

Non Excisional Brachioplasty

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ABSTRACT

Brachioplasty is an aesthetic procedure which aims to rejuvenate the arm. Arm contour and scar placement are the main patient's concerns. Complications of previous techniques include central narrowing with skin excess near elbow and axilla, conspicuous scars and nerve injury. Non excisional brachioplasty starts with assessment of the redundant skin and markings of area of depithelialization that is supposed to be excised in the traditional techniques. Circumferential liposuction of the whole upper arm is done first. Depithelialization with liposuction in all layers beneath the depithelialized area are done followed by dermal sutures. Skin excision is done only at the axilla and the superficial fascial system (SFS) is repaired. This technique is done to 18 females. Follow-up ranged from 6 to 18 months. All patients were satisfied. Two patients had parasthesia which resolves 3-6 weeks later. Non excisional brachioplasty is innovative, reliable and safe technique.

INTRODUCTION

Brachial deformities include flaccidity of internal surface of the arm, skin laxity, fat excess, loss of muscular mass, brachial ptosis with an increase in the inferior curve of the arm and bat's wing [1,2,3]. Flaccidity of internal surface of the arm may occur with aging but sometimes it may occur earlier after massive weight loss or bariatric surgery. Brachioplasty techniques are different in incisions, excisions, liposuction and repair of SFS [4-8]. Traditional excision was done in most of them. Initially dermolipectomy was the only procedure. This was associated with frequent complications and suboptimal results [9,10,11]. Complications included; scars, central narrowing with proximal and distal skin excess, postoperative edema, seroma and hyperesthesia. Fusiform excision may cause central narrowing of the arm with dog ears. Despite major excision done to correct the ptosis, the arm remains flabby and the bicipital region appears atrophic. Ideas were innovated to get better arm contour. Since then, surgeons have modified the original technique, with a subsequent improvement in outcomes. Baroudi dissects the posterior edge and brings it onto the anterior edge to assess the

amount of skin to be excised [12]. Juri et al., described the use of a quadrangular flap and the first T-closure in their efforts to move tissue proximally into the axilla and then excise it with axillary incisions [13]. Gurrerosantos resolved the problem of having excess skin at the axilla by doing Z plasty [14]. Renaugt performed fish tail excision at the axilla. Renaugt made a transverse incision to facilitate tailoring and excising the excess at the elbow [15]. Goddio suggested not to excise the redundant skin but rather depithelialized and buried it under the anterior flap. This could create a bicipital outline, avoid skin excess at both axilla and elbow and restore arm contour and firmness [16]. Lockwood applied the concept of suspension SFS to improve the postoperative appearance and minimize visible scarring [8].

Brachioplasty techniques have different incisions as regards length and shape. All were concerned of vector of pull and the final appearance of scar. Direction of incision is related to vector of pull. Elimination of vertical excess might necessitate extending of the incision toward the elbow in the brachial sulcus to address both longitudinal and transverse skin excess. The placement of the incision one cm posterior to the sulcus makes the resultant scar less noticeable to the patient. There is a debate around linear and curved incisions. The curvilinear scar reduces the effects of the contractile tendency of the wound [17]. Some authors tried to restore dome shape of the axilla by using L-Brachioplasty [18]. Minibrachioplasty aims to confine the scar within the short sleeves [19]. Very often brachioplasty scars are hypertrophic, broad and malpositioned and have an unpredictable stable duration. To prevent wide scar and persistent postoperative edema one must avoid excessive resection [16-19]. Repair of SFS also minimizes visible scarring [8].

Postoperative edema may be related to venous or lymphatic drainage problems. Excessive resec-

tion and tension closure may affect both venous and lymphatic return. It is important to preserve the cephalic and basilic veins which run deep into the subcutaneous tissue. Arm elevation and postoperative compressive dressings were used by some authors. In Goddio's series the edema was not reported [16]. Changes in the location of incisions and the combination of liposuction with superficial excision have led to decreased risk to underlying nerves and lymphatics, with improved scarring and decreased postoperative edema [20,21]. Many surgeons perform liposuction to attain better aesthetic results [11-14,22]. Illouz and DeVillers have proposed objective criteria to find the ideal patient for liposuction. If sagging of the inferior dependent portion of the arm is equal to or less than thickness of the dermosubcutaneous complex, satisfactory results may be anticipated [23]. Circumferential suction lipectomy is suggested only for minimal to moderate subcutaneous fat with minimal skin laxity. It can be used in addition to resection of the redundant tissue or as in a staged manner to downstage brachial deformities [4,5].

PATIENTS AND METHODS

18 female patients were presented with brachial ptosis. Their age ranged between 30 and 65 years. Preoperative examination of the whole upper limb and axilla and standard photography were done. All patients had skin redundancy of more than two thirds of the upper arm (Fig. 1). Non excisional brachioplasty with circumferential liposuction have been done. Postoperative evaluation was done 6 to 18 months.

Technique:

2 curved S superficial incisions are done. The upper one is marked one cm posterior to the bicipital groove (Fig. 2). The lower one is marked later according to the anticipated redundant skin planned to be eliminated. Circumferential liposuction is done first. Depithelialization is done in the redundant skin which is planned to be excised in the original techniques (Fig. 3). This is followed by deep and superficial liposuction beneath the depithelialized region to make it as paper thin layer which can be invaginated easily. Neither excision nor undermining is done. Vector of pull can be directed in an oblique fashion to allow elimination of both transverse and vertical excess (Fig. 2). This helps to avoid any incision distal to the elbow in the forearm. Excision is done at the axilla with repair of SFS. Dermis to dermis suturing is done using 2-0 Monocryl. Compressive garment is used for two weeks.

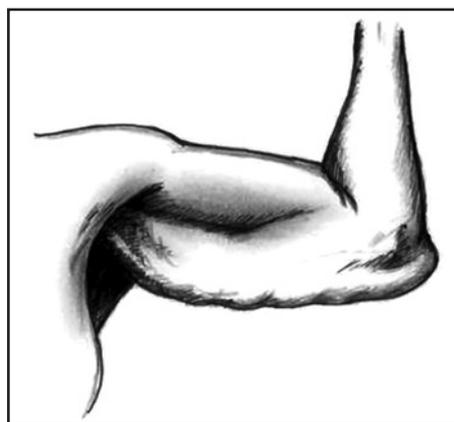


Fig. (1): Skin redundancy of more than two thirds of the upper arm.

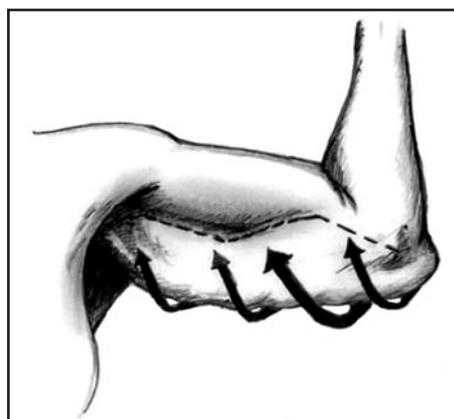


Fig. (2): Curvilinear incision and oblique vector of pull.

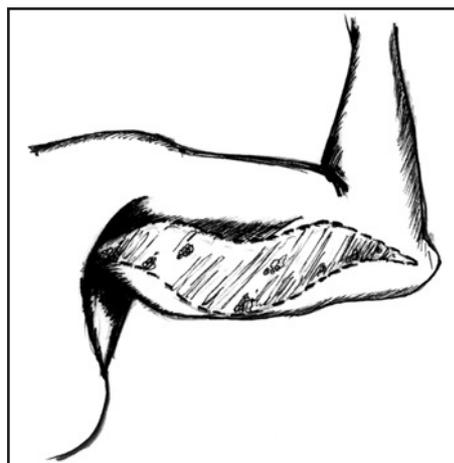


Fig. (3): Depithelialization technique in non excisional brachioplasty.

RESULTS

All patients were satisfied with the surgical outcome as regards arm contour, scar placement and symmetry. The upper arm contour was restored. Apparent asymmetry was not noticed. There was no scar widening. Hematoma, seroma and infection did not occur. There was transient parasthesia in

2 patients which lasts for 3 to 6 weeks. Results remain almost unchanged except in post bariatric patients in whom minor brachial ptosis occurred.

Preoperative photographs of patient with skin redundancy of more than whole upper arm and postoperative results are shown in Figs. (4,5).

Fig. (4): Preoperative frontal view of the right arm (A), Preoperative frontal view of the left arm (B), Postoperative frontal view of the right arm (C), Postoperative frontal view of the left arm (D).

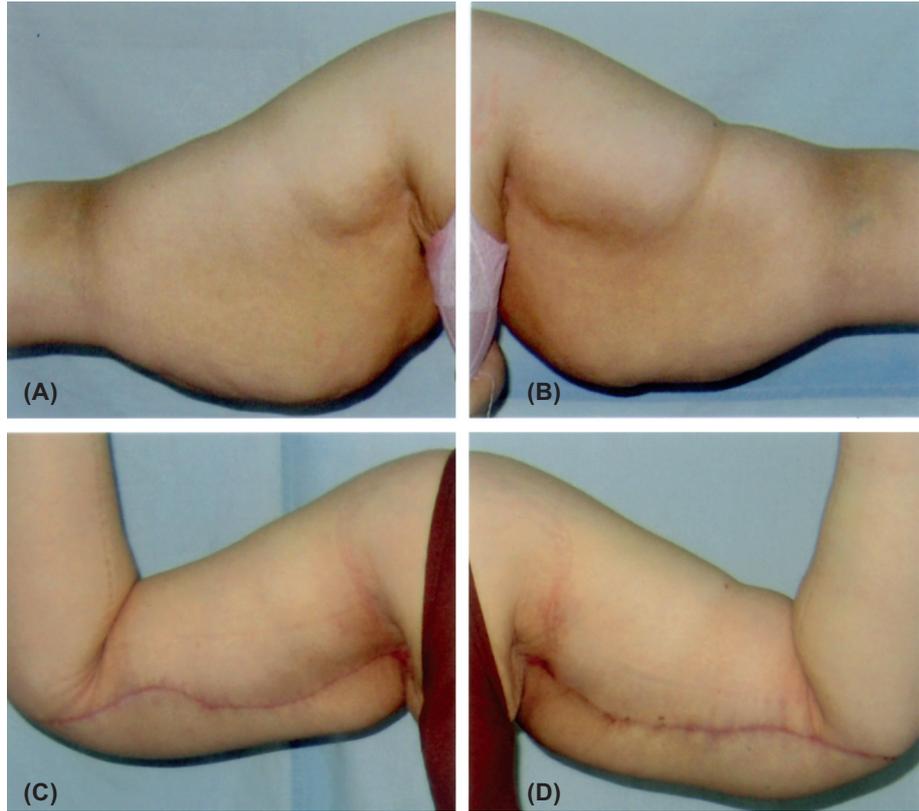
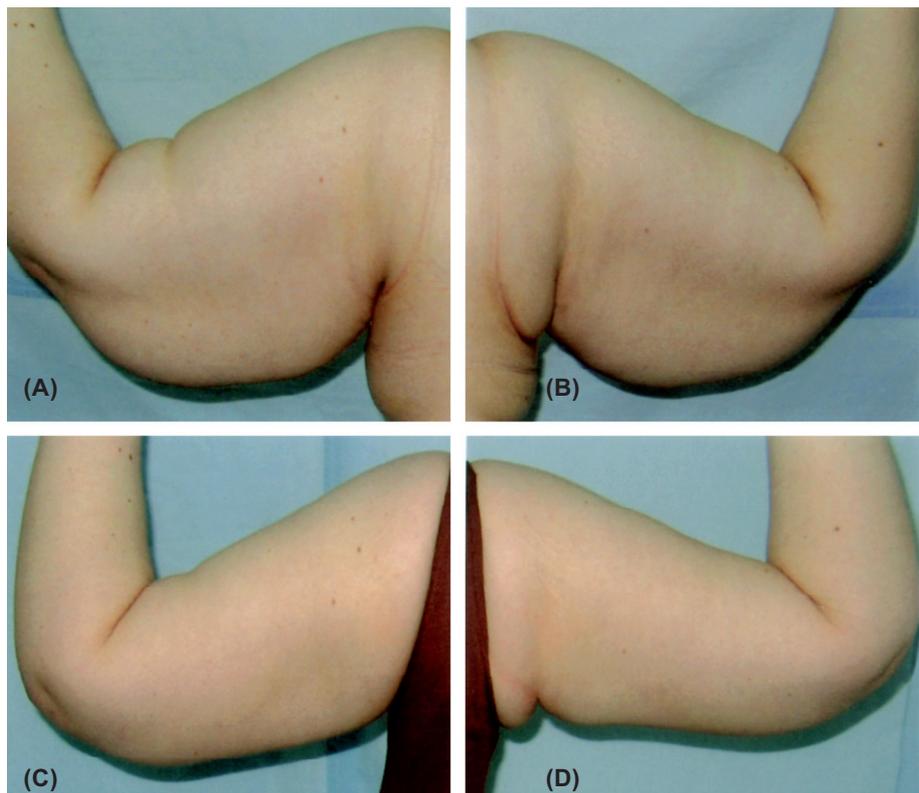


Fig. (5): Preoperative posterior view of the right arm (A), Preoperative posterior view of the left arm (B), Postoperative posterior view of the right arm (C), Postoperative posterior view of the left arm (D).



DISCUSSION

Brachioplasty is an aesthetic surgery which aims to rejuvenate the arm. Patient's concerns are arm contour and scars. Circumferential liposuction is useful in arm sculpturing, skin retraction in all directions, negates the need for undermining, dissection and excision except at the axilla. Skin excess at either axilla and/or elbow may necessitate scar extension or to add another perpendicular incision. The curvilinear incision permits to use an oblique vector of pull. This serves to get rid of both the transverse and vertical excess.

Excision of the redundant skin may lead to central narrowing and persistent atrophy of bicipital groove. The excision and undermining may endanger the medial antebrachial cutaneous nerve, veins and lymphatics. Goddio had described non-excisional technique and stated that there is no need for skin excisions neither at axilla nor elbow [16]. Many preferred not to perform undermining beyond the excision for better contour, less seroma and less lymphedema [13,14,25]. Liposuction which was done extensively beneath the depithelialized area makes the closure tension free. This is considered as safe procedure as it did not injure nerves, veins or lymphatics. In previous series the senior author tended to do excision. The incidence of seroma, persistent edema and wound dehiscence, hypertrophic scar, lymphedema and nerve damage was common. In the current study depithelialization without excision is done. There was neither need for dissection nor undermining. This decreased the occurrence of seroma, lymphorrhea, postoperative edema and nerve injury. Liposuction is done beneath the depithelialized area at all levels. By this the dermosubcutaneous layer becomes so thin which makes its invagination feasible. Dermal suturing strengthened the wound and minimizes the possibility of scar widening. Repair of SFS made the results long lasting.

Conclusion:

Brachioplasty techniques are aiming to eliminate brachial deformities, decrease complications and make the achieved results long lasting. Advantages of depithelialization are avoidance of undermining and excision. This will preserve arm contour, lessens occurrence of oedema, seroma and injury of medial antebrachial cutaneous nerve. Dermal suturing strengthens the wound and lessens scar widening. Skin excision without undermining is performed only at the axilla. Circumferential liposuction provides uniform skin retraction and better arm contouring. Anchoring of SFS tightens

and rejuvenates the upper arm. It also makes the results long lasting. Excision is recommended only in cases of dermochalasis with severe skin redundancy and no excess fat.

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