

Working as an Ophthalmic Technician at Northern Utah Eye Center

Kaleb Keller
Utah State University



Overview

With every eye exam, the ophthalmic technician checks the same five things: visual acuity, ocular motility, confrontational visual fields, pupillary response, and intraocular pressure. After those five things, the range of tests and diagnostic tools that we do varies drastically from person to person. Northern Utah Eye Center is unique because our physicians specialize in a very large range of eye care. We are the only eye clinic in the valley to offer complex dry eye syndrome management and specialty contact lens care and are one of two clinics in the valley to offer retinal disease management and LASIK/PRK. In addition, our physicians perform cataract, glaucoma, and oculoplastic surgeries along with various other laser eye procedures. My role as an ophthalmic technician is to “work up” the patient and perform the diagnostics required for the disease/pathology in question. In addition, I assist in the treatments including: Intense-pulsed light, lid lesion removals, chalazion incision and drainage, and intravitreal injections.

Retina Clinic

As a part of my training, I received my phlebotomy certification to insert IVs for fluorescein angiography, a diagnostic test that involves administering a fluorescent dye through the patient's vasculature and photographing the dye as it enters and exits the retina (Figure 1). This test is used for diagnosing vascular retinal disease such as wet macular degeneration or diabetic retinopathy. The go-to treatment for these diseases is intravitreal injections of anti-VEGF medication (Figure 2). My role is to administer the fluorescein angiography so the physician can make an accurate diagnosis and assist the physician in the administration of intravitreal anti-VEGF medication through an injection in the eye.

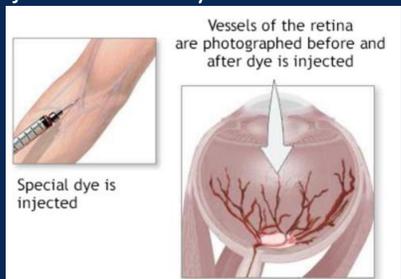


Figure 1. Process of a fluorescein angiography.

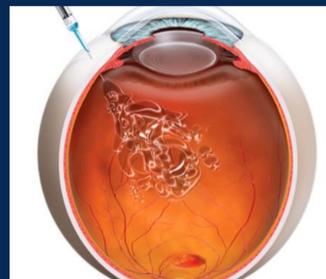


Figure 2. Intravitreal injection.



Figure 3. Healthy retina with no pathology.



Figure 4. Fundus photo of a patient with a severe branch retinal vein occlusion likely due to hypertension. We treated this patient with anti-VEGF therapy and they saw 20/20 after their fourth treatment.



Figure 5. Fluorescein angiography on a patient with a healthy retina.

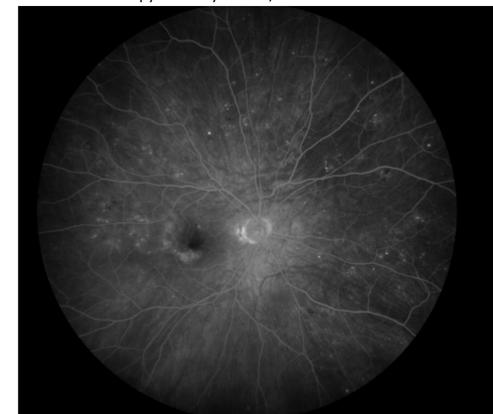


Figure 6. Fluorescein angiography on a patient with severe nonproliferative diabetic retinopathy. This patient was subsequently treated with anti-VEGF therapy.

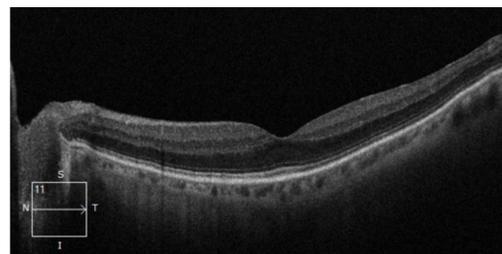


Figure 7. OCT-R of a patient with wet age-related macular degeneration after anti-VEGF treatment.

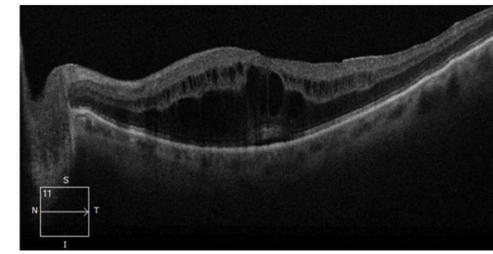


Figure 8. OCT-R of a patient with wet age-related macular degeneration before anti-VEGF treatment.

Ophthalmic Photography

As a part of my role as an ophthalmic technician I am responsible for performing all ophthalmic photography including optical coherence tomography (OCT) of the optic nerve and retina, corneal topography, fundus photography, intraocular lens master scans, Humphrey visual fields, and fluorescein angiography. Figures 3 and 4 are an example of a fundus photo of the retina, 5 and 6 are examples of a fluorescein angiography, 7 and 8 are an example of an OCT of the retina (cross section), and figure 11 of an OCT optic nerve.

Routine Eye Exams

While our clinic treats a wide range of medical conditions, most of our day often consists of routine eye exams including those for glasses and contacts or screenings for diseases such as diabetic retinopathy or glaucoma. As a technician, we become proficient in learning how to refract patients (figure 9), check intraocular pressure, and fit glasses and contacts. Often, we do everything for the glasses and contacts for the patient and the doctor only examines their eyes!



Figure 9. Photo of me performing a refraction.



Figure 10. Photo of me performing applanation tonometry on a patient.

One diagnosis that is screened for in routine eye exams is glaucoma, which has no symptoms until vision is lost. Once vision is lost, it cannot be brought back, so catching it early is critical. Glaucoma is characterized by a large cup to disc ratio of the optic nerve and high intraocular pressure. If the physician is suspicious for glaucoma, the technician will often perform applanation tonometry (figure 10) and an OCT-ON (figure 11).

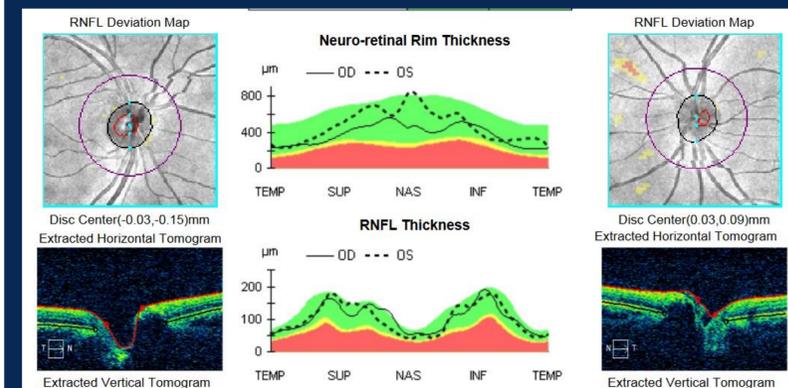


Figure 11. OCT ON scan of a patient without glaucoma. A scan would glaucoma would be characterized by a larger cup of the optic nerve and decreased retinal nerve fiber layer thickness.