RETINOBLASTOMA

BY

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Objectives

- History
- Introduction
- Inheritance
- Clinical feature
- Pattern of growth
- Clinical Manifestations
- Differential diagnose
- Treatments

History

- It was first mention by petras in 1597.
- Then venroff describe the origin from undifferentiated retinal cell named Retinoblastoma in 1900.
- American ophthalmology society has first adopted the word retinoblastoma in 1926.

Introduction

- Retinoblastoma is the primary malignant neoplasm of the retina that arises from immature cell of retina .
- Most common primary intraocular malignancy of child hood.
- Might be unifocal \ multifocal
- May be unilateral or bilateral

Inheritance

- Unilateral has only one effected which range from 55 to 65%
- Bilateral has effected both eyes which range from 25% to 35%
- In bilateral cases multifocal tumors in both eyes are the rule .

Clinical feature

- Leucocoria
- Strabismus
- Red painfull eye
- Poor vision
- Orbital cellulitis
- Hyphema
- Unilateral or bilateral mydriasis
- proptosis

Leukocoria

Strabismus in RB

Pattern Of Growth

Growth pattern

ENDOPHYTIC

- Into vitreous cavity
- No overlying retinal vessels
- Simulate endophthalmitis
- Present as pseudohypopyon, nodules at pupillary border.

EXOPHYTIC

- Grows outwards into subretinal space
- Retinal vessels seen over it
- Retinal detachment
- Simulate coats disease

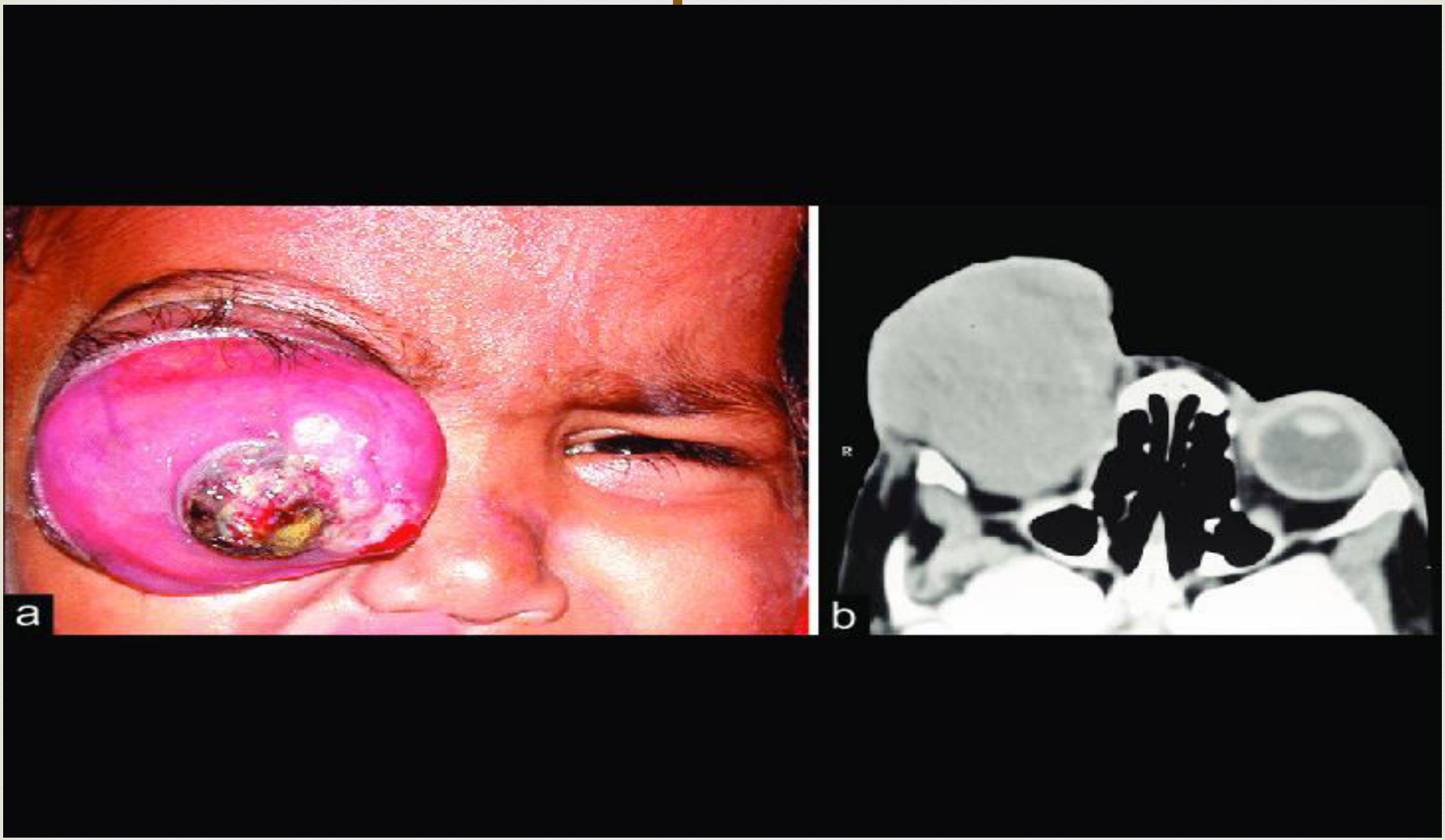
Grades of RB

- Grades A: Small tumors (no more than 3 millimeters [mm] across) that are only in the retina and are not near important structures such as the optic disc (where the optic nerve enters the retina) or the foveola (the center of vision).
- Grade B: All other tumors (either larger than 3 mm or close to the optic disc or foveola) that are still only in the retina.

CONT

- Grade C: Well-defined tumors with small amounts of spread under the retina (subretinal seeding) or into the jelly-like material that fills the eye (vitreous seeding).
- Grade D:Large or poorly defined tumors with widespread vitreous or subretinal seeding. The retina may have become detached from the back of the eye.

Proptosis



Clinical Manifestation

- Clinical presentation depend upon the stage of disease
- Translucent white fluffy retinal mass
- Strabismus if tumor involves macula which reduceed the VA

Clinical Manifestations

- **Endophytic:** grows in to vitreous cavity . Mass fullfil the vetreous cavity and seeds.
- **Exophytic:** tumor toward retina and detached the Retina (RD)
- **Diffuse Infiltrating Tumor:** diffusely involve retina Placoid thickness of retina.

Retinal Detachment

Differential diagnose

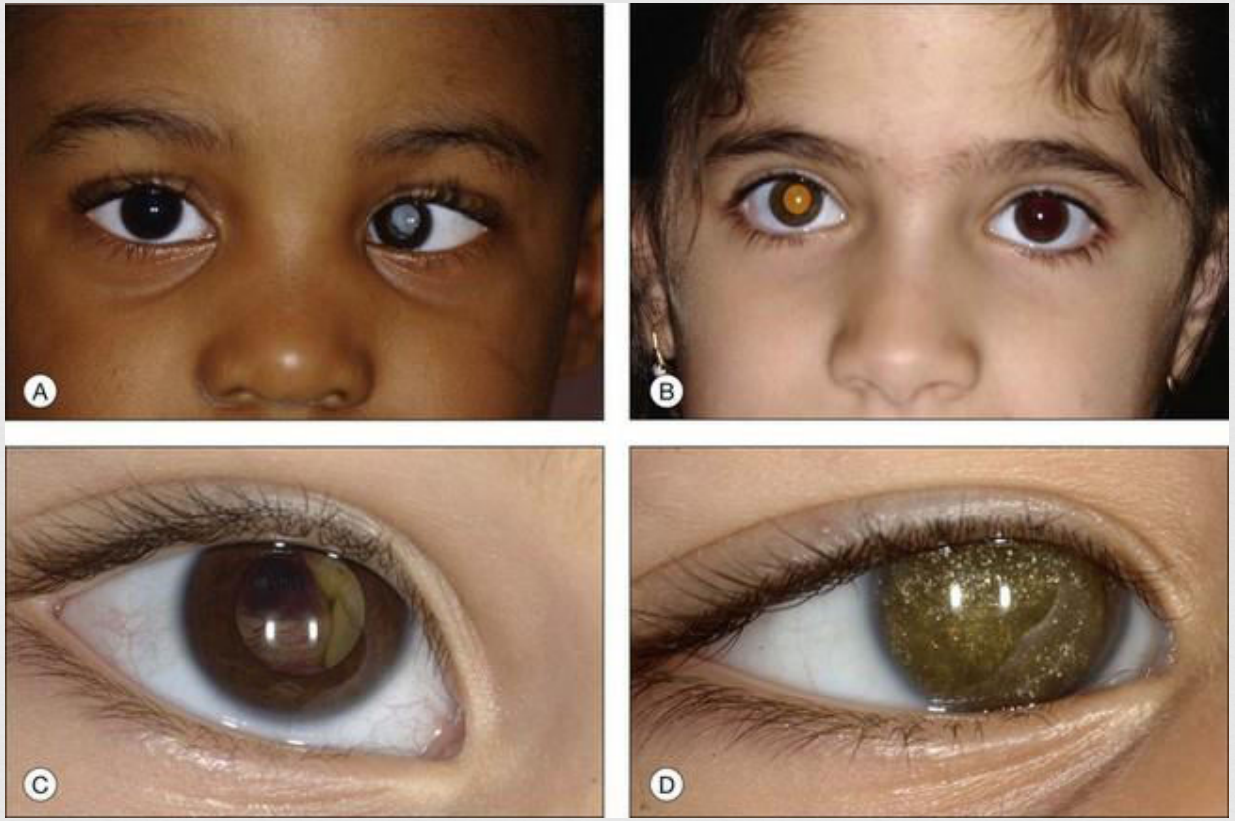
- Congenital cataract
- PHPV (persistent hyperplastic primary vitreous)
- Coloboma (uveal tract coloboma)
- Coats disease
- ROP(Retina of prematurity)

Congenital Cataract

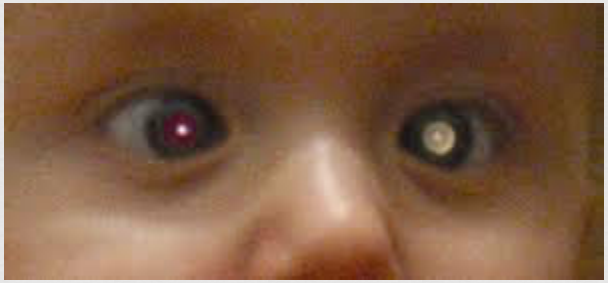
PHPV

Coloboma

Coats Disease



ROP



Treatment

- External beam radiation therapy
- Cryotherapy
- Thermotherapy
- Chemotherapy
- Intravitreal chemotherapy
- Surgery such as

I. Enucleation
II. Exantration

External beam therapy radiation

- External beam radiation therapy comes from a machine that aims radiation at your cancer. It is a local treatment, which means it treats a specific part of your body.
- As our eyes treatment and other parts.
- Types
  - Photon
  - Protons
  - Electrons

Photons

- Most radiation therapy machines use photon beams. Photons are also used in x-rays, but x-rays use lower doses. Photon beams can reach tumors deep in the body. As they travel through the body, photon beams scatter little bits of radiation along their path. These beams do not stop once they reach the tumor but go into normal tissue past it.

Protons

- Protons are particles with a positive charge. Like photon beams, proton beams can also reach tumors deep in the body. However, proton beams do not scatter radiation on their path through the body and they stop once they reach the tumor. Doctors think that proton beams might reduce the amount of normal tissue that is exposed to radiation. Clinical trials are underway to compare radiation therapy using proton beams with that using photons beams. Some cancer centers are using proton beams in radiation therapy, but the high cost and size of the machines are limiting their use.

Electrons

- Electrons are particles with a negative charge. Electron beams cannot travel very far through body tissues. Therefore, their use is limited to tumors on the skin or near the surface of the body.

Side effects of (EBRT)

- Fatigue
- Hairs loss
- Memory problems
- Nausea and vomiting
- Skin rashes
- Headache
- Blurred vision (if this is to other parts of the body)

Cryotherapy

- Cryotherapy is the use of extreme cold to freeze and remove abnormal tissue. Doctors use it to treat many skin conditions (including warts and skin tags) and some cancers, including prostate, cervical and liver cancer. This treatment is also called cryoablation.

Side effects CT

- Bleeding
- Bone marrow effect
- Nerve damage
- Swelling

Thermotherapy

- Thermotherapy (heat therapy) is a procedure that involves the application of superficial heat to injured or damaged body parts. The heat alters tissue temperatures in targeted regions. These temperature increases make the tissues more extensible. Patients report experiencing pain relief and faster healing.
- Side effect.
  - Skin rash or skin burn

Chemotherapy

- Chemotherapy is a cancer treatment where medicine is used to kill cancer cells. There are many different types of chemotherapy medicine, but they all work in a similar way. They stop cancer cells reproducing, which prevents them from growing and spreading in the body.

Chemotherapy medicine

- Abraxane (chemical name: albumin-bound or nab-paclitaxel)
- Adriamycin (chemical name: doxorubicin)
- carboplatin (brand name: Paraplatin)
- Cytoxan (chemical name: cyclophosphamide)
- daunorubicin (brand names: Cerubidine, DaunoXome)
- Doxil (chemical name: doxorubicin)

Side effects of Chemotherapy

- Fatigue
- Nausea and vomiting
- Infection (weakness of autoimmune system)
- Anemia
- Diarrhea

Intra vitreal chemotherapy

- Treatment in which anticancer drugs are injected directly into the vitreous humor (gel-like fluid inside the eye). Intravitreal chemotherapy is used to treat retinoblastoma that has spread to the vitreous humor and has come back or has not gotten better after other treatment.

Intra arterial chemotherapy

- Intra-arterial (IA) chemotherapy for the treatment of intraocular retinoblastoma, also referred to as superselective intra-arterial chemotherapy and chemosurgery.
- **NOTE**: It is not given to the patient of RB whether his or her extra ocular muscle involves.

Side effects of intra arterial chemotherapy

- Swelling of the optic nerve
- RD
- Bleeding
- Irreversible loss vision

Surgical Management

- **Enucleation**:Enucleation is the removal of the eye from the orbit and involves the separation of all tissue connections between the globe and the orbit. This is one of the oldest operations within the field of ophthalmology and is one of the most challenging therapeutic decisions to make.

Enucleation

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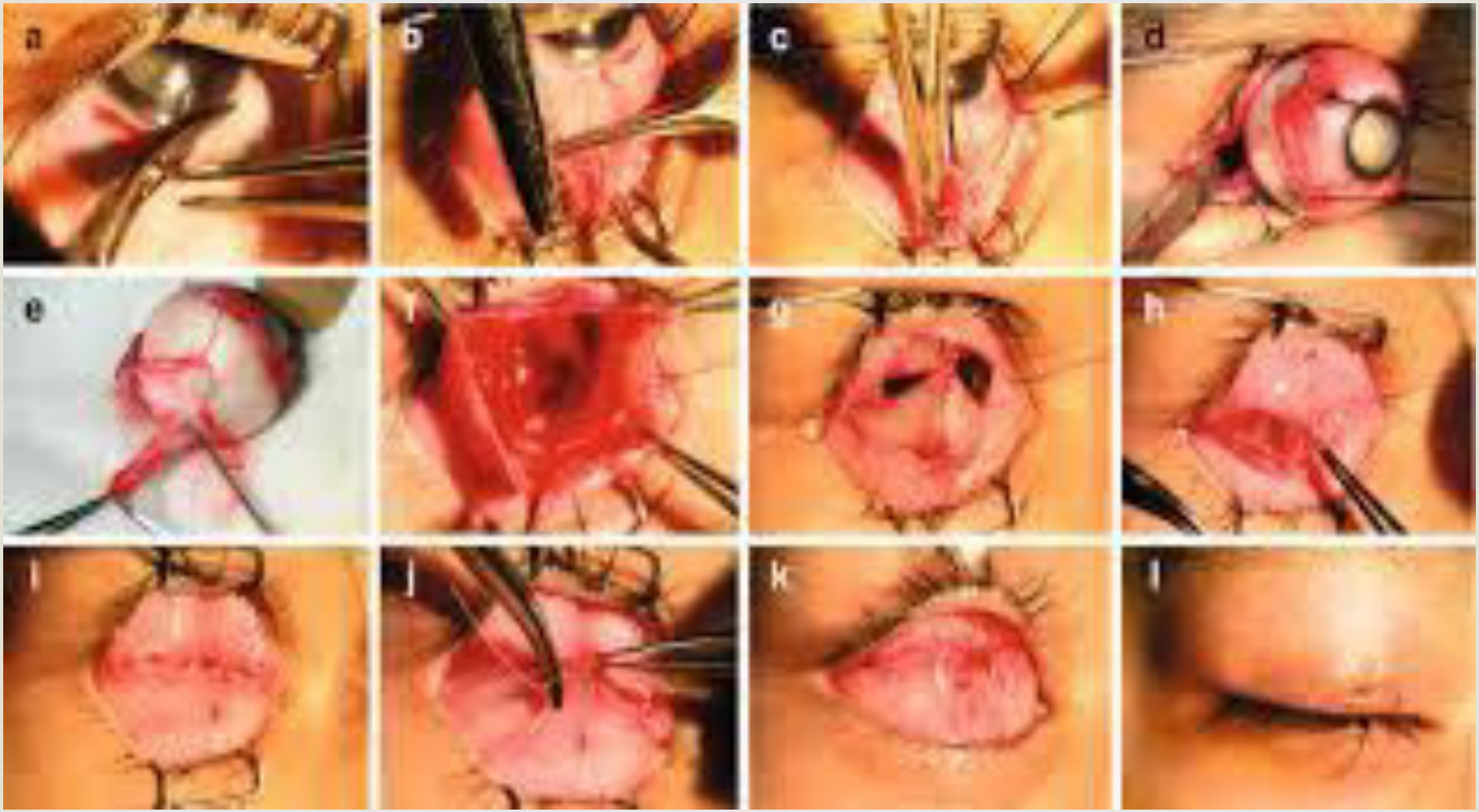
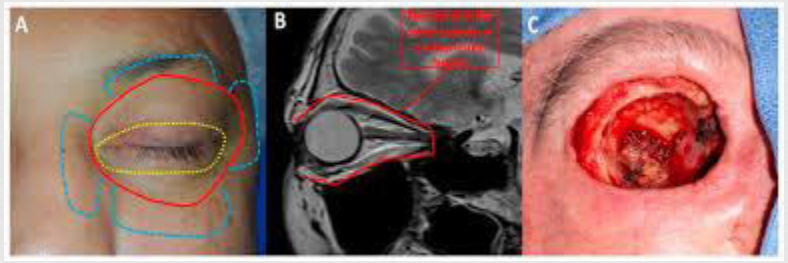


Enucleation eye

Exantration

- **Exantraion :** Orbital exenteration is defined as removal of the entire contents of the bony orbit, including the globe, extraocular muscles and periorbital fat, and many times includes the eyelids, in contrast to enucleation, which involves only removal of the globe.

Exantration of eye



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