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Endoscopic assisted transaxillary augmentation mammaplasty

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SUMMARY. **The aesthetic approach for insertion of a breast implant is through an axillary incision. The scar is hidden in an inconspicuous and infrequently exposed site; it is also often scarcely visible when faded. The described technique is simple and requires an added stab incision. Direct visualisation of the pocket provides a degree of precision and control previously not attained. The size of the axillary incision is determined by the size of the folded inflatable prosthesis.**

An important aim of aesthetic plastic surgery is to leave little or no evidence of surgical interference. A method of transaxillary augmentation mammaplasty with minimal skin insult is presented using endoscopic equipment developed in the fields of arthroscopic and laparoscopic surgery.

Operative technique

Points A and B in Figure 1 are marked preoperatively with the patient in the erect posture. A lies in the lateral pole of the breast on the line of the lateral border of the Pectoralis Major at the level of the nipple. B is a point in the crease near the apex of the axilla along the mid axillary line.

The procedure is carried out under general anaesthesia with the arms abducted to 90 degrees in the supine position. The operation begins with a stab incision at point A. A straight blunt probe (Fig. 2) is inserted through the stab incision into the retropectoral plane to the lateral sternal border. The probe is swept upwards and outwards to the axilla through 90 degrees and then swept downwards and outwards through 90 degrees to create a pocket (Fig. 1). After this pocket has been created the probe is turned upwards and outwards to the axilla so that its tip is at point B. A small incision is made in the crease line anterior to B and the straight blunt probe is withdrawn. The length of the incision is determined by the size of the folded prosthetic implant. Dissection is then carried out along the track to enlarge it from point B to the lateral border of the Pectoralis Major muscle where it joins the large retropectoral pocket. The "Hockey Stick" (Fig. 2) is then introduced through the axillary incision and the completeness of the dissection of the lower limits of the pocket just beyond the inframammary fold is confirmed (Fig. 3). (This instrument and the straight probe have been made to

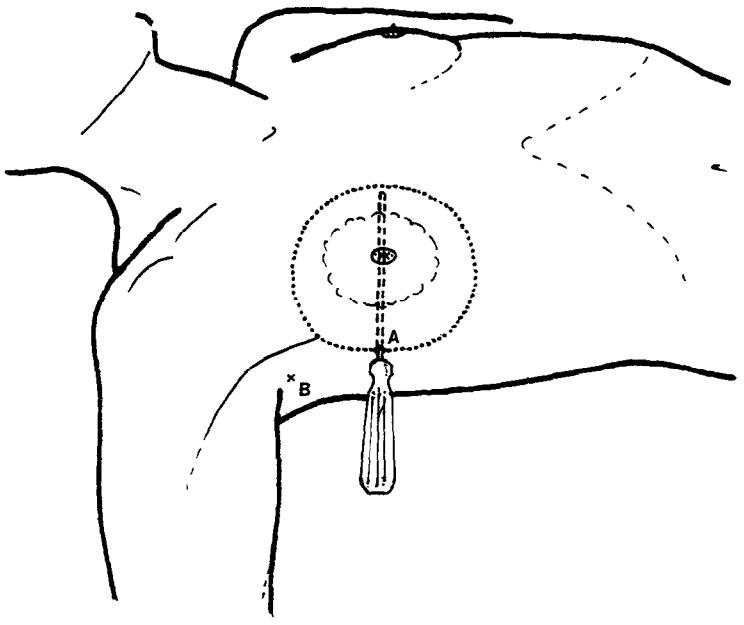

Fig. 1

Figure 1—Note points A and B. The retropectoral pocket is dissected with the straight probe.

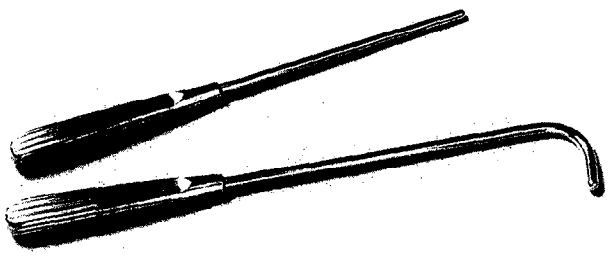

Fig. 2

Figure 2—Upper:- Straight blunt probe; 15 cm long and 5 mm in diameter. Lower:- "hockey stick"; 20 cm long and 5 mm in diameter.

the design and specifications of the author by C. Trewavis, 38/65–67 Canterbury Road, Kilsyth, Victoria 3137, Australia and may be obtained from Christopher J. Hughes Pty. Ltd, 7/153 George Street, Liverpool, NSW, Australia.) It is then withdrawn and a Storz wide angled 30 degrees oblique arthroscopic telescope (Karl Storz GmbH, Mittelstrasse 8, D-7200 Tuttlingen/W-Germany, Postfach 230) in its sheath is introduced through the axillary incision (Fig. 4). Sterile 1.5% Glycine Irrigation Solution is run into the pocket under pressure to balloon out the pocket. A Valleylab Disposable Laparoscopic Electrode Model No. E2774-28 (Valleylab Inc, Pfizer Hospital Products Group, 5920 Longbow Drive, Boulder, Colorado 80301 USA) is introduced through the stab wound at point A. The pocket is then inspected visually on the monitor screen. There are no anatomical landmarks to guide the surgeon in the pocket. The area inspected is identified by the light transilluminated through the skin (Fig. 5) from the arthroscopic telescope. Bleeding points are coagulated and any connective tissue strands running across the pocket are divided by cutting diathermy. Final peripheral pocket dissection is then carried out under direct vision with cutting diathermy. The glycine solution is then allowed to run

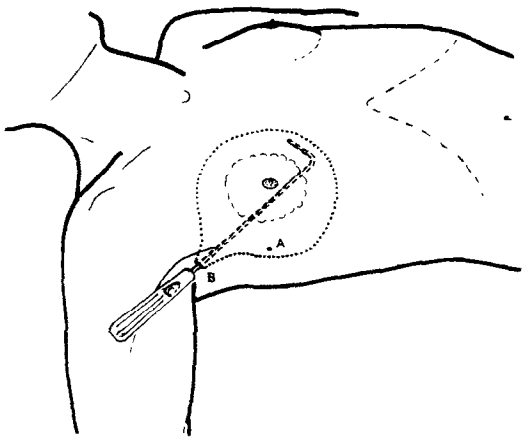

Fig. 3

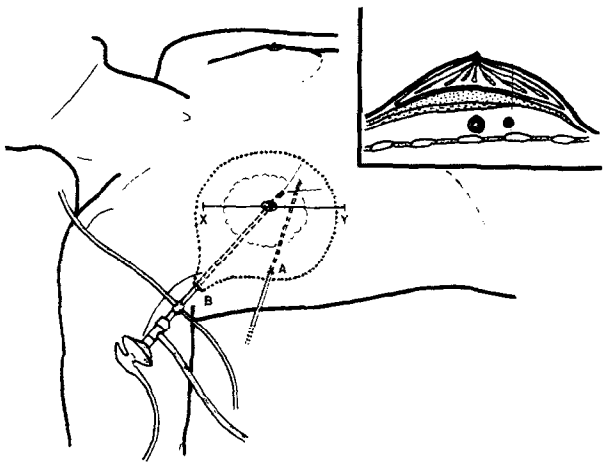

Fig. 4

Figure 3—The "hockey stick" confirms the completeness of dissection of the lower limits of the pocket. **Figure 4**—Storz telescope and sheath in position. The large opening at "B" is secured with a temporary pursestring suture (not shown in drawing for sake of clarity). The pocket is distended with glycine solution under pressure. Inset shows section at XY through the breast to level of ribs.

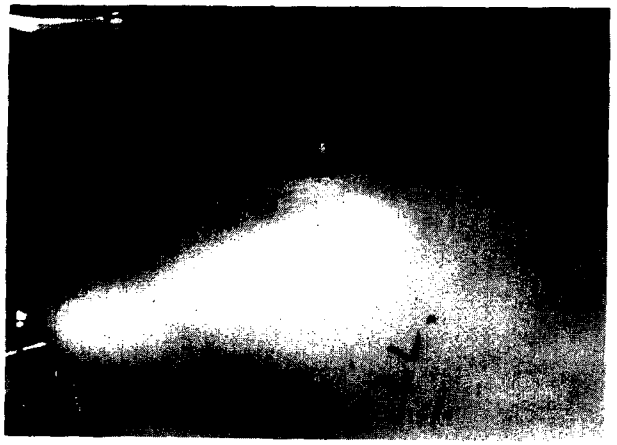

Fig. 5

Fig. 6

Figure 5—Note the area of transilluminated light on the skin giving an indication of the area inspected (laparoscopic electrode has been withdrawn). **Figure 6**—Sterile normal saline being injected through the filling tube to inflate the prosthesis.

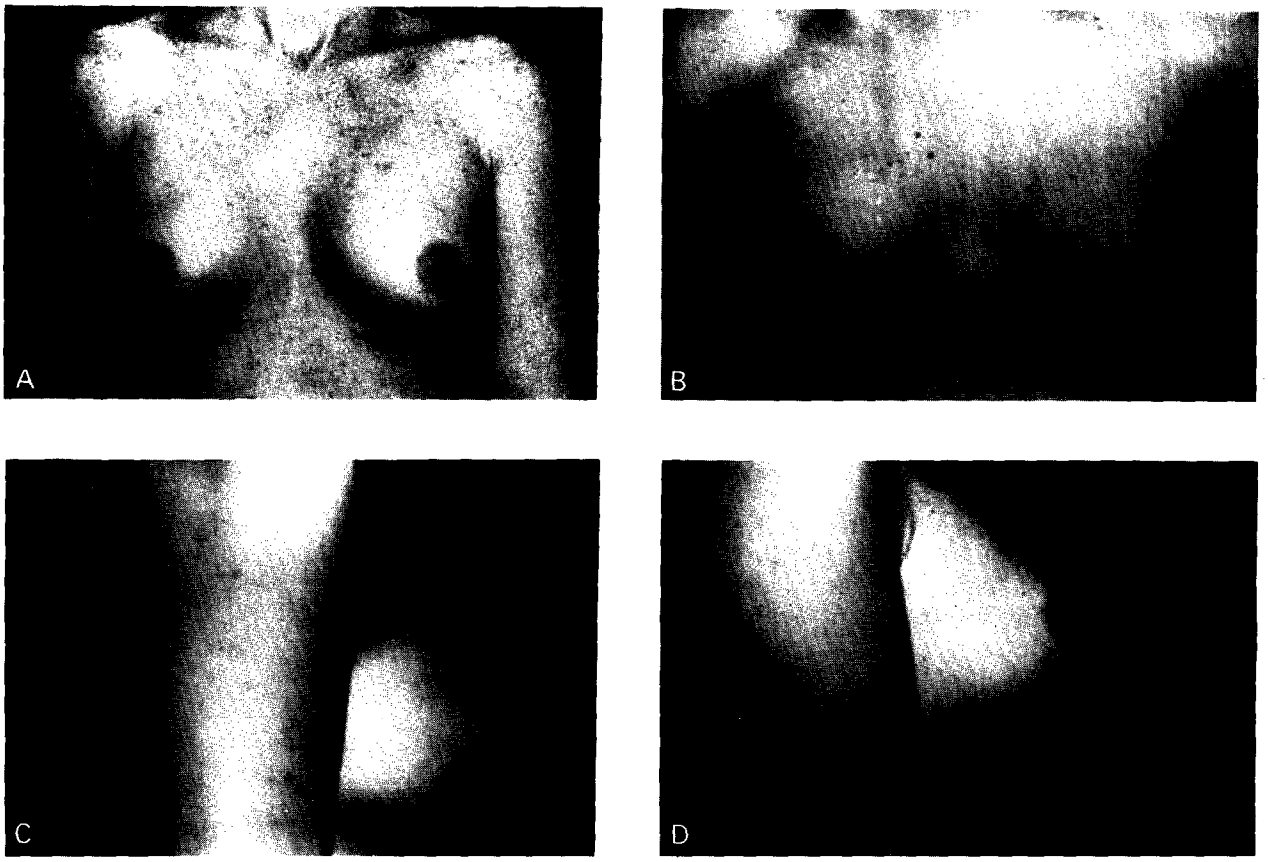

Fig. 7

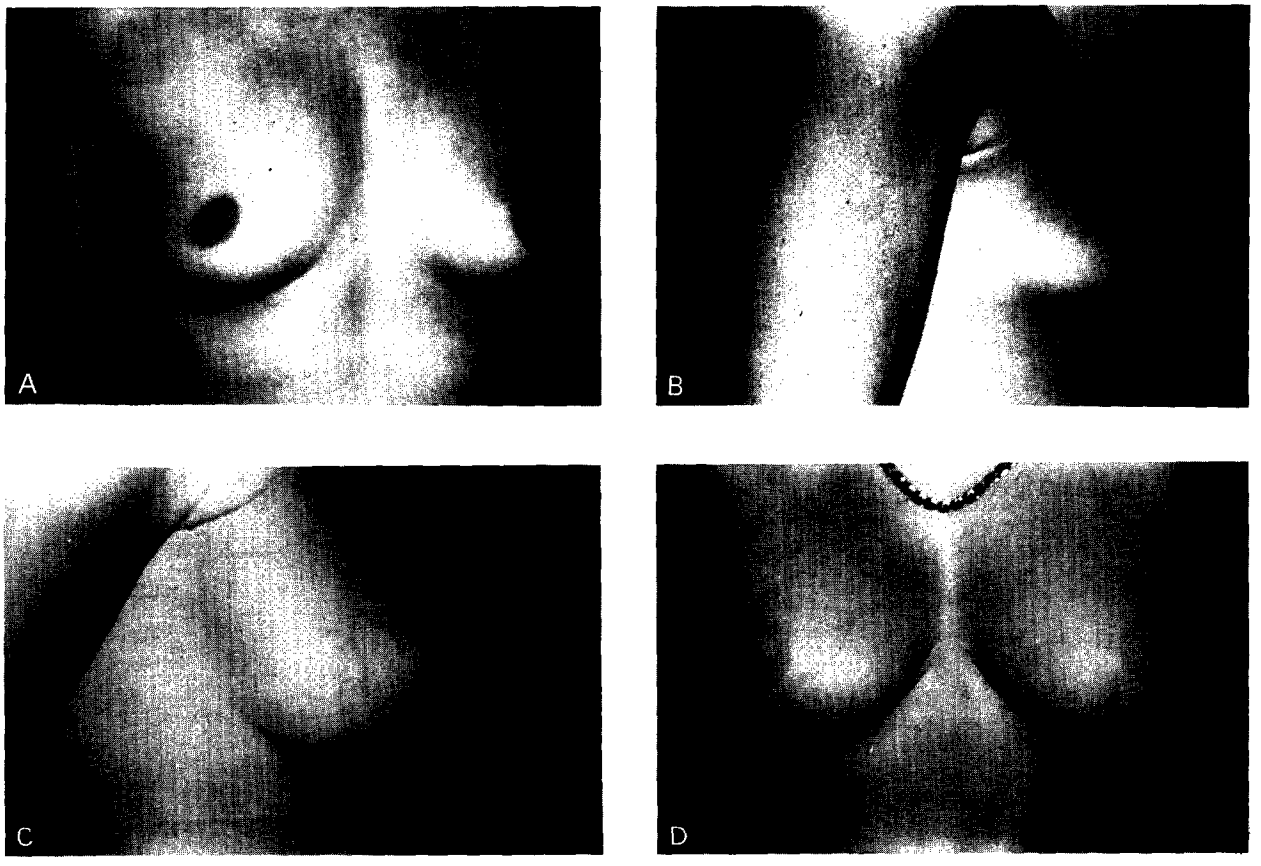

Fig. 8

Figure 7—A patient, above Preoperative Bust 10A. Below Postoperative 12C; 250 ml implant used. Retropectoral dissection. **Figure 8**—Another patient—Above Preoperative Bust 12B—Below Postoperative 14C. 275 ml implant used. Prepectoral siting of implant as breast is moderately ptotic.

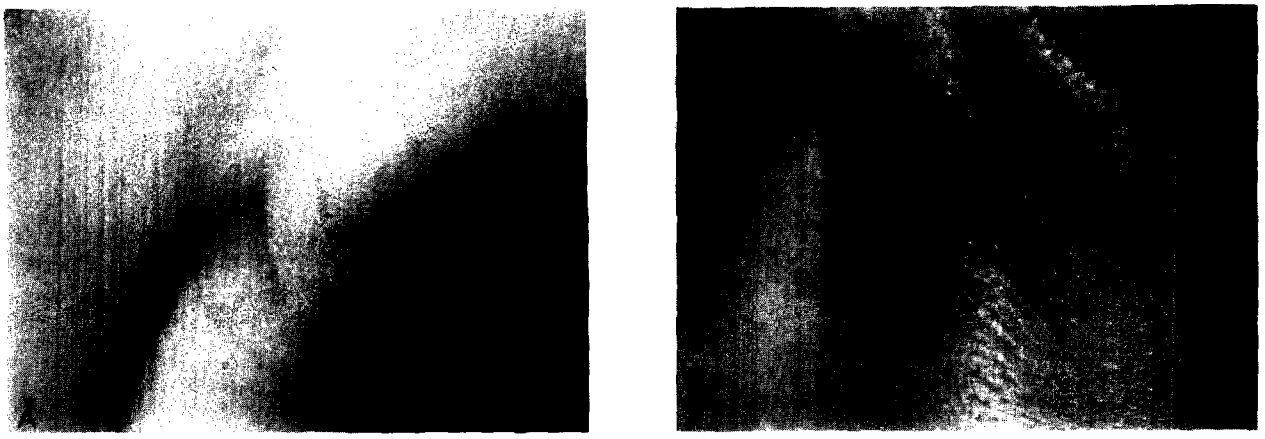

Fig. 9

Figure 9—Axillary scars in 2 patients at 3 months.

out and the arthroscopic telescope/sheath and coagulation diathermy probe are withdrawn. An empty Mentor saline filled implant with attached filling tube in place at the top is folded and introduced into the dissected pocket through the axillary incision held open with a Langenbeck retractor. The implant is inflated normally (Fig. 6). This procedure is then repeated on the contralateral side. Following inspection to confirm symmetry of the sides, the filling tubes are removed. A suction drain is then inserted in each side and the axillary incision and stab wound are closed. In patients whose breasts are ptotic the dissection is normally carried out in the prepectoral plane and the implant placed in the prepectoral pocket.

Clinical experience

A small series of 20 patients with a minimum follow-up of 3 months has been carried out. Only one had breast ptosis, in whom a prepectoral dissection and placement of the implant was carried out. One patient developed a small haematoma as a result of a blocked drain on one side; the small haematoma was evacuated in theatre and a new drain inserted. All were discharged the day after the operation following removal of the drains, except for the patient with the haematoma who stayed in hospital an extra day. Full abduction of the arms at the shoulders was begun the morning after the operation.

In this small series with a short follow-up, capsular contracture and valve failure with deflation of the breast have not been encountered yet. Figures 7 and 8 show some representative results. The stab wound scars have been hardly noticeable (Figs 7, 8); the small short axillary scars (Fig. 9) are inconspicuous and popular with the patients.

Discussion

Following the introduction of augmentation mammaplasty by Cronin and Gerow[1] in 1963, the operation was carried out with the prosthesis inserted through an inframammary incision. The inframammary route became a problem as swimwear became briefer, leaving the scars exposed. Jones and Tauras[2] in 1973 described the areolar approach to overcome this problem. They described an inferior hemi-areolar incision, dissection in the subcutaneous plane to the inframammary fold followed by the dissection of a retromammary prepectoral pocket. Pitanguy[3] in 1978 described the trans-areolar route which splits the breast tissue to the prepectoral plane through a transverse nipple-areolar incision. Although the areolar scar is scarcely visible in the majority of patients, a minority developed conspicuous hypo or depigmented areolar scars. In 1973 Hoehler[4] described the axillary approach with prepectoral placement of the prosthesis; the incision and thus the resultant scar lies hidden in the apex of the axilla well away from the breast. This advantage was pointed out by Raynor *et al.*[5] in 1978. Watanabe *et al.*[6] described trans-axillary sub-pectoral augmentation mammaplasty in 1982. Dissection in this plane is easy and relatively bloodless. It is the preferred plane unless breast ptosis is present. With the aid of direct vision from an arthroscope, a degree of precision and control previously not available is obtained. The only disadvantage of this route is the difficulty of open capsular release in case of capsular contracture as pointed out by Cronin[7] in 1976. Capsular contracture has not been encountered yet in this small series with a short follow-up.

The aims of contemporary endoscopic surgery are minimal invasion and trauma to the patient and with it a shorter recovery period and hospitalisation and earlier return to work. To this end specialised instruments have been designed and made for direct visualisation and surgical manipulation. The Storz wide angle 30 degrees oblique arthroscopic telescope, carrying its own cold light source, provides direct visualisation of the operative field while the Valleylab disposable laparoscopic electrode allows electrodissection and coagulation for haemostasis. Large vessels may be dealt with using vascular clips. Ports or small stab or incisional wounds are required in endoscopic surgery to allow for introduction of instruments for viewing and manipulation. These should be sited as close to 90 degree angles as possible so that the

instruments do not clash and to allow for easy viewing of the manipulating instrument. In endoscopic assisted augmentation mammaplasty a collapsed pocket is dissected before the instruments are introduced. Good visualisation requires a well distended cavity and good haemostasis; an endoscope tip covered with blood does not allow any visualisation. To distend the collapsed pocket, a pressure of 100 to 120 mm of mercury is required; this is difficult to provide with air or carbon dioxide. Normal saline cannot be used with electrocautery as it is a conducting electrolyte, while the dextrose of isotonic dextrose solution could char. Sterile 1.5 % glycine irrigation solution has been found satisfactory with electrocautery in urology for many years and has been adopted for distending the pocket and irrigation. Blood stained irrigating solution is cloudy and interferes with visualisation. Irrigation restores transparency to the solution, allowing good visualisation for the surgical procedure at hand. As the instruments are rigid, a trans-areolar approach is difficult if not impossible. The procedure may be modified to place the second port in the infra-mammary region. The resulting short scar should prove quite satisfactory when faded.

Endoscopic surgery is a relatively new surgical discipline and its techniques have to be learnt. Prior to embarking on the first case the author had closely watched numerous laparoscopic procedures and assisted at knee arthroscopy weekly for 3 months to familiarise himself with the technique and instruments. The operating time for the first case was 3.5 h; the last five have been performed in under 1.5 h.

Acknowledgement

I would like to thank my colleague Dr A. Strokon, orthopaedic surgeon, for introducing me to the technique of arthroscopy and for his help in adapting the technique to augmentation mammaplasty.

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