The seamless BRA: Early impressions of endoscopic augmentation mammoplasty

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HA McLean. The seamless BRA: Early impressions of endoscopic augmentation mammoplasty. Can J Plast Surg 1993;1(3):113-115. This is a personal observation of early experience with breast augmentation by remote access (BRA) with endoscopic visual assistance. The purpose is to inform readers of this recently developed technique as seen from a 'learning curve' of 15 cases. The nature, purpose, limitations, difficulties and anticipated benefits are briefly described. Scientific conclusions are neither possible nor attempted at this time.

Key Words: *Augmentation mammoplasty, Endoscopy, Remote access*

Impressions préliminaires sur une technique endoscopique d'addition mammaire

RÉSUMÉ : Observations personnelles des résultats d'une technique d'addition mammaire par accès à distance avec l'aide d'un endoscope. L'objectif est d'informer les lecteurs au sujet de cette nouvelle technique qui a été appliquée dans quinze cas. On en décrit la nature, le but, les limites, les difficultés et les avantages escomptés. Pour l'instant, il n'est pas encore possible de tirer des conclusions.

Breast enlargement by remote access (BRA) is a technique by which a plastic surgeon can safely create an adequate submammary pocket and place in it an appropriate, saline-filled silicone implant to enlarge the breast effectively. The aims and essentials of this procedure, therefore, are identical to those of any cosmetic augmentation mammoplasty. The chief difference is that access to the submammary space is achieved remotely – often through the umbilicus – and therefore requires visual assistance by endoscopy.

This article is based on my experience with 15 cases performed between January and September 1993. It is by necessity, personal, anecdotal and unscientific. Endoscopic breast augmentation owes its inception and development to the inventive genius of Dr Gerald W Johnson of Houston, Texas. He deserves credit for developing a procedure which I believe is likely to be adopted by plastic surgeons generally.

PROCEDURE AND INSTRUMENTATION

Currently, I employ a modified technique using instruments made for me by R Laborie Surgical of Montreal, who also supply Storz endoscopy equipment. A description of the procedure follows.

Anesthesia: General anesthetic, the patient supine.

Marking: To outline the desired position of the implants.

Incision: In the umbilicus or a pre-existing abdominal scar.

Tunnelling: Through fat, superficial to the deep fascia, to the submammary space using a blunt access cannula (Figure 1, instrument 1).

Visualization: To confirm that the submammary space has been achieved. A 180° endoscope is used (Figure 1, instrument 2) with a camera, light source and television monitor attached (not illustrated). If the position is found to be intramammary or subpectoral, it is corrected.

Tissue expansion: A seamless, patchless expander is rolled from either side into a cigar shape and pushed into position through the otherwise empty tunnel. It is inflated up to 150% of the desired implant volume. The submammary pocket is created as the expander enlarges and unrolls, assisted by manual manipulation and sometimes by the use of a blunt dissector (Figure 1, instrument 3). If the tunnel is too narrow, it may be dilated (Figure 1, instrument 4). After creation of an adequate pocket, the expander is deflated and removed.

Implant insertion: A standard inflatable, smooth-walled implant, usually with a posterior leaf valve, is inserted in the same manner as the expander and filled, and the filling tube

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Figure 1 Instruments used when performing breast augmentation by remote access (BRA). 1 Access cannula; 2 Endoscope; 3 Dissector; 4 Dilator

is removed. An intravenous extension tube may be required to lengthen the filling tube.

Closure: Usually with chromic gut in the umbilicus.

Dressings: The wound requires minimal dressing. Tensor bandages are applied to encourage the implants to position themselves medially and inferiorly.

PERSONAL OBSERVATIONS

The plastic surgeon familiar with breast augmentation, tissue expansion and liposuction tunnelling can readily learn this procedure. However, it has a definite 'learning curve' and needs to be learned properly to maximize patient benefits and to avoid pitfalls. Dr Johnson's course included lectures, seminars and videos on theory and technique, hands-on experience in the animal laboratory, and direct observation of several cases on closed circuit television and in the operating room. The course is highly recommended.

BRA has several advantages. Due to the entirely blunt nature of the dissection, bleeding is minimal and nipple sensation is likely to be preserved. The incisional scar is remote from the breast, hidden in the umbilicus or previous abdominal scar, making the procedure 'seamless' (Figure 2). Operating and anesthesia time are typically short, and post-operative recovery is relatively quick. Patients are particularly keen on the procedure because of the absence of a visible scar. They also see it as new and progressive, moving away from previous techniques which, rightly or wrongly, they associate with silicone gel implants.

Disadvantages include the need to learn a new, endoscopic technique, and the increased costs associated with endoscopy and tissue expansion. However, the procedure does not require instrumentation under direct endoscopic vision and is therefore not as technically difficult to learn as many other endoscopic procedures.

I believe that it is inadvisable to attempt the BRA technique without the endoscope, which is invaluable for positioning the implant correctly and allowing visualization when dealing with intraoperative difficulties. In the 'learning curve', I have accessed the subpectoral space in approximately one of three cases and the breast in two of 15. I have lost two

Figure 2 Breast enlargement by remote access (BRA) in progress showing patient with one breast expanded

implants due to filling tube disconnection. The scope allows the surgeon to inspect the tube and to check for bleeding and leakage.

It is possible to do the surgery without tissue expanders, simply by using an implant, overinflating it to create the pocket, and then reducing the volume before removing the filling tube. In fact, this is the original Johnson technique which I have abandoned for two reasons. First, if the filling tube extrudes or occludes before the desired volume is attained, the implant may have to be sacrificed (ie, punctured) in order to remove it. Second, the implant manufacturers do not recommend overinflation of their products.

In my opinion, the BRA technique is likely to become widely used. Implant manufacturers would be well advised, therefore, to design implants capable of overinflation.

While the subpectoral space can be accessed remotely, current techniques do not allow an adequate release of the muscle to permit remote subpectoral augmentation.

It is unusual to have problems creating an adequate sub-mammary pocket. The implants may tend to ride high initially, but settle into the breasts over a six- to 10-week period. Settling may be partially assisted by using low concentration intraluminal steroids (methylprednisolone sodium succinate 5 mg/100 mL saline to a maximum 30 mg in any one implant). I have used this routinely and hope that it may also assist in limiting capsular contracture. I have no scientific reference to support these assumptions.

The procedure can be strenuous for the operator and assistant in the tunnelling and in inflating and deflating the prostheses. The locking device from syringe liposuction helps to deflate the expander with ease.

Since bleeding is minimal, drains are not required. The tunnels may act as internal drains or reservoirs. As in liposuction, the tunnels become obliterated with time, and no external evidence of them remains.

An atraumatic grasper is invaluable to insert through the tunnel if an implant needs to be removed or manipulated. Implants can easily be torn or punctured. The Storz 10 mm endoscopic Babcock forceps are appropriate for this purpose.

The BRA technique is indicated chiefly for primary cosmetic breast augmentation. It is certainly an effective alternative that patients are more and more likely to request. It may be less useful in more complex cases, such as those requiring adjustments to the inframammary fold or nipple position.

I predict that the BRA technique will become a standard procedure for breast augmentation, and that there will be many, as yet unthought of, spin-offs in the future.