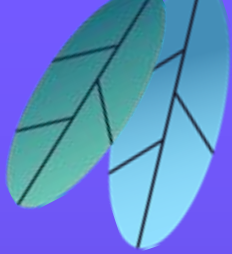


OPHTHALMIC INSTRUMENTS

RIMA MOHAMMED
ROLL NO. 77





LID SPECULUM

- 1. Universal metallic eye speculum
 - 2. Eye speculum with guard or with solid blades
 - 3. Wire speculum
- 

1. UNIVERSAL METALLIC EYE SPECULUM

- It is called universal eye speculum because it can be used for both eyes.
- It has two limbs and a spring mechanism with a screw to adjust the limbs
- Open blade



2. EYE SPECULUM WITH GUARD OR WITH SOLID BLADES

- It retracts the lids and its solid blades keep the lashes away from the field of operation.

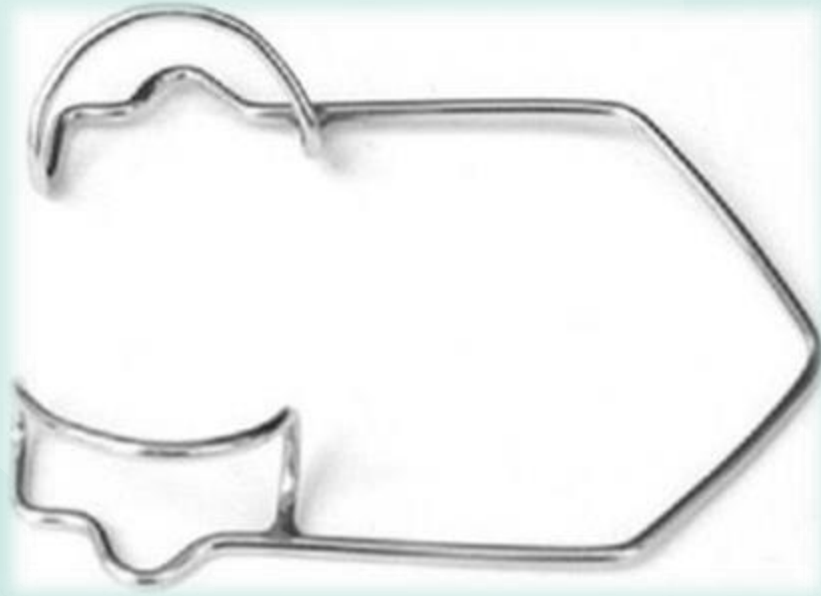


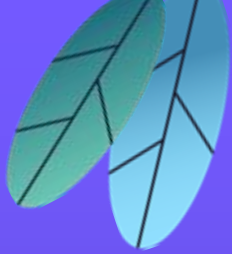
3. WIRE SPECULUM

- Very light
- cause minimal pressure on eyeball

USES OF SPECULUM

- Intraocular operations such as cataract surgery, glaucoma surgery and keratoplasty.
- Extraocular surgery, e.g. squint surgery, pterygium surgery
- Enucleation and evisceration operation.
- Removal of conjunctival and corneal foreign bodies
- Cauterization of corneal ulcer.
- Examination of the eye in a patient with blepharospasm





FORCEPS

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1. Plain forceps
 2. Globe fixation forceps
 3. Superior rectus holding forceps
 4. Corneo-scleral forceps
 5. Iris forceps
 6. Arruga's intracapsular forceps
 7. Epilation forceps
 8. Artery forceps
- 

1. PLAIN FORCEPS

- Simple forceps without any teeth.
- Serrations are present near the tip

Uses:

- To hold the conjunctiva during any surgical procedure.
- To tie sutures.
- To hold scleral flap in trabeculectomy.
- To hold skin during eyelid surgery.
- To hold nasal mucosal flaps and lacrimal sac flaps in DCR operation.



2. GLOBE FIXATION FORCEPS

- Has 2x3 or 3x4 teeth at the tip.
- It is applied near the limbus to hold the conjunctiva and episcleral tissue together.

Uses:

- To fix the eyeball during operations on the eyeball.
- To hold the eyeball during forced-duction test.



3. SUPERIOR RECTUS HOLDING FORCEPS

It is a toothed forceps (1 x 2 teeth) with S-shaped double curve near the tip.

Uses:

- It is used to hold the superior rectus muscle while passing a bridle suture under it
- To stabilize the eyeball during surgery



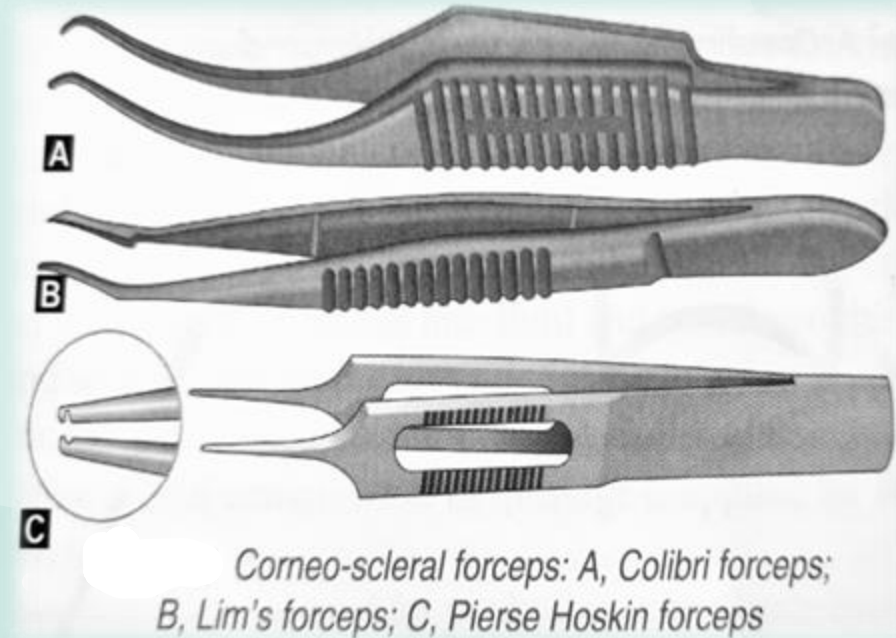
4. CORNEO-SCLERAL FORCEPS

Colibri forceps/Lim's forceps/Pierse Hoskin forceps

These are the forceps with very fine teeth (1 x 2) at the tip.

Use:

- To hold the cornea or scleral edge (of incision) for suturing during cataract, glaucoma, repair of corneal and/or scleral tears and keratoplasty operations.



5. IRIS FORCEPS

- Small and delicate forceps having fine 1 x 2 teeth on the inner side of the limbs.

Use:

- Used to catch iris for the purpose of iridectomy during operation for cataract, glaucoma, optical iridectomy and excision for iris prolapse, tumors & entangled foreign bodies.



6. ARRUGA'S INTRACAPSULAR (CAPSULE HOLDING) FORCEPS

It was used to hold the lens capsule (usually at 6 O'clock position) during capsule forceps method of lens delivery in intracapsular cataract extraction and to grasp and remove the capsular remnants after accidental extracapsular lens extraction.



7. EPILATION FORCEPS

Small stout forceps with blunt and flat ends.

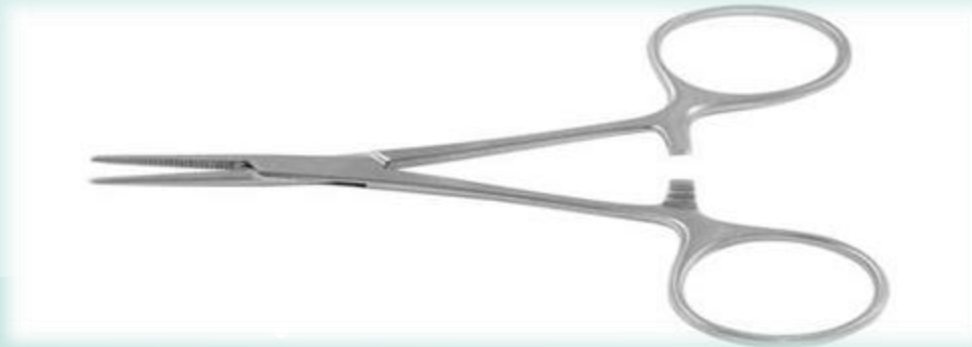
Uses:

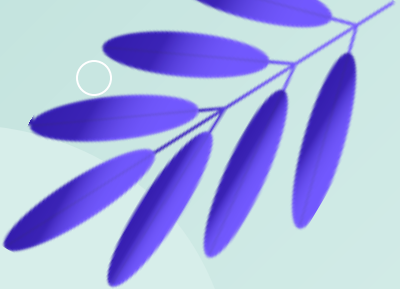
- used to epilate the cilia in trichiasis and styne
- to remove cilia after electrolysis and cryolysis
- to remove cilia lodged in the punctum



8. ARTERY (HEMOSTATIC) FORCEPS

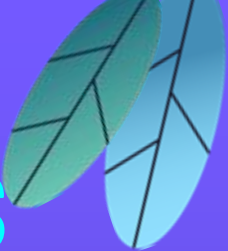
- Blunt tipped stout forceps having a scissor like configuration
- Has multiple straight grooves near the tip and locking mechanism near the ringed end
- Small sized artery forceps called mosquito artery forceps is commonly used in ophthalmology





Uses

- To catch the bleeding vessels during lid and lacrimal sac operations
 - To hold the skin and muscle stay sutures
 - To hold the small peanut gauze pellets for blunt dissection in lacrimal sac surgery and other extraocular surgery
 - To hold the gauze piece while packing the socket after enucleation or exenteration surgeries
- 



HOOKS AND RETRACTORS

1. Lens expressor(hook)
 2. Muscle (strabismus) hook
 3. Desmarre's retractor
 4. Cats paw lacrimal wound retractor
 5. Iris retractor
- 

1. LENS EXPRESSOR (HOOK)

It is a flat metal handle with a rounded curve at one end.

Tip of the curve is knobbed.

The plane of the handle is at right angle to the curvature of the hook.

Uses:

- To express the nucleus in extracapsular cataract extraction.
- Can be used as muscle hook
- Also used along with wire vectis to extract out the dislocated lens.
- In ICCE, it was used to apply pressure on the limbus at the 6 O'clock position during the delivery of lens.



2. MUSCLE (STRABISMUS) HOOK

Similar to lens expressor in appearance but has a blunt guarding knob at the end to prevent muscle slippage with a rounded curve at one end.

The plane of the handle is same as that of the curvature of the hook.

Uses:

- Used to engage the extraocular muscles during surgery for squint, enucleation and retinal detachment.
- In the absence of lens expressor, it can be used.



3. DESMARRE'S RETRACTOR

It is a saddle shaped instrument folded on itself at one end.
Available in 2 sizes: small-pediatric
large-adult

Uses:

- To retract the eyelids during the examination of eyeball in blepharospasm in children, in cases with marked swelling and ecchymosis, removal of corneoscleral structures, removal of foreign body and for double eversion of upper lid to examine fornix.



4. CAT'S PAW LACRIMAL WOUND RETRACTOR

It is a fork like instrument with the terminals bent inward.

Use:

- To retract the skin during lacrimal sac and lid surgery.



5. IRIS RETRACTOR

It consists of a handle with a curved blade at one end. Its edges and corners are rounded so as not to damage either the iris or the lens capsule.

Use:

- To retract the upper edge of pupil in cryo-extraction technique of ICCE
- To aspirate the lens matter from behind iris at 12 O'clock position in ECCE.





KNIVES AND KNIFE NEEDLES



- 1. Von Graefe's knife
 - 2. Keratomes
 - 3. 15° side port entry blade
 - 4. Cystotome or capsulotome
 - 5. MVR or V lance blade
 - 6. Razor blade fragment with blade holder
 - 7. Crescent knife
 - 8. Foreign body spud
 - 9. Tookes knife
 - 10. Paracentesis needle
 - 11. Extension keratome
 - 12. Wrights (needle) knife
 - 13. Bard parkers handle
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1. VON GRAEFE'S KNIFE

It is a long, narrow, thin and straight blade with a sharp tip and cutting edge on one side.

Uses:

- not in use now
- corneoscleral incision during cataract surgery and for iridectomy operation



2. KERATOME

- It has a thin diamond- shaped blade with a sharp apex and two cutting edges.
- Straight as well as curved keratomes are available in various sizes(2.8,3,3.5,5.5mm)
- Disposable curved keratomes are commonly used now.

Use:

- To make valvular corneal incisions for entry into the anterior chamber for all modern techniques of cataract extraction (phacoemulsification, SICS and even conventional ECCE and other intraocular surgeries like iridectomy and paracentesis)



3. 15° SIDE PORT ENTRY NEEDLE

Fine straight knife with a sharp pointed tip and cutting edge on one side.

Use

- It is used to make a small valvular clear corneal incision (commonly called as side port incision) in phacoemulsification and other intraocular surgeries



4. MVR OR V LANCE BLADE

It is a fine straight but triangular knife similar to 15° side port entry blade but with cutting edges on both sides.

Use:

- Its uses are similar to 15° side port entry blade.



5. CYSTOTOME OR CAPSULOTOME

- It is a small needle knife with a bent tip which is sharp on both the edges.
- Presently disposable cystotome is prepared by bending the disposable 26 or 30 gauge hypodermic needle

Use:

- Used for anterior capsulotomy or capsulorhexis during extracapsular cataract extraction.

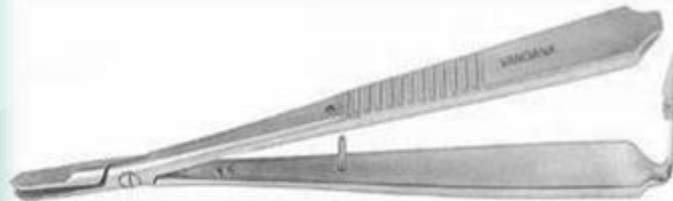


6. RAZOR BLADE FRAGMENT HOLDER

- Designed to hold the razor blade fragment firmly in its jaws and has a locking device.

Use:

- Most commonly used cutting device for making incisions in cataract, glaucoma, keratoplasty, sclerotomy, pterygium and many other operations.



NEEDLE HOLDERS

- 1. Spring action (Barraquers type) needle holder
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- 2. Castraviejo's needle holder
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- 3. Arruga's, Steven, Silcock's and kelt needle holder
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REFERENCE:
AK KHURANA - PRACTICAL OPHTHALMOLOGY

THANK YOU

