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Experience with the Mentor Contour Profile Becker-35 expandable implants in reconstructive breast surgery*,**

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Summary *Introduction:* Round expander-implants (Beckers 25 and 50) and anatomical expander-prostheses filled with firm cohesive gel (McGhan Style 150) are established choices for single-stage expander breast reconstruction. Because of their drawbacks we selectively adopted the anatomical Becker-35 expander-implant filled with soft cohesive gel from January 2005.

Patients and methods: All patients undergoing reconstructive breast surgery using the Contour Profile® Becker-35 expandable implant over a two-year period were retrospectively reviewed with respect to indication, implant sizes, inflation details, complications and outcomes.

Results: 36 patients, mean age 48.9 years ($r = 14–69$), received 39 anatomical Becker-35 expanders (three bilaterally). Three quarters of these implants (29) were used for immediate breast reconstruction while the remainder were equally divided between delayed postmastectomy reconstruction (5) and correction of congenital breast asymmetry (5). Half of the patients had simultaneous latissimus dorsi myocutaneous flap coverage of the implants.

The median numbers of inflations and deflations needed to achieve the target expansion size and shape were 3 ($r = 0–7$) and 0 ($r = 0–4$), respectively. The mean time from expander insertion to completion of reconstruction was 4.6 months ($r = 0–13$ months). Four patients required surgical intervention for haematoma, implant infection, severe capsular contracture, and palpable rippling. Additionally there were three injection port adjustments, giving a 20% overall revisional surgery rate (8/39 breasts) after a median follow-up of 20 months ($r = 6–38$ months). Four implants (10%) developed significant but asymptomatic rippling. The significant

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capsular contracture rate was 21% (8/39 breasts), which was related to chest wall radiotherapy.
Conclusion: In this short-term study, the Becker-35 expander was successfully used for single-stage prosthetic breast reconstruction with an incidence of early complications comparable to alternative prostheses. Although it has expanded the range of implants available to the breast surgeon, its exact role in reconstructive breast surgery has yet to be established.

Prosthetic reconstruction is a popular technique for post-mastectomy breast reconstruction because of its apparent simplicity.[1,2] It is accomplished as either a single-stage or two-stage procedure. Single-stage reconstruction employs either a fixed volume implant or a bi-lumen adjustable gel-saline prosthesis. Fixed volume implants have, however, limited application (in the absence of flap coverage) for single-stage reconstruction. In contrast, expandable implants, also referred to as permanent expanders, are more popular.[3–7] Since 1996 these have been available in either the round (Beckers 25 and 50) or the anatomical (McGhan Style 150) varieties. The round expandable implants have a number of drawbacks including excessive fullness of the upper poles, unnatural rounded shape, poor lower pole projection, and a reportedly high revisional surgery rate.[8] On the contrary, the only available anatomical expandable implant (McGhan Style 150) prior to the Becker-35 was not designed for overinflation or injection port removal.[5,7] It also possessed a firm cohesive gel and was prone to frequent in-situ torsion of the injection ports.[5,7]

The Mentor Contour Profile Becker-35 expander (Figure 1) was launched onto the market in 2004 to address some of these problems and those inherent in the earlier generation Beckers 25 and 50. Like these traditional round Beckers, the Becker-35 is a bi-lumen implant with identical injection ports and fill tubes. However, like the McGhan Style 150 expander, it is teardrop shaped with almost identical dimensions to those of the short height variety (Figure 1); but its outer compartment contains soft cohesive silicone gel. These features are said to allow preferential expansion of the lower pole and provide for 25% overexpansion of the implant (Mentor Medical Systems Manufacturer's Information Leaflet). The former enables the implant to closely mimic the natural breast shape. The drawbacks of the existing single-stage expanders could therefore be theoretically circumvented by this new expandable implant. On this basis, the senior author (CMM) selectively adopted the Becker-35 expander for single-stage prosthetic breast reconstruction and correction of congenital breast deformities when a permanent expander was indicated.

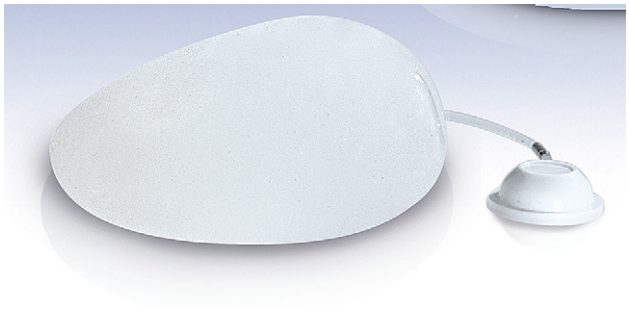

Figure 1 Contour Profile Becker-35 Expandable Implant illustrating the inner saline filled compartment and long fill tube with a large injection port.

As there are no published series of the Becker-35 prosthesis, we decided to review our experience with this implant to evaluate its possible roles. The following is a review of our early experience in patients receiving Mentor Contour Profile Becker-35 expanders.

Patients and methods

Patients undergoing prosthetic breast reconstruction with the Mentor Contour Profile Becker-35 expander by a single surgeon (CMM) over a two-year period (January 2005 to December 2006 inclusive) were retrospectively reviewed. Only those with a minimum follow-up period of six months were included. Data were collected about the specific indication for the implant, expander size, inflation volumes, number of postoperative inflations and deflations, time taken to achieve final volume, aesthetic outcomes and complications.

Operative technique

In latissimus dorsi flap reconstructions, the expander was sandwiched between the latissimus dorsi and pectoralis major muscles. In prosthesis-only reconstructions, the expander was inserted in the standard subpectoral position[1] with the lower one-third of the implant in a largely subcutaneous position. If axillary dissection was performed the pocket included the fascia overlying the serratus anterior to prevent lateral implant displacement. The expander port was positioned in the deep subcutaneous tissues 5–7 cm inferolaterally to the breast mound[9] contrary to the recommendation of others.[10] Two suction drains (submuscular and subcutaneous) were placed and the wound was closed in two layers with monocryl sutures.

Selection of expander

The size of the expander used was based on the pre-operative width and height of the contralateral breast in conjunction with the intra-operative mastectomy weight. An implant one size larger than predicted was used when the patient had significant ptosis while a one size smaller