

## Adjustable Breast Implants Provide Postoperative Versatility

In the late 1970s and early 1980s, breast reconstruction was popularized with the introduction of the Radovan expander (Heyer-Schulte, Goleta, CA).<sup>1</sup> The device was initially used to expand the tissue; this was followed by an operation to remove the expander and replace it with a permanent implant. Interestingly, it was noted that several patients were reluctant to have the Radovan expander replaced because they were very pleased with the results. This observation led me to explore the concept of creating an expander in which the injection dome could be removed, the expander itself thus being left in place. This versatility would allow a tissue expander to be converted to a permanent saline implant without an additional operation.<sup>2-4</sup> Excellent results have been achieved in breast reconstruction through use of the expandable mammary prosthesis with prolonged overexpansion of the tight muscle/skin envelope.<sup>5</sup>

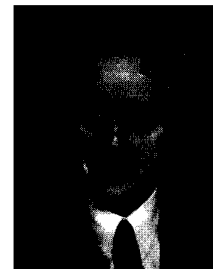
The original adjustable implant was actually a saline implant with an injection dome attached to the fill tube. The injection dome was buried and subsequently removed. Although valve leakage was a problem in many early cases, the valve was successfully modified, and a double-lumen gel-saline version was created so that the 2-stage Radovan procedure, in which a saline expander and a gel implant were used, could be performed in a single-stage procedure.

### Indications for Adjustable Breast Implants

#### Primary Breast Reconstruction

Tissue tension is the main concern in primary breast reconstruction. For this reason, the smooth, round Spectrum (Mentor Corp., Goleta, CA) is most commonly used. The implant is always underfilled intraoperatively. If there is any concern with regard to tissue tension or flap viability either intraoperatively or early postoperatively, all of the saline solution is removed from the implant. Filling can be initiated several days later, once viability is assured. If the muscle and skin flaps are adequate, the 25% gel/75% saline expander can be used, the implant again being underfilled and the flap carefully monitored postoperatively. In more than 50% of cases, the reconstruction can be performed in a single stage. If a second stage

is required for an open capsulotomy, implant repositioning, or inframammary fold reconstruction, the original implant can be used again or a new adjustable implant can be placed during the second stage of the procedure. Volume adjustment remains a valuable tool, even after the second stage.



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#### Secondary Reconstruction

Volume adjustment and expansion are of great value in revision reconstruction to help correct any irregularities and to achieve breast symmetry. The single-lumen or double-lumen implant may be used, because skin flap viability is less problematic in secondary reconstruction. In this situation, the 50% gel/50% saline adjustable implant is preferred.

#### Poland's Syndrome

In young patients with congenital anomalies of the breast—including asymmetry and tubular breast deformity—the smooth, round Spectrum is the implant of choice. This implant can be placed at an early age and slowly expanded as the patient matures. An elevated inframammary fold and high-riding nipple are common anatomic deformities found in these patients. In the attempt to lower the elevated fold, the nipple will be further elevated. It is therefore preferable to place the expander implant in a higher position to facilitate expansion of the skin above the nipple. If necessary, the fold can be lowered at a later date.

#### Breast Augmentation

Adjustable implants are offered to patients who express concern about final breast size or breast symmetry.<sup>6</sup> In these patients, the smooth, round implant is most commonly used. In several cases in which the contour profile was used, the results have been excellent. The implants are usually placed in the submuscular position through use of an inframammary or circumareolar incision. The injection dome is placed adjacent to the incision and