Aesth. Plast. Surg. 22:356–365, 1998

Aesthetic Plastic Surgery

PMMA-Microspheres (Artecoll) for Long-Lasting Correction of Wrinkles: Refinements and Statistical Results

Gottfried Lemperle, M.D., Ph.D., Nelly Gauthier-Hazan, M.D., and Martin Lemperle, M.D.

Frankfurt am Main, Federal Republic of Germany

Abstract. The corium is diminished to about half of its thickness in skin defects and wrinkles. All biological materials that increase the thickness of the corium are resorbed within a certain time. Therefore, a lasting effect can be achieved only with nonresorbable synthetic substances. Artecoll consists of microspheres of 30–40 μm in diameter, of exceptional surface smoothness, purity, and homogeneity related to PMMA. These microspheres are suspended in atelocollagen which serves as a vehicle for *subdermal* implantation. Due to its smooth surface and consequential lack of electrical charges, each single microsphere is immediately encapsulated with the patient's own collagen fibers, thus preventing dislocation. Within 3 months, collagen (making up 75% of Artecoll) is replaced by the body's own connective tissue. The microspheres (25% of Artecoll) serve merely as a stimulus to the fibroblasts. Indications for Artecoll are all facial folds, lip- and philtrum augmentation, chin- and malar augmentation, dark-shadowed eyelids, enophthalmos, bony defects in face and hands, nipple reconstruction and augmentation, and urinary incontinence. Questionnaires were sent to all patients who had received Artecoll in 1993 and 1994. Of a total of 950 questionnaires sent, 515 were returned by September 1995. Satisfaction was rated ''very good'' in 29%, ''good'' in 38%, ''satisfactory'' in 23%, and ''no difference'' in 8% of the patients. The question, ''Would you repeat the treatment again?'' was answered by 91% of the patients with ''yes.'' The overall complication rate was 3%. Strictly subdermal implantation will prevent longer lasting redness or visibility of the Artecoll.

Key words: Nonresorbable synthetic fillants—(Artecoll) microspheres—Fibroblast growth stimulants

Presented at the New York City Biennial ISAPS Congress, September 1995.

Correspondence to Prof. Dr. G. Lemperle at Frankfurt Clinic for Plastic and Reconstructive Surgery, Finkenhofstr. 15, D-60322 Frankfurt am Main, Federal Republic of Germany

More types of therapy are available for facial wrinkles than for any other physiological aging process. Small wrinkles such as crow's feet, perioral lines, and wrinkled cheeks can be effectively treated with dermabrasion, chemical peel, or CO_2-laser resurfacing (15). Striking folds like glabellar frowns, nasolabial folds (Fig. 1) or depressed corners of the mouth have to be surgically stretched or lined with certain tissues. Since all biological tissues such as fat, dermis, collagen, and even bone, cartilage, or tendon will be resorbed at sites where they are not naturally formed, synthetic biomaterials have to be used for permanent leveling. Silicone granules (Bioplastique) are known to cause granulomas (1) because of their irregular surface and accumulation of electrical charges. Goretex (SAM-facial implant) has an excellent biocompatibility and seems good for lip augmentation (11). However, larger pieces placed under nasolabial folds will eventually show their margins and may need to be trimmed or removed. Silicone fluid, (6) although eas-

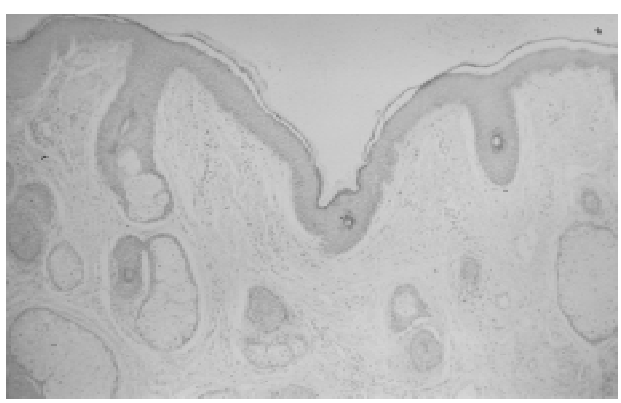

Fig. 1. Cross-section through a nasolabial fold showed normal thickness of epidermis, but diminished thickness of dermis to about ¼ of its normal thickness.