FIGURE 20.8 Cervidil (dinoprostone) vaginal insert. The polymeric slab containing the dinoprostone is encased in a pouch of a knitted polyester delivery and retrieval system. (Courtesy of Forest Pharmaceuticals.)

Crinone Gel

Another type of vaginal product with extended action is the bioadhesive vaginal gel Crinone Gel (Wyeth-Ayerst), which contains micronized progesterone and the polymer polycarbophil in an oil-in-water emulsion system. The polymer, which is insoluble in water, swells within the vagina and forms a bioadhesive gel coating on the walls of the vagina. This allows the absorption of progesterone through the vaginal tissue over 25 to 50 hours. The product is used to assist in reproduction and is shown in Figure 20.9.

OPHTHALMICS

One of the problems associated with the use of ophthalmic solutions is the rapid loss of administered drug due to the blinking of the eye and the flushing effect of lacrimal fluids. Up to 80% of an administered dose may be lost through tears and the action of nasolacrimal drainage within 5 minutes of installation. Extended periods of therapy may be achieved by formulations that increase the contact time between the medication and the corneal surface. This may be accomplished by the use of agents that increase the viscosity of solutions, by ophthalmic suspensions in which the drug particles slowly dissolve, by slowly dissipating ophthalmic ointments, or by the use of ophthalmic inserts.

FIGURE 20.9 Crinone (progesterone 8% gel). Commercial package contains six single-use, individually wrapped prefilled applicators.

Gels Extended Release

Although ophthalmic dosage forms are discussed at length in Chapter 17, it is useful to note here certain preparations designed to extend drug action. The following are but two examples of proprietary products that use viscosity-increasing agents to increase corneal contact time. Pilocarpine (Pilopine HS Gel, Alcon) employs Carbopol 940, a synthetic high molecular weight cross-linked polymer of acrylic acid. Timolol maleate (Timoptic-XE, Merck) employs gellan gum (Gelrite), which forms a gel upon contact with the precorneal tear film.

Ophthalmic Inserts

Lacrisert

Lacrisert (Merck) is a rod-shaped water-soluble form of hydroxypropyl cellulose.