PROTOCOL FOR THE MANAGEMENT OF HYPHEMA
ICD10: H21.0

DEFINITION
Hyphema is a sight threatening emergency. It is defined as the presence of blood within the aqueous fluid of the anterior chamber of the eye. The most common cause of hyphema is trauma (blunt or penetrating).

EPIDEMIOLOLGY
As of 2012, the rate of hyphemas in the United States are about 20 cases per 100,000 people annually.

CAUSES
1. Trauma
2. Eye surgery
3. Spontaneous
    a. Systemic disease - consider haematological disorders, Hypertension, Diabetes, Leukemia, use of substances that alter platelet of thrombin function (aspirin, Warfarin)
    b. No Systemic disease
        i. No Ocular disease
        ii. Ocular disease - consider Rubeosis iris, iris tumor, Keratouveitis, juvenile Xantogranuloma, myotonic dystrophy, metastatic tumors, retinopathy of prematurity, retinoblastoma

PROGNOSIS
Hyphemas require urgent assessment by an ophthalmologist as they may result in permanent visual impairment.

CLINICAL FEATURES AND EXAMINATION
A detailed history as well as a thorough ocular and systemic evaluation is very important.

The following clinical grading system is commonly used in the assessment of traumatic hyphemas:
Grade 1 - Layered blood occupying less than one-third of the anterior chamber.
Grade 2 - Blood filling one-third to one-half of the anterior chamber.
Grade 3 - Layered blood filling one-half to less than total of the anterior chamber.
Grade 4 - Total clotted blood, often referred to as “eight- ball” or “black” hyphema.

An anterior segment examination, an assessment of visual acuity, pupillary reactions, IOP, and extraocular movements must be made.

A fundus examination should be performed at the earliest possible opportunity to rule out concomitant posterior segment trauma.

Radiological investigations (X-ray or computed tomography scans) are required in cases of suspected intra-ocular foreign body, blowout fracture of the orbit, or head injury. Ultrasound biomicroscopy can identify suspected anterior segment injury not clearly visible on clinical examination. Ultrasound biomicroscopy is a proven ancillary tool useful for ruling out angle recession, iridodialysis or cyclodialysis cleft, and occult foreign body in the anterior chamber.

Procedure codes: 0190, 3009, 3014, 3003/ 3004,

TREATMENT
The main goals of treatment are to decrease the risk of re-bleeding within the eye, corneal blood staining, and atrophy of the optic nerve.
Small hyphemas can usually be treated on an outpatient basis. Most treatment plans consist of elevating the head at night, wearing a patch and shield, and controlling any increase in intra-ocular pressure.

Bedrest and hospitalisation may be advised for patients with severe hyphema, sickle-cell trait/disease, non-compliant patients, children, and patients with bleeding predisposition.

Medical management
1. Mydriatics and Cycloplegics
2. Anti-fibrinolytic agents - Aminocaproic or tranexamic acids
3. Corticosteroids
4. Anti-glaucoma treatment

Surgical management
Patients with total (eight-ball)hyphemas require emergency surgical intervention.
Clinical indications for surgical evacuation are persistently elevated IOP, corneal blood staining, and high-grade or non resolving hyphema.

Clinical indications for surgical intervention
. 1 Microscopic corneal blood staining

. 2 In sickle-cell trait or sickle-cell disease, hyphemas of any size and IOP >24 mm Hg for more than 24 hours

. 3 Hyphema >1/2 of the anterior chamber for >8 days (to prevent peripheral anterior synechiae)

. 4 Total hyphema with elevated IOP (to prevent optic atrophy)

. 5 Total hyphema or >3/4 of anterior chamber volume present for 6 days with IOP of >25 mm Hg (to prevent corneal blood staining)

Surgical interventions
1. Anterior chamber washout and clot removal - Procedure codes 3065
2. Trabeculectomy and iridectomy -elevated IOP - Procedure codes 3061 and 3049

Screening for sickle-cell disease or trait in patients of African and Asian decent

COMPLICATIONS
1. Increased intra-cular pressure (30%) -
2. Re-bleeding (secondary haemorrhage) -
3. Corneal blood staining (2% - 11%) -
4. Optic atrophy

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