intraocular pressure. Cohesive OVDs have less coating ability (than dispersive OVDs) and therefore afford less tissue protection (eg, corneal endothelium) during surgery.

Dispersive OVDs, such as Healon EndoCoat and Viscoat, are short-chain, low-MW, lower-viscosity substances with low surface tension that act like "macaroni." These properties produce excellent coating and protection at high shear rates (unlike “spaghetti,” “macaroni” will not tangle and therefore spreads out); however, they are more difficult to remove from the eye since they do not stick together and are aspirated in short fragments (the “macaroni” does not tangle). If retained in the eye, dispersive OVDs can cause increased intraocular pressure, however, generally less than retained cohesive OVDs.

Viscoadaptive OVDs attempt to combine the benefits of both cohesive and dispersive OVDs. Healon 5 is a long fragile chain, high-MW, superviscous substance. It acts like cohesive OVDs at low flow and partially like dispersive OVDs at high flow conditions. When retained in the eye, Healon 5 has the tendency to cause intraocular pressure spikes. DisCoVisc, a compromise viscous dispersive agent, is moderately effective for stabilizing tissue, maintaining space at high shear rates, and coating the cornea.

Ophthalmic Viscosurgical Devices in Surgery

As one can gather, OVDs have potential roles in nearly all intraocular ophthalmic procedures. Cataract surgery is the most common procedure performed by most ophthalmologists. OVD use in cataract surgery can be summarized in Table 4-2.