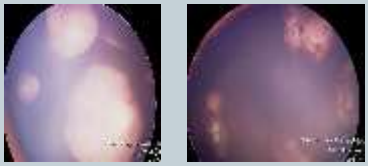


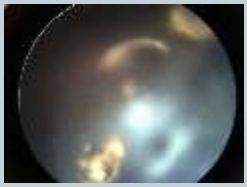
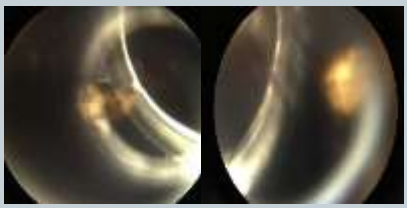
Post radiotherapy






Post vitrectomy case



Outcome measure criteria

- (1) Recurrence of retinoblastoma,
- (2) need for enucleation, and
- (3) systemic metastasis.
- Overall outcome was defined as favorable in the absence of any of these measures and unfavorable in the presence of 1 or more.

Thank you