

KEEPING AN EYE ON INFECTIONS

In Cataract And Other Eye Surgeries in Diabetics

People with diabetes are at a higher risk of getting eye infections than non-diabetics, especially after surgery. Dr Clarissa Nah, Medical Officer, and Dr Yeo Kim Teck, Senior Consultant Ophthalmologist, Apple Eye Centre, say it is time to let the bug stop here and show you how to reduce your risk of developing infections.

What types of eye infections are common in the diabetic population?

Common conditions that may occur in diabetics are:

- Blepharitis (infection of the eyelashes)
- Conjunctivitis ("red eye")
- Corneal infections (ie. Keratitis which can come from bacteria, fungi or viruses such as Herpes Simplex virus).
- Infections can also occur in and around the lids and the orbit, e.g. orbital cellulitis which affects the tissues around the eye resulting in a red, swollen and "protruding" eye.

Rare fungal infections of the orbit (e.g. mucormycosis) are more common in diabetics. There is a link between endogenous Klebsiella endophthalmitis (a blood-borne infection resulting from the spread of the Klebsiella bacteria from a liver abscess) and diabetes. (1)

I have diabetes. Would I be more prone to developing infections?

In general, hyperglycaemia (high blood sugar) is linked to an increased risk of infections. Infections occur with greater frequency and severity in various organs (e.g. skin, eye, bladder) in comparison with non-diabetic individuals.

Diabetes results in a prolonged and poorer quality of wound healing. Therefore, diabetics are also at a higher risk of infection following operations. In a normal patient undergoing cataract surgery, the risk of infection after surgery is one in 1,000 operations. This rate is slightly higher in diabetics. The generally low risk of eye infections would however need to be balanced against the benefits and practicality of delaying the surgery.

How can I reduce my risk of developing infections with diabetes?

Follow your prescribed diabetes management plan, that is, medications, insulin or diet. Keep your blood sugar levels within the prescribed range. Aim for a HbA1c level within your specific target range. If you are unsure, consult with the doctor managing your diabetes (e.g. endocrinologist or GP) to find out your prescribed blood sugar level range and your ideal HbA1c, as these may vary slightly among individuals. (HbA1c is a blood test carried out by your doctor. It reflects the average blood sugar level over the past three to four months. It is more accurate than the random fingerprick blood sugar reading, which can fluctuate.)

Specific tips for preventing eye infections are:

- Wash your hands before applying the eye drops.
- While applying the drops, be careful to ensure that the tip of the dropper do not touch the eyelashes.
- Keep your eyelashes clean before surgery. You can wash the eyelashes with a mild baby shampoo. You should also have a hair wash the day before your eye surgery.
- If you have a sty (infection of an eyelash follicle) or chalazion (meibomian cyst), you will need to consult with your doctor for advice on treatment (especially if you are due for eye surgery).
- If you have any leg ulcers or wounds which require dressings, ensure that you first apply your eye medications prior to attending to these wound dressings. This is to avoid contaminating the eye. If there is any difficulty in performing the dressings yourself, go to the polyclinic to have your leg dressings performed there.

How can I reduce my risk of developing infection if I wear contact lenses?

Be careful to adhere to hygiene practices for contact lens use.

- Wash and dry your hands before handling lenses
- Always follow the replacement contact lens schedule as recommended
- Carefully and regularly clean contact lenses thoroughly, and soak in sufficient solution to completely cover the lens
- Store lenses in the proper lens storage case (which should be cleaned and dried thoroughly regularly). Use fresh solution for cleaning and storage
- Remove your contact lenses prior to swimming

What common eye conditions should one look out for and treat before proceeding with cataract surgery?

Take note of signs that indicate a possible early eye infection. If they worsen, you should seek treatment from your general practitioner (GP) or polyclinic. Signs may be redness, pain, pus or discharge from the eye or surrounding area.

Some eye infections must be fully treated and eradicated before one is eligible to proceed with cataract surgery. These include:

- a. Eyelash infection (Blepharitis)
- b. Lid gland infection (Meibomitis)
- c. Eyelash follicle infection (Stye)
- d. Tear sac infection (Dacrocystitis)
- e. Certain eyelid abnormalities e.g. entropion or an "inturned" lid may require correction prior to surgery

What complications can occur after eye surgery?

(1) Endophthalmitis. This is an infection inside the eye which can occur after cataract surgery. This is however an uncommon occurrence and occurs in about one of 1,000 cases. Common symptoms may include pain, excessive redness and loss of vision. Infection is usually more common in the first week following an internal eye procedure such as a cataract operation. In the rare event that you have such symptoms following surgery, you should seek immediate medical attention. Treatment involves the injection of antibiotics into the eye (intravitreal antibiotics). Very often, an additional operation (vitrectomy) is needed to treat the infection. The prognosis depends on the type of infections, early detection as well as prompt and appropriate treatment.

(2) Corneal ulcer: This is the result of an infection in the clear transparent layer of the (cornea) of the eye. This is associated with contact lens wear, the use of steroid eye drops or following eye operations. Symptoms may include a red, teary eye, pain, excessive glare and sensitivity to light, and possibly blurred vision.

What preventive measures are used to reduce the risk of infection before, during and after eye surgery?

After eye surgery, strict hygiene and care of the operated eye is important. Check with your eye clinic the precautions and post-operation care and the duration of care needed. Practical considerations include to avoid splashing water into the eye or

swimming immediately after your eye operation. You may want to put on a pair of swimming goggles during showering and use sterile saline and sterile gauze to clean around the eye. Administer the antibiotic eyedrops according to the regime prescribed by your eye surgeon.

For all patients, before eye surgery, the area surrounding the eye is cleaned with sterilising iodine solution to reduce the amount of surface bacteria. The eyelashes are taped out of the way and the face is covered with sterile drapes. All equipment and materials involved used during the operation are sterilized to avoid a post-operation infection.

References:

1. Han SH (1995). Review of hepatic abscess from *Klebsiella pneumoniae*. An association with diabetes mellitus and septic endophthalmitis. *West J Med.* 1995 Mar;162(3):220-4

General References:

1. Ou JI, Ta CN (2005). *Endophthalmitis Prophylaxis.* *Ophthalmology Clinics of North America.* 4 Dec 2005, Vol 19 Issue 4.

2. ESCRS Endophthalmitis Study Group (June 2007). *Prophylaxis of postoperative endophthalmitis following cataract surgery: Results of the ESCRS multicentre study and identification of risk factors.* *Journal of Cataract and Refractive Surgery,* (Vol 33, Issue 6, 978-988)

3. Weintrob A, Sexton D. *Susceptibility to infections in persons with diabetes mellitus.* In: *UpToDate,* Weller PF (Ed). Retrieved 25 May 2009



© Dmitry Shironosov