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## Good People, Bad Optics: The Dissatisfied Patient

A 56-year-old man seeks consultation regarding diplopia. He had been well with no ocular or medical problems until 1 week earlier when he woke up with double vision. He contacted his brother-in-law, a neuroradiologist, for advice. The patient ended up getting a CAT scan, a PET scan, an MRI, and an MRA. Then his cat got a PET scan. All were negative. Someone suggested that it might be a good idea to see an eye doctor, and the patient came to you.

**A. What key ocular historical points do you need to elicit in a patient with new-onset double vision?**

Is there any history of patching in childhood? (This could reveal a recurrence of childhood strabismus or other abnormal binocular vision.) How sudden was the onset? (Gradual onset is less likely to be related to an acute neurologic insult.) Is the vision still double with one eye closed? (Monocular diplopia is often confused with binocular diplopia.) Does it change throughout the day? (Variable strabismus might suggest myasthenia.) How many images are there? (This can give another clue to monocular diplopia or visual issues not related to strabismus.) Are the images separated vertically, horizontally, or a combination of both? Is one image also tilted? (It can be difficult to separate oblique diplopia [combined horizontal and vertical] from torsional diplopia [tilted image].)

**B. In this case, the patient says that the double vision goes away when he covers his left eye. You at first assume that this means he is having binocular diplopia, but cover testing reveals no detectable strabismus. During cover testing, he reports that the double vision disappears when the left eye is covered, but remains when the right eye is covered. You diagnose monocular diplopia in the left eye. He says that there are usually 2 images but sometimes 3. It is like a ghost image, always overlapping, sometimes more visible than others, especially on the television. What are the causes of monocular diplopia? Name a key diagnostic procedure.**

Monocular diplopia is usually caused by irregularities in the refractive surfaces of the eyes. Causes from front to back include dry eye, corneal epithelial irregularities, stromal scarring, refractive surgery, uncorrected refractive error, and incipient cataract. Non-optical causes such as retinal irregularities are extremely rare. The key diagnostic step is to see whether the diplopia improves through a pinhole occluder, as optically-induced monocular diplopia is almost always reduced or eliminated by the pinhole. If it remains with the pinhole occluder