Hydroxyapatite Orbital Implants

Sometimes, people may lose an eye because of a traumatic injury. At other times, a diseased eye may have to be surgically removed. This is called enucleation. For many years, the enucleated eye was replaced with a “glass eye.” While these artificial implants looked real, they didn’t move.

A new surgical procedure makes it possible for an artificial implant to move naturally so no one can tell it is an artificial eye. This technique uses donated sclera from an eye donor and a hydroxyapatite ball.

Hydroxyapatite is mineral produced from the mineral found in coral skeletons. These coral skeletons can be transformed into hydroxyapatite by high temperatures. The material can then be shaped into a ball the size of the human eye. The donated sclera is wrapped around the hydroxyapatite ball and the eye muscles reattached to the sclera so that the artificial eye moves naturally. A cap that is hand-painted to match the person’s other eye is placed on a post completing the procedure.

Because hydroxyapatite is porous, blood vessels can grow through it to nourish the donated sclera. The implant becomes a permanent part of the body.
Both of these people have one eye replaced with a hydroxyapatite orbital implant using donated sclera. Because both eyes move together in a very natural way, it is almost impossible to tell which eye has the implant. Can you tell which eye was enculeated?