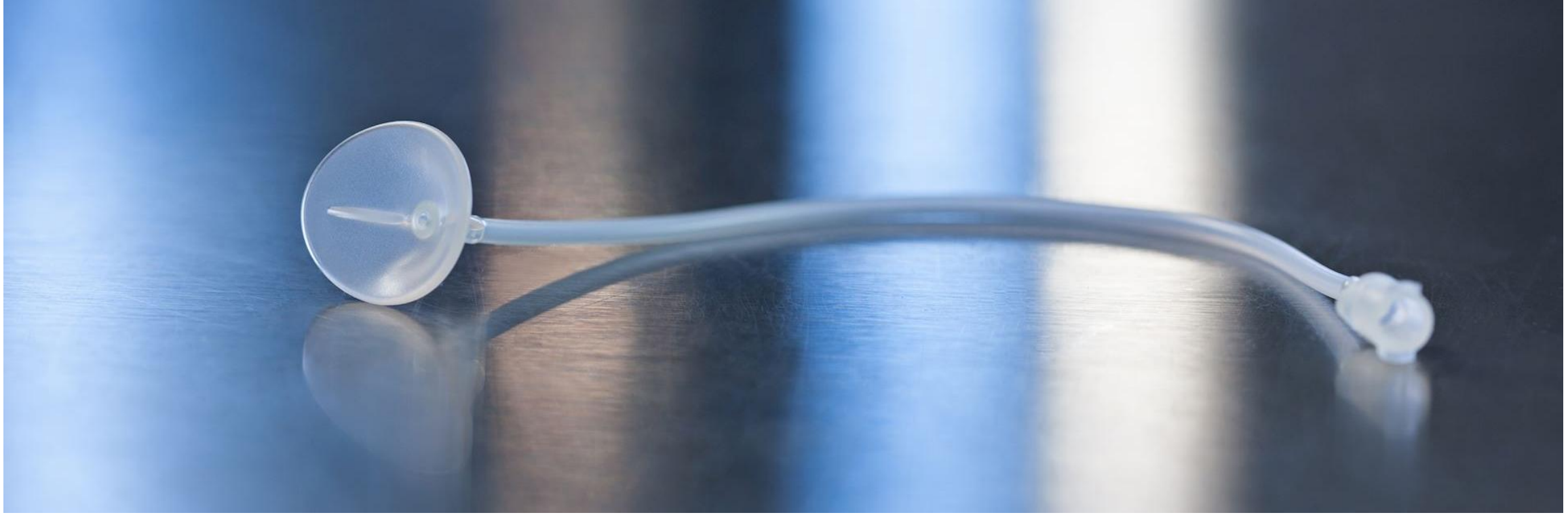


The Morgan Lens®

The World's Leading Method of Ocular Irrigation

The Morgan Lens®
MorTan Inc.

What is the Morgan Lens?

The Morgan Lens is a sterile single use medical device with a five-year expiration. It resembles the shape of a semi-hard contact lens connected to tubing. When in use, the tubing is attached the Morgan Lens Delivery Set or an administration set which is then connected to a bag of solution prior to insertion. The solution flows through the tubing through an opening in the lens to irrigate the eye.

Once inserted, it provides continuous eye irrigation without requiring constant attendance by medical personnel.

Developed by an ophthalmologist, to address the need for efficient and effective emergency eye irrigation to treat corneal ulcers, corneal perforations, severe ocular infections.

Do you have a Morgan Lens story?

- Have you heard of the Morgan Lens?
- Have you ever used the Morgan Lens?

The Morgan Lens is…

- Fast, effective, easy to use ocular irrigation
- Hands-Free so medical personnel can treat other injuries
- Used in over 90% of U.S. emergency departments

Uses of the Morgan Lens

- Alkali Burns
- Acid Burns
- Thermal and Actinic (UV-related) Burns
- Irritants (gasoline, detergents, etc.)
- Non-embedded Foreign Bodies
- Foreign Body Sensation (FBS) With No Visible Foreign Body
- Routine Pre-Operative
- Eyelid Surgery
- Severe Infection—controlled medication delivery

Ocular Chemical Burns

“Chemical burns to the eye are among the most urgent of ocular emergencies…

Copious irrigation is the most important emergency treatment of the chemically-burned eye…

The Morgan Lens eye irrigation has more of an influence on the outcome of the injury than any other therapeutic approach.”

- **Prompt**
- **Prolific**
- **Prolonged**

Alkali Burns (bases)

Most serious of all ocular burns

Penetrate rapidly, increasing pH of anterior chamber

Can cause severe damage to collagen, nerve endings, keratocytes, the iris and ciliary body

Loss of corneal epithelium leads to increased risk of infection

Common materials that contain alkali:

- **Lye (in drain cleaners)**
- **Lime (in plaster, cement)**
- **Ammonia (in fertilizers, cleaning agents)**
- **Motor vehicle airbags**
- **Fireworks**

Acid Burns

Immediately denature proteins

- ***Opacifies cornea, slows deep penetration***

Eye initially may look worse than alkali burn

although damage often is not as severe

Common Acids:

hydrofluoric*	**sulfuric**	**nitric**
hydrochloric	**sulfurous**	**acetic**

Most common sources:

Industrial accidents and automobile battery explosions

***Hydrofluoric Acid Burns-very serious**

HF penetrates quickly and acts like an alkali

Irritants

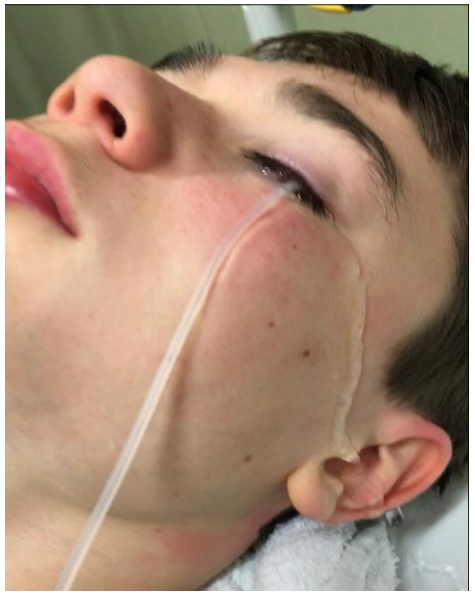
Irritants cause more discomfort than actual damage

Common Irritants:

- **Gasoline**
- **Tactical & Defense Sprays (“Pepper” Spray)**
- **Some Household Detergents**

Note: Liquid detergent capsules may form alkalis when dissolved in water

Irritants are substances with a neutral pH



Issues with Alternative Methods

The eyes must be manually held open, or the patient has to blink repeatedly for the fluid to reach the cornea.

Keeping the eyes open may be extremely painful.

Fluid will take the “path of least resistance” and simply flow off the surface rather than flushing the fornices.

Locating components and assembly may be required.

Retracted eyelids may have pockets that can trap chemicals.

Continual contact with burned skin around the eye may be necessary to keep the eye open.

Full-time attention is required for the irrigation process.

Materials Used for Irrigation with The Morgan Lens

Two Morgan Lenses

Note: **Pain in one eye may mask pain in other--irrigate both unless injury is known to be limited to one eye**

Morgan Lens Delivery Set®

Medi-Duct® to absorb outflow

Suitable Irrigation Solution—

- **lactated Ringer's (Hartmann's Solution) recommended**

pH Paper

Optional materials:

- **Topical ocular anesthetic if available**

Contraindications

- **PROTRUDING FOREIGN BODY**
- **PENETRATING EYE INJURY**
- **SUSPECTED OR ACTUAL RUPTURE OF THE GLOBE**

****DO NOT INSTILL TOPICAL ANESTHETIC AGENTS IF PATIENT ALLERGIES ARE KNOWN****

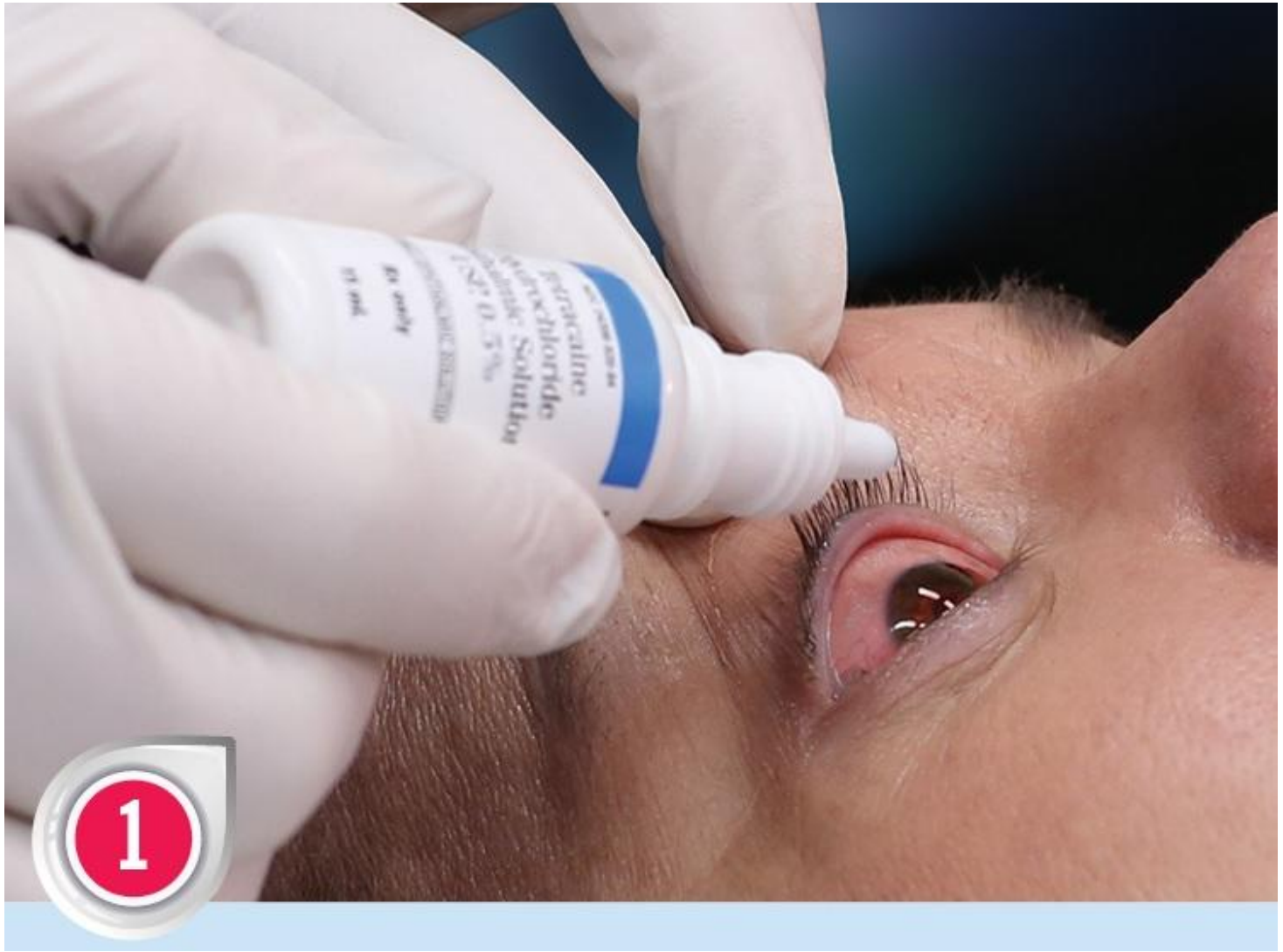
Morgan Lens Insertion

Step One:

- Instill topical ocular anesthetic (if available). Make sure to ask the patient if they are allergic to any medications before administering the anesthetic. The most commonly used are proparacaine, tetracaine or lidocaine.

Note:

- *Anesthetic is not required but may help relieve blepharospasms and pain*



***DO NOT DELAY IRRIGATION TO REMOVE CONTACT LENSES unless it can be done rapidly. Instead, irrigate over lenses as they may be easier to remove later.**

Morgan Lens Insertion

Step Two:

- Peel open the sterile packaging and attach the Morgan Lens to the Morgan Lens Delivery Set
- Two lenses may be attached to one Delivery Set to simultaneously irrigate both eyes

Note:

- Standard administration sets or a 20cc syringe may also be used

Morgan Lens Insertion

Step Three:

- Using solution and rate of choice,
- START A MINIMAL FLOW

Note:

- This allows the lens to “float” over the cornea and sclera

****Continue the flow of solution until <u>after</u> the lens is removed****

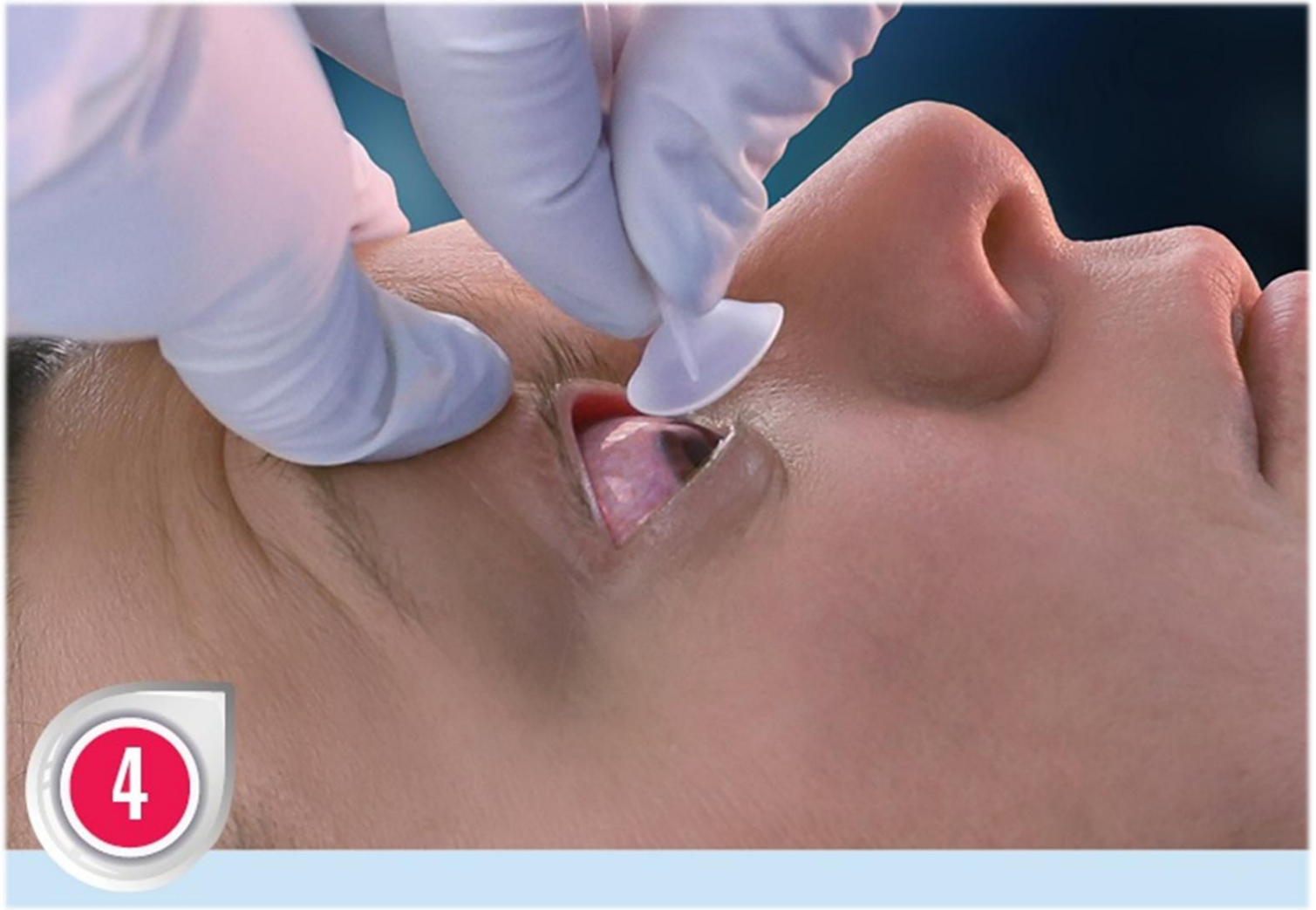
Morgan Lens Insertion

Step Four:

- Have patient look down, insert the Morgan Lens under upper lid.
- Have patient look up, retract lower lid and drop the Lens in place.
- Release lower lid over lens.

Note:

- The sclera is exposed when patient looks down.



Morgan Lens Insertion

Step Five:

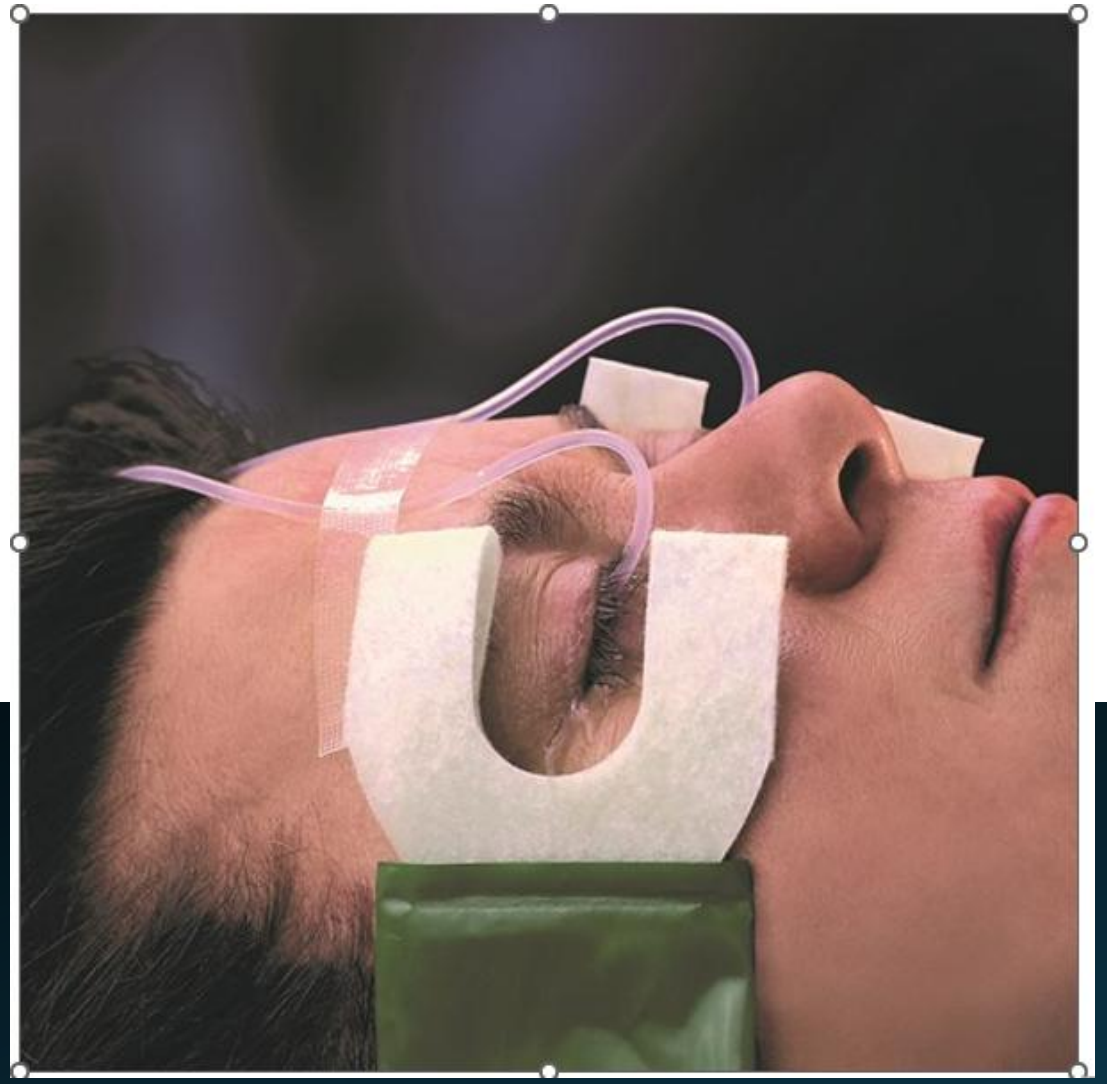
- Adjust the flow to the desired rate and absorb the outflow with the Medi-Duct
- Secure the Medi-Duct by adhering it to the side of the face next to the irrigated eye
- Continue irrigation until pH of eye returns to normal

Note:

- Tape the Morgan Lens tubing to patient's forehead to prevent accidental removal.

****DO NOT LET SOLUTION RUN DRY****

All Three Products In Use



In use on patient: Two Morgan Lenses, two Medi-Ducts, and one Morgan Lens Delivery Set.

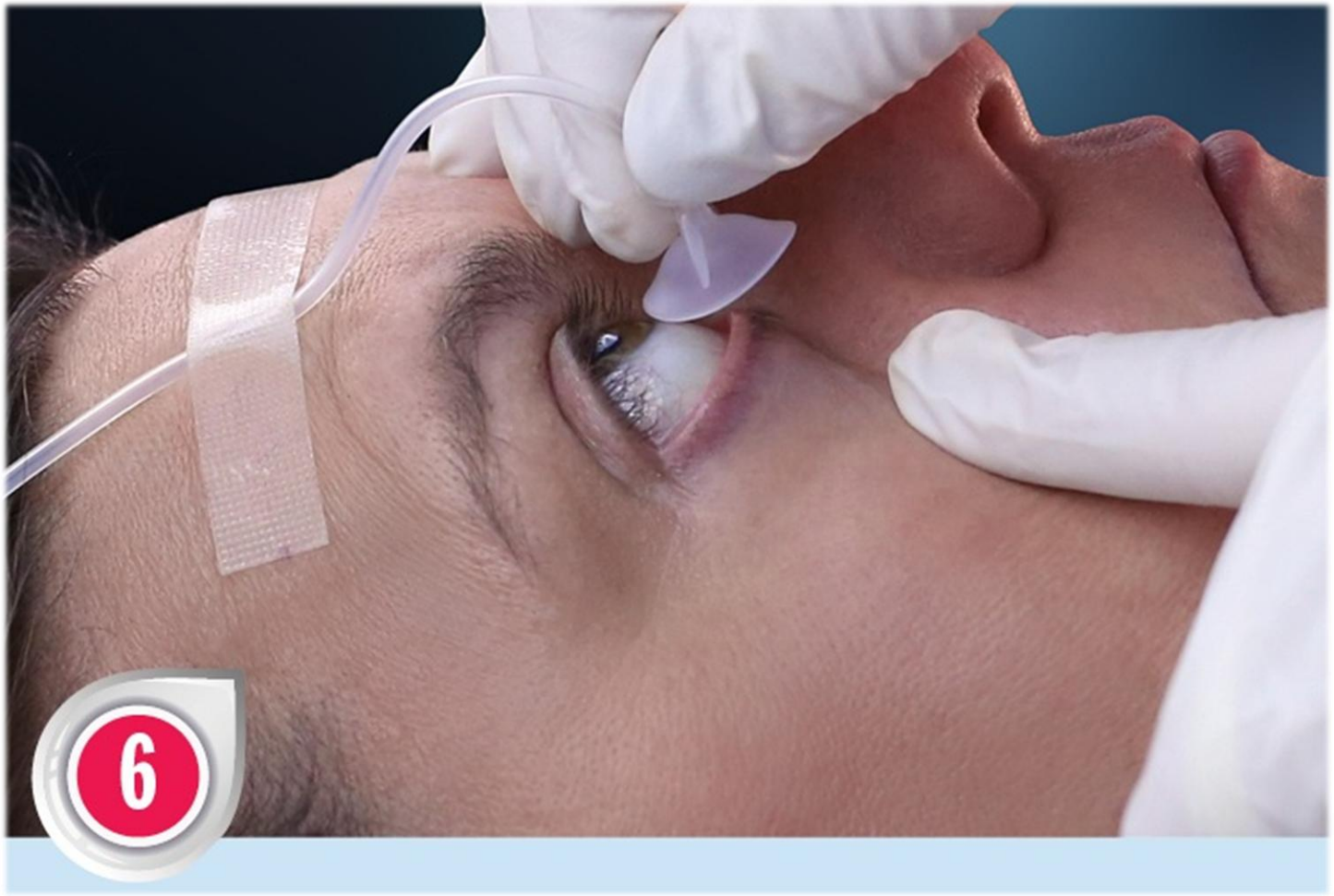
Morgan Lens Removal

Step Six:

- CONTINUE FLOW
- Have patient look up and Retract and hold lower lid
- Slide Morgan Lens out
- TERMINATE FLOW OF SOLUTION
- Place the Morgan Lens in a clean location (such as the opened package)

Note:

- After removal, check ocular pH every 5 to 10 minutes to ensure stability
- Remove the Medi-Duct once you are sure irrigation is complete



Recap: Six Steps of Insertion and Removal

1

INSERTION
Instill topical ocular anesthetic, **if available.**

2

Peel open the sterile packaging and attach the Morgan Lens® to the Morgan Lens Delivery Set® (or a fluid administration set or syringe).

3

Using solution of choice*, **START A MINIMAL FLOW.** This allows Lens to "float" over cornea and sclera.

4

Have patient look down, insert Morgan Lens under upper lid.
Have patient look up, retract lower lid, drop Lens in place

5

Adjust flow to the desired rate and absorb outflow with the Medi-Duct®. Tape tubing to the patient's forehead to prevent accidental removal of the Lens.
DO NOT RUN DRY.

6

REMOVAL – CONTINUE FLOW.
Have patient look up, retract lower lid — hold position and slide the Lens out. Once Lens is removed, **stop the flow of solution.**

Experts recommend continuous irrigation until the pH returns to normal – approximately 7.0-7.3. After 10 minutes, recheck pH and repeat process if necessary. When irrigation is complete, dispose of Lens properly.

Contraindications: Do not use if there is a protruding foreign body, a penetrating eye injury, or with a suspected or actual rupture of the globe.

Precautions:

- Rx Only – Federal (USA) law restricts this device to sale by or on the order of a physician.
- Device should only be used by professionals trained in ocular irrigation procedures.
- Contents supplied sterile using irradiation. Do not use if package is opened or damaged.
- Single use only. Do not re-use or re-sterilize. Reuse of the device could result in bacterial or viral infection. It could also result in deterioration or damage to the device.
- Dispose after use as biohazard per applicable law and standard medical practice

Notice: Any serious incident that has occurred in relation to the device should be reported to the manufacturer and the regulatory authority

Irrigation Times

For Irritants, solvents, non-embedded foreign bodies:

- 20 to 30 minutes minimum using 1 liter of solution

For Acids and Alkalis:

- Irrigate with at least 2 liters of fluid per eye
- Check pH of medial canthus
- If neutral, remove the Lens, wait 5-10 minutes
- Measure pH of medial canthus
- Repeat irrigation until pH remains between 6.5 and 7.6

For very strong acids or alkalis, continue irrigation for 2 hours after reaching surface pH of 7.0-7.3 to ensure neutralization of the anterior chamber

Questions for Patients

Do NOT delay irrigation to take patient history

- When did injury occur?
- What substance was involved?
- Is the patient on any medication?
- Was the patient wearing safety glasses when injury occurred?
- Are there any other injuries?
- Did patient receive any prior treatment?

Lactated Ringer's vs. Normal Saline

MorTan, recommends the use of lactated Ringer's (Hartmann's Solution) because it the pH is closer to that of the tears

pH of tears: approximately 6.5 to 7.6

pH of lactated Ringer's: 6.0 to 7.5

pH of Normal Saline: 4.5 to 7.0

Buffering capacity

lactated Ringer's solution returns pH to neutral more quickly with either acidic or basic contaminants*

Increased patient tolerance

Normal Saline may cause discomfort and/or morphological changes to the eye*

***from independent studies**

Suggestions for the "Difficult Patient"

- Reassure the patient: insertion will quickly relieve pain.
  - ***Seconds count!***
- The irrigating solution provides cooling and soothing sensation
- Any delay will cause further damage
- The injured cornea is protected from "squeegee" action of eyelids each time the patient blinks
- Remind them their eyes may be closed during procedure, usually this is more comfortable for them
- Chemicals may generate heat when mixed with water- irrigation will cool the eye
- A topical anesthetic may help relieve anxiety. Additional anesthetic may be instilled without removing lens. Pinch tubing and instill drop into medial canthus
- *Remember:* The Morgan Lens does not touch the cornea, it is designed to vault the cornea

Morgan Lens Products

Morgan Lens

Medi-Duct

Delivery Set

Morgan Lens Convenience Kit

Helpful Tips

Best positions for the patient to be during eye irrigation with the Morgan Lens are reclined or supine.

Make sure the solution is flowing BEFORE inserting and do not stop flow of solution until AFTER removal.

When using the Medi-Duct, adhere it as close to the corner of the eye as you can. Let the wicking material get a little damp with solution by holding your fingers on it. This will help it wick the solution away better.

Don’t turn off the solution when checking the pH, just pinch the tubing to temporarily stop the flow.

Turn the lens vertical to insert it for a younger child. Once under the upper lid, turn it horizontal.

On a chemical burn, you want it flowing as much as possible, but some patients cannot handle that, so slow it down if the patient is uncomfortable.

Irrigate BOTH eyes.

Some patients like warm solution.

Eye irrigation can lower people’s blood pressure so monitor their blood pressure

Summary

Ocular irrigation should be immediate and continued until pH of the eye returns to normal *(alkali burns may require hours of continuous irrigation; severe infections may require irrigation for hours or even days)*

Used in 90% of emergency departments in the US. Also used in urgent cares, EMS, military, correctional facilities, and industrial medical sites.

The most thorough efficient and effective way to irrigate the eye.

Education and Location:

- **Do you know where the Morgan Lens is stored for use in your facility?**
- **Do you have the Morgan Lens training tool?**
- **Have you watched the Instructional video on Morgan Lens website? www.morganlens.com**
- **Complete Training Materials Page under the Resources Tab on Morgan Lens website.**

***See MORGAN LENS USES CHART available on the Morgan Lens training page on the website.**

***Be sure your facility has a Morgan Lens training tool that your staff can use for training.**

The Morgan Lens

MorTan Inc.

The World's Leader in Ocular Irrigation

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