

# Videos That Educate

BY WILLIAM B. TRATTLER, MD

One of the missions of Eyetube.net is to collect a variety of educational content that can truly make a difference in the way surgeons practice ophthalmology. A survey of this month's new and exciting offerings reveals that the mission continues on track.

## LESSONS IN CATARACT SURGERY

Cataract surgeons should appreciate a thought-provoking video submitted by Robert H. Osher, MD, who discussed many of the advances that have occurred in cataract surgery techniques over the course of his career. In this video, he explains how some of the techniques that surgeons routinely perform were once considered controversial (Figure 1) (<http://eyetube.net/v.asp?nageen>).

## LESSONS IN REFRACTIVE SURGERY

A new channel has been launched on Eyetube.net called the Refractive Experts Portal. It includes presentations from the Refractive Forum symposia at the 2009 AAO Annual Meeting and video content focused on refractive laser surgery. This channel is a great place for refractive surgeons at

"[The Refractive Experts Portal] is a great place for refractive surgeons at all levels of their careers to watch cutting-edge techniques along with lively lectures and debates."

all levels of their careers to watch cutting-edge techniques along with lively lectures and debates (<http://eyetube.net/refractiveexperts/video.asp?v=pepemi>).

## LESSONS IN CORNEAL SURGERY

An exciting new procedure is Descemet's stripping automated endothelial keratoplasty (DSAEK). One of its biggest challenges seems to be the development of an atraumatic method of inserting the donor button. Eyetube.net has a number of DSAEK videos, and a recent submission from Donald Tan, MD, is worthy of attention. Dr. Tan shares his DSAEK technique using the Tan EndoGlide (Network Medical Products Ltd., North



Figure 1. The surgeon performs two corneal relaxing incisions during cataract surgery at a time when the procedure was controversial.

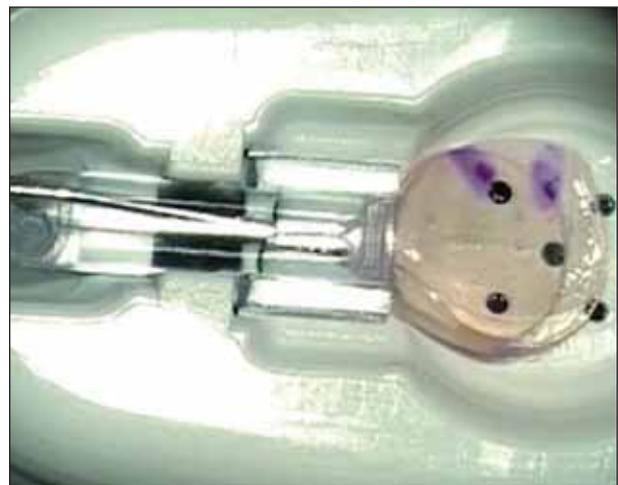


Figure 2. The surgeon uses a straight microforceps to gently pull the inked stromal edge of a posterior donor cornea through the cartridge.

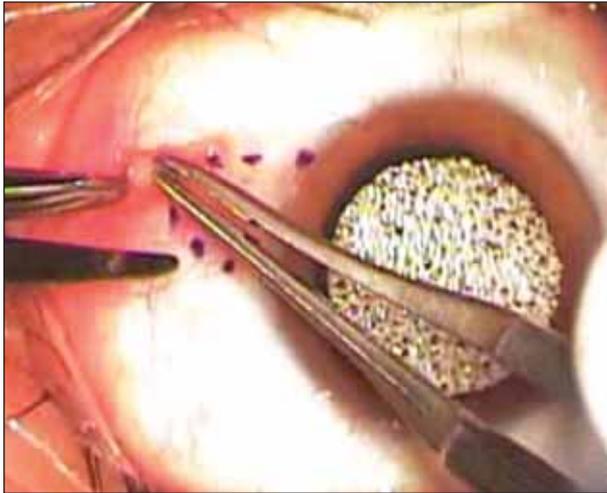


Figure 3. The surgeon demonstrates the surgical use of fibrin tissue adhesive.

Yorkshire, United Kingdom) to insert the button. The video showcases Dr. Tan's entire surgical technique, which is useful for all levels of DSAEK surgeons (Figure 2) (<http://eyetube.net/v.asp?lenone>).

**LESSONS IN PTERYGIUM SURGERY**

Another module worth examining focuses on improving outcomes in pterygium surgeries. The goal of this procedure is to safely remove the pterygium and achieve a nice cosmetic result and a low rate of recurrence. John Hovanesian, MD, presents a comprehensive description of various surgical techniques, including the use of amniotic grafts and mitomycin C. Overall, his video provides a number of insights into pterygium surgery's success (Figure 3) (<http://eyetube.net/v.asp?dudure>).

**CONCLUSION**

Eyetube.net provides a wide spectrum of educational videos that can help surgeons learn new techniques and allow experienced ophthalmologists to learn new nuances and steps that may enhance their patients' outcomes. ■

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**Vigamox®**

(moxifloxacin hydrochloride ophthalmic solution) 0.5% as base

**DESCRIPTION:** VIGAMOX® (moxifloxacin HCl ophthalmic solution) 0.5% is a sterile ophthalmic solution. It is an 8-methoxy fluoroquinolone anti-infective for topical ophthalmic use.

**CLINICAL PHARMACOLOGY:**

**Microbiology:** The following *in vitro* data are also available, but their clinical significance in ophthalmic infections is unknown. The safety and effectiveness of VIGAMOX® solution in treating ophthalmological infections due to these microorganisms have not been established in adequate and well-controlled trials.

The following organisms are considered susceptible when evaluated using systemic breakpoints. However, a correlation between the *in vitro* systemic breakpoint and ophthalmological efficacy has not been established. The list of organisms is provided as guidance only in assessing the potential treatment of conjunctival infections. Moxifloxacin exhibits *in vitro* minimal inhibitory concentrations (MICs) of 2 µg/ml or less (systemic susceptible breakpoint) against most (≥ 90%) strains of the following ocular pathogens.

**Aerobic Gram-positive microorganisms:**

- Listeria monocytogenes*
- Streptococcus mitis*
- Staphylococcus saprophyticus*
- Streptococcus pyogenes*
- Streptococcus agalactiae*
- Streptococcus Group C, G and F*

**Aerobic Gram-negative microorganisms:**

- Acinetobacter baumannii*
- Acinetobacter calcoaceticus*
- Citrobacter freundii*
- Citrobacter koseri*
- Enterobacter aerogenes*
- Enterobacter cloacae*
- Escherichia coli*
- Klebsiella pneumoniae*
- Moraxella catarrhalis*
- Morganella morganii*
- Neisseria gonorrhoeae*
- Proteus mirabilis*
- Proteus vulgaris*
- Pseudomonas stutzeri*
- Klebsiella oxytoca*

**Anaerobic microorganisms:**

- Clostridium perfringens*
- Fusobacterium species*
- Prevotella species*
- Propionibacterium acnes*

**Other microorganisms:**

- Chlamydia pneumoniae*
- Legionella pneumophila*
- Mycobacterium marinum*
- Mycoplasma pneumoniae*
- Mycobacterium avium*

**Clinical Studies:**

In two randomized, double-masked, multicenter, controlled clinical trials in which patients were dosed 3 times a day for 4 days, VIGAMOX® solution produced clinical cures on day 5-6 in 66% to 69% of patients treated for bacterial conjunctivitis. Microbiological success rates for the eradication of the baseline pathogens ranged from 84% to 94%. Please note that microbiologic eradication does not always correlate with clinical outcome in anti-infective trials.

**INDICATIONS AND USAGE:** VIGAMOX® solution is indicated for the treatment of bacterial conjunctivitis caused by susceptible strains of the following organisms:

**Aerobic Gram-positive microorganisms:**

- Corynebacterium species\**
- Micrococcus luteus\**
- Staphylococcus aureus*
- Staphylococcus epidermidis*
- Staphylococcus haemolyticus*
- Staphylococcus hominis*
- Staphylococcus warneri\**
- Streptococcus pneumoniae*
- Streptococcus viridans group*

**Aerobic Gram-negative microorganisms:**

- Acinetobacter lwoffii\**
- Haemophilus influenzae*
- Haemophilus parainfluenzae\**

**Other microorganisms:**

- Chlamydia trachomatis*

\*Efficacy for this organism was studied in fewer than 10 infections.

**CONTRAINDICATIONS:** VIGAMOX® solution is contraindicated in patients with a history of hypersensitivity to moxifloxacin, to other quinolones, or to any of the components in this medication.

**WARNINGS:** NOT FOR INJECTION.

VIGAMOX® solution should not be injected subconjunctivally, nor should it be introduced directly into the anterior chamber of the eye.

In patients receiving systemically administered quinolones, including moxifloxacin, serious and occasionally fatal hypersensitivity (anaphylactic) reactions have been reported, some following the first dose. Some reactions were accompanied by cardiovascular collapse, loss of consciousness, angioedema (including laryngeal, pharyngeal or facial edema), airway obstruction, dyspnea, urticaria, and itching. If an allergic reaction to moxifloxacin occurs, discontinue use of the drug. Serious acute hypersensitivity reactions may require immediate emergency treatment. Oxygen and airway management should be administered as clinically indicated.

**PRECAUTIONS:**

**General:** As with other anti-infectives, prolonged use may result in overgrowth of non-susceptible organisms, including fungi. If superinfection occurs, discontinue use and institute alternative therapy. Whenever clinical judgment dictates, the patient should be examined with the aid of magnification, such as slit-lamp biomicroscopy, and, where appropriate, fluorescein staining. Patients should be advised not to wear contact lenses if they have signs and symptoms of bacterial conjunctivitis.

**Information for Patients:** Avoid contaminating the applicator tip with material from the eye, fingers or other source.

Systemically administered quinolones including moxifloxacin have been associated with hypersensitivity reactions, even following a single dose. Discontinue use immediately and contact your physician at the first sign of a rash or allergic reaction.

**Drug Interactions:** Drug-drug interaction studies have not been conducted with VIGAMOX® solution. *In vitro* studies indicate that moxifloxacin does not inhibit CYP3A4, CYP2D6, CYP2C9, CYP2C19, or CYP1A2 indicating that moxifloxacin is unlikely to alter the pharmacokinetics of drugs metabolized by these cytochrome P450 isozymes.

**Carcinogenesis, Mutagenesis, Impairment of Fertility:** Long term studies in animals to determine the carcinogenic potential of moxifloxacin have not been performed. However, in an accelerated study with initiators and promoters, moxifloxacin was not carcinogenic in rats following up to 38 weeks of oral dosing at 500 mg/kg/day (approximately 21,700 times the highest recommended total daily human ophthalmic dose for a 50 kg person, on a mg/kg basis).

Moxifloxacin was not mutagenic in four bacterial strains used in the Ames *Salmonella* reversion assay. As with other quinolones, the positive response observed with moxifloxacin in strain TA 102 using the same assay may be due to the inhibition of DNA gyrase. Moxifloxacin was not mutagenic in the CHO/HGPRT mammalian cell gene mutation assay. An equivocal result was obtained in the same assay when v79 cells were used. Moxifloxacin was clastogenic in the v79 chromosome aberration assay, but it did not induce unscheduled DNA synthesis in cultured rat hepatocytes. There was no evidence of genotoxicity *in vivo* in a micronucleus test or a dominant lethal test in mice.

Moxifloxacin had no effect on fertility in male and female rats at oral doses as high as 500 mg/kg/day, approximately 21,700 times the highest recommended total daily human ophthalmic dose. At 500 mg/kg orally there were slight effects on sperm morphology (head-tail separation) in male rats and on the estrous cycle in female rats.

**Pregnancy: Teratogenic Effects.**

**Pregnancy Category C:** Moxifloxacin was not teratogenic when administered to pregnant rats during organogenesis at oral doses as high as 500 mg/kg/day (approximately 21,700 times the highest recommended total daily human ophthalmic dose); however, decreased fetal body weights and slightly delayed fetal skeletal development were observed. There was no evidence of teratogenicity when pregnant Cynomolgus monkeys were given oral doses as high as 100 mg/kg/day (approximately 4,300 times the highest recommended total daily human ophthalmic dose). An increased incidence of smaller fetuses was observed at 100 mg/kg/day.

Since there are no adequate and well-controlled studies in pregnant women, VIGAMOX® solution should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

**Nursing Mothers:** Moxifloxacin has not been measured in human milk, although it can be presumed to be excreted in human milk. Caution should be exercised when VIGAMOX® solution is administered to a nursing mother.

**Pediatric Use:** The safety and effectiveness of VIGAMOX® solution in infants below 1 year of age have not been established.

There is no evidence that the ophthalmic administration of VIGAMOX® solution has any effect on weight bearing joints, even though oral administration of some quinolones has been shown to cause arthropathy in immature animals.

**Geriatric Use:** No overall differences in safety and effectiveness have been observed between elderly and younger patients.

**ADVERSE REACTIONS:**

The most frequently reported ocular adverse events were conjunctivitis, decreased visual acuity, dry eye, keratitis, ocular discomfort, ocular hyperemia, ocular pain, ocular pruritus, subconjunctival hemorrhage, and tearing. These events occurred in approximately 1-6% of patients.

Nonocular adverse events reported at a rate of 1-4% were fever, increased cough, infection, otitis media, pharyngitis, rash, and rhinitis.

Rx Only

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