

## Cataract surgery: From One Resident to Another

**Asaf Achiron\* and Zvia Burgansky Eliash**

Department of Ophthalmology, The Edith Wolfson Medical Center, Israel

**\*Corresponding author:** Asaf Achiron, Department of Ophthalmology, The Edith Wolfson Medical Center, Israel, Email: achironasaf@gmail.com

### Letter to Editor

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### Learning surgical skill

#### Learn from others

Study your superior's hands, how they deftly manipulate minute tools through the opening of a 2.2mm incision. It seems like their fingers work alone. Quick, decisive they know what is expected of them and how to accomplish it, a muscle memory gained after thousands of surgeries.

You still will have to practice in the wet lab and read voraciously. But, ultimately, it is the surgical skill gained by practicing what I observed that improves my technique the most. The challenge is interpreting the information gathered during observation. The translation into a surgery occurs in two phases. The first starts weeks before entering the operating room (OR). It includes understanding which patients to choose (or more importantly, which to avoid), proper OR conduct, and how to mentally prepare for surgery day try to visualize every step of the surgery using your imagination and have a good breakfast without caffeine (to avoid hand tremor) [1]. The second phase involves learning the new OR skills well enough to incorporate them into my surgical plan and to meet my mentor's expectations.

#### The pre-op meeting: the secret to a successful surgery

Conducting thorough pre-op meetings is critical to being a successful cataract surgeon. Meet and understand your patient much earlier than the day of the operation. The purely mechanical aspects of the surgery itself can be mastered with time, but learning how to hold a good pre-op makes those surgeries exponentially easier to perform. First, choose a patient that you feel comfortable treating as it will make you feel more at ease. Therefore, when starting, I felt less comfortable operating on younger patients. In addition, selecting cases where the impact of a complication will be less (i.e. amblyopia,

macular scarring) could reduce the stress of the operating surgeon. In addition, select right eyes if you are right handed.

Do a thorough review of the patient's medical history and especially of any disease that may affect the surgery. Focus on issues like congestive heart failure, asthma and tremor that might affect the patient's lying quality. Try to bring your patient to the OR in a stable homodynamic state as much as possible. When the patient's systolic blood pressure reaches 200 mmHg, you will feel the pressure too. Make sure that a patient on anticoagulants has a sufficient therapeutic INR range (up to 2.5), avoiding excessive bleeding in the surgical field. No need to stop antiplatelet agents pre-operatively. Take note of systemic diseases such as Sjogren's syndrome, which leaves a patient with severe epitheliopathy. Be sure to ask about any history of prostate problems or use of  $\alpha$ -adrenergic-antagonists in order to avoid intraoperative floppy iris syndrome, which may contribute to a complication during surgery [2].

Examine the patient carefully. Look for difficult anatomical structures, maximal pupil dilation and pseudoexfoliation. Try to find patients with visual acuity better than 6/30 and a visible fundus, since they will probably have the right cataracts for beginners to work on. And take a tip from me: recognize deep-set eye eyes before surgery, otherwise, you will have to use a temporal approach. Figure 1 shows my own checklist for completion during a pre-op meeting. Finally, allocate time for explaining potential complications to your patient: pseudoexfoliative patients risk having to undergo a second surgery after a lens dislocation or drop; hyperopic patients with shallow anterior chamber depth are at risk for corneal edema and subsequent corneal transplant; diabetic patients might develop cystoid macular edema [3].

calculate cataract preoperative risk

Previous vitrectomy  
 Corneal scarring  
 Small pupil < 3 mm  
 Shallow anterior chamber < 2.5 mm  
 Age over 88  
 High ametropia over 8D  
 Posterior capsule plaque  
 Posterior polar cataract  
 Dense total white or brunescent  
 Pseudoexfoliation  
 Phacodonesis

Miscellaneous: deep set eyes

risk score: 2

risk: 7

Figure 1: Checklist for pre-operative risk factors.

This checklist is based on a risk scoring system developed by Muhtaseb et al after analysing intra-operative cataract surgery complications for 1,441 cases [4]. Software available from here [5]. In this example: a 90-year-old patient with deep-set eyes, 2.8 mm dilated pupils and pseudoexfoliation (deep-set eyes are deemed to contribute 2 risk points). The patient has a risk score of 7 and is placed in the high risk group (>5 points).

### Time in the OR

Know the name of each team member and establish a good rapport. Be familiar with the OR nurse's tasks and routines. Know your tools, their locations and how to fix them.

Build your confidence by starting slowly and with easy tasks. Know how to make the patient comfortable (i.e. secure the head with a tape). Practice with the microscope's foot control and get comfortable with prepping patients. Perfect your draping method in order to prevent distracting light reflexes during the surgery. A relaxed, cooperative patient is an advantage to you, so practice local anesthesia techniques in the wet lab. Each decision counts in this surgery, every choice has an effect in the long run. There is no room for errors! Know exactly where to put the first corneal incision. Incising too peripherally may lead to a conjunctival ballooning; incising too anteriorly may lead to a leaking wound and anterior chamber collapse. Planning corneal incisions well is especially important when operating on the exotropiceye of a patient under general anesthesia. If an

incision is off, you will have to operate using an unnatural and uncomfortable hand position.

I hope this quick summary of insights gleaned during my 3-year surgical residency helps you to become a more adept surgeon. Be patient, and remember: the fastest way to complete a surgery is to operate slowly.

Enjoy your adventure!

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