

SLIT LAMP EXAM IN SIX SWEEPS – Thomas F. Freddo, O.D., Ph.D.

The key to ensuring a complete slit lamp examination to develop a consistent and methodical routine. To make the exam efficient but thorough, you should try to build your slit-lamp exam around as few sweeps across the eye as possible. There are many ways to do a thorough and complete examination. This is how I do mine. It's not the only way but it's effective and has served me well. Begin with the patient's right eye.

Sweep #1: Lateral to Medial Start at a low mag. Have patient close their eyes and begin at the lateral canthus. Using a diffuse beam, sweep across the lids, looking for incomplete lid closure, discolorations, lumps, loss of lashes, discoloration of lashes, crusting of the lashes, other abnormalities (e.g. pediculosis).

Sweep #2: Medial to Lateral Have the patient open their eyes and direct them to look at your ear on the same side as the eye to be examined. Push in on the lower lid, just below the punctum. This will roll the lid margin out and allow you to see the lumen of the inferior punctum. While there, inspect the caruncle and plica for any abnormalities. Next, ask the patient to look up and pull the lid down to expose the inferior fornix. Continue pulling the lid down fully, moving laterally to reveal the inferior fornix across the entire inferior conjunctiva. In this traverse, inspect both the inferior bulbar and inferior palpebral conjunctiva, plus the Meibomian gland orifices, lid margin and base of the lashes.

Sweep #3: Lateral to Medial Pull up and roll out the lateral aspect of the upper lid until you can inspect the inferior lobe of the lacrimal gland beneath. Work your way medially, inspecting upper lid margin, Meibomian orifices, the bases of lashes and superior bulbar conjunctiva until you reach the medial canthus. Finally, pull up on the superior lid margin and push it toward the nose to inspect the patency of the upper punctum.

Sweep #4: Medial to Lateral Still using a diffuse beam, move laterally, inspecting the medial, interpalpebral bulbar conjunctiva, the corneal surface and the lateral interpalpebral conjunctiva. Half way across the sweep of the cornea, while focused on the anterior surface, ask the patient to blink. Watch the movement of the tear film. Look for tear film debris, swirling rainbow colors suggesting oily tear film, and estimate the thickness of the tear meniscus along the upper edge of the lower lid. The light should come from the medial side to examine the medial cornea and at the midline, switch the beam to the lateral side and continue to the lateral limbus.

Sweep #5: Lateral to Medial. Increase the magnification. Move to the lateral limbus and create a thin parallel-piped to estimate the lateral angle approach. Then continue across the cornea with the same beam, looking for subepithelial and/or stromal infiltrates, opacities, prominent corneal nerves, new vessels, etc. The light should come from the lateral side to the midline and from the medial side until the medial limbus is reached. Upon reaching the medial limbus, estimate the medial angle approach. Return to the corneal midpoint, switch illumination to specular reflection and examine the central corneal endothelium. You do not need to check the whole endothelium. If there is a corneal endothelial problem (guttata, Krukenberg's spindle, kps etc) it will begin centrally and most likely in the inferior half of the cornea (Arlt's triangle)

Sweep #6: Medial to Lateral. Widen the beam, focus on the iris surface and move across the iris ensuring you can see superior iris by lifting upper lid if necessary. Look for pupil irregularities, persistent pupillary membranes, nevi, diffuse pigment suggesting pigment dispersion, abnormal vessels, etc. Come back to center and angle a parallel-piped from the lateral side through the pupil to view a section through the thickness of the lens to assess depth of focal opacities, nuclear sclerosis, or PSC changes. If needed, the beam can be again made diffuse to inspect the peau d'orange appearance of the anterior lens capsule. If there is suspicion of posterior subcapsular changes these should be reconfirmed through dilated pupil.

Finally, withdraw to the anterior chamber, with the beam coming from the lateral side. Reduce the width of the beam to a wide parallel-piped and the height of the beam to just smaller than the size of the pupil, producing a vertical rectangle. Be sure light level in the room is nearly dark, take a moment to dark adapt and make an assessment of flare. Flare should NOT be assessed with a conical beam. Remember that a valid assessment of flare CANNOT be made after fluorescein is instilled. Assess flare before any fluorescein ever touches the eye.

Now move to the left eye and repeat – and do it the same way on every eye, every time. Remember that the posterior segment examination through the dilated pupil begins with repeating slit lamp of the ocular media, from cornea, through AC, lens and vitreous BEFORE picking up the fundus lens. PVD is far easier to find this way than with BIO.