

# TULIP LIPOSUCTION A NEW TECHNIQUE IN BANGLADESH

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## Abstract

Tulip liposuction is a recent modification of the classical Mayo liposuction, which is done by suction apparatus consisting of large cannula, noncollapsible wide bore tubing and a big suction device. Tulip liposuction is an entirely hand operated device comprising of disposable syringes, specially designed to fit snugly to thinner metallic cannula, with proximal ends shaped like a Tulip - hence the name Tulip liposuction. This modification has many advantages over the Mayo type.

This paper presents the initial experience of Tulip liposuction in Bangladesh. The study was carried out at different hospitals in Dhaka from December 1997 to December 1999. Twenty-four patients underwent this procedure. Of them nineteen were carried out for cosmetic reasons. The other five for extraction of lipomas. The age range was 21 to 39 years. Six were males and eighteen were females. Three cases were done under local anaesthesia and the twenty-one under general anaesthesia. Hyalase, adrenaline and normal saline were injected in the subcutaneous fat. A small stab incision was made and then fat was aspirated. No stitches were required. No significant complications were encountered.

We concluded that Tulip liposuction is an entirely safe and effective procedure in cosmetic surgery.

**Key words :** Lipid, tulip suction, Bangladesh

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## Introduction

Dr. Illouz first introduced liposuction at 1977. Classical Mayo liposuction consists of large cannulas (5-8 mm), noncollapsible wide bore tubing and suction tubing apparatus similar to the ones commonly used in an operating theatre. In the mid 1980's Tulip liposuction was introduced. Here an entirely hand operated device is used. It comprises of disposable syringes, specially designed to fit snugly to thinner metallic cannulas, with proximal ends shaped like a Tulip. The advantage of this modification is that the instrument is light and not noisy. It is also more precise and less traumatic than the traditional Mayo liposuction (Table-I). The Tumescence method was started in the late 1980's in the USA. Rapid modification of technique indicates popularity and demand of liposuction in plastic surgery. People have become more and more conscious about their looks and are undergoing body contour surgery

more frequently. Body contour surgery consists of a variety of procedures - Liposuction, Liposhaving, abdominoplasty, Flankplasty, etc.

**Table-I**

*Comparison between Classical Mayo and Tulip Liposuction technique*

Classical Liposuction	Tulip Liposuction
Large Cannulas	Entirely hand operated
Noncollapsible wide bore tubing	Disposable syringes
Suction apparatus	Thinner cannulas - Tulip shaped Light, no noise More precise, less traumatic

Liposuction may be classified into Dry, wet and Superwet types according to the injectate fluid used. It may also be classified into superficial,

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deep and combined (MALL- Massive All layer Liposuction) type depending on the tissue plane of operation (Table-II).

**Table-II**

According to injectate      According to tissue  
plane of operation

A) Dry	A) Superficial
B) Wet	B) Indepth / Deep
C) Superwet / Tumescent	C) Combined (MALL - Massive All Layers Liposuction)

Liposuction is mainly used for cosmetic purposes, improving the shape and appearance of the abdomen, buttocks and thighs (Table-III). The arm, face, neck, leg, knee and ankle may also benefited from liposuction. It may also be used in conjunction with other cosmetic procedures such as abdominoplasty, face lift

or breast reduction. Liposuction may easily be carried out during other noncosmetic operations e.g., appendicectomy, hysterectomy, etc. An important indication of liposuction is lipoma<sup>1</sup>. Subcutaneous lipomas can efficiently be extracted through a smallhole by this technique. Gynaecomastia is another indication where liposuction can be very useful<sup>2</sup>. It can also be used to reduce flap bulk, for example after breast reconstruction by TRAM flap<sup>2,3</sup> or for the correction of dog ears, for example after abdominoplasty. The indication of liposuction does not end here. It may effectively be used as a treatment of colostomy or urostomy retraction. Urinary stress incontinence has also been reported to be treated by liposuction<sup>1</sup>. Postmastectomy lymphoedema of the arm is another indication. Lastly insulin induced lipohypertrophy can also be treated by liposuction.

**Table-III**

Indications of Tulip - Liposuction

Sl. No.	Indications	No. of Pastiest (n=24)	Percentage
1.	Cosmetic (Lone use)- Abdomen-whole, 'Love handles', Circumferential, part between scars, Buttock Thigh, Face, Neck, Leg, Knee, Ankle	13	54.17%
2.	In conjunction with other operations- Abdominoplasty, Facelift, Breast reduction.	3	12.50%
3.	In conjunction with other operations Appendicectomy, Hysterectomy, etc.	3	12.50%
4.	Liposma extraction	5	20.83%
5.	Gynaecomastia	0	0%
6.	Reduction of flap bulk - e.g. after TRAM	0	0%
7.	Correction of dog ears-e.g. after Abdominal	0	0%
8.	In Co9lostomy / Urostomy retraction	0	0%
9.	Urinary stress Incontinence	0	0%
10.	Postmastectomy Lymphoedema of the arem	0	0%
11.	Insulin Induced Lipohypertrophy	0	0%

### Materials

The study was carried out at a number of private hospitals in Dhaka. The period of study was December to December 1999.

Number of patients were 24, the age range was 21 to 39 years (Table-IV). Of them eighteen were females and six were males. Nineteen out of the twenty-one procedures were carried out for cosmetic reasons and the other five for extraction of lipomas (Table-V).

Liposuction was carried out after careful assessment of each patient. Their desire and expectations were noted. A detailed history including his or her dietary habit was also noted. Lipoma patients underwent detailed local examination, which included location and size of the tumour. Three cases were done under local anaesthesia and the other eighteen under general anaesthesia.

#### Procedures :

Hyalase, adrenaline and 0.9% Sodium chloride solution was injected in the subcutaneous fat a few minutes before carrying out liposuction. Lignocaine was added in the injectate solution for patients who were undergoing the procedures under local anaesthesia. Light sedation was also added in these patients. A small stab incision measuring less than 5 mm

was made in the flank. Cannula of 4.6 or 3.7 mm size (depending on the location) was then inserted. A specially designed disposable syringe remains attached to the proximal end of the cannula and a constant suction is applied by means of a locking device in the syringe. The partially liquefied fat was then aspirated by repeated to and fro movements. During the whole procedure the surgeon's left hand was constantly placed over the moving cannula. This is essential for the assessment of depth of liposuction and prevention of deeper penetration. By changing the direction of the cannula a wide area of fat could be sucked out by a single hole.

At the end of the procedure the stab incision is closed by steriswtrips and no stitches were applied. Micropore strappings were used for few days postoperatively. Skin fold thickness was assessed preoperatively and then measured again after the procedure (Figure- 1). These measurements were recorded and compared. Pre and postoperative photographs were also taken. Lipid profiles were done preoperatively in patients undergoing massive liposuction. The test was repeated two months after the procedure to detect any change in HDL level.

All the patients treated were followed up and examined regularly.

**Table-IV**

*Age and sex distribution of patients (n=24)*

Age group (in years)		Frequency	Male
Female	Percentage		
20-25	10	9	41.67%
25-30	7	4	29.17%
30-35	5	3	20.83%
35-40	2	2	8.34%
Total	24	18	100%

**Table-V**

*Sex distribution according to indication (n=24)*

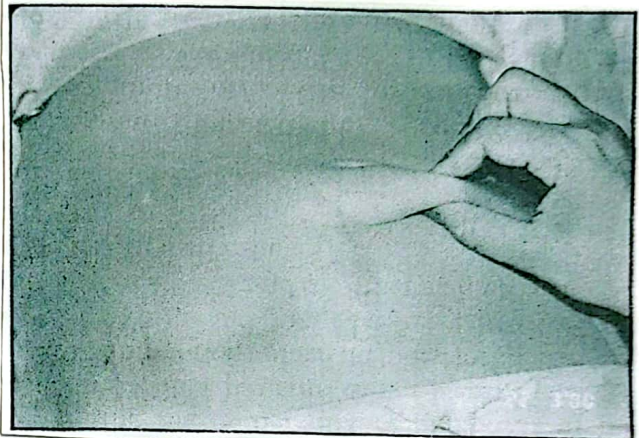
Sex	Cosmetic purposes (%)	Lipoma extraction (%)
Female	14 (73.68%)	4 (80%)
Male	5 (26.21%)	1 (20%)
Total	19 (100%)	5 (100%)

**Table-VI**  
Complications of Tulip-Liposuction

Sl. No.	Complications	Total No. of patients (n-24)	Percentage
1.	Bruising	2	8.33%
2.	Nerve injury (Temporary)	1	4.17%
3.	Blood loss	0	0%
4.	Intestinal perforation	0	0%
5.	Toxic shock syndrome	0	0%
6.	Fat embolism	0	0%
7.	Pulmonary oedema	0	0%
8.	Metal hypersensitivity	0	0%

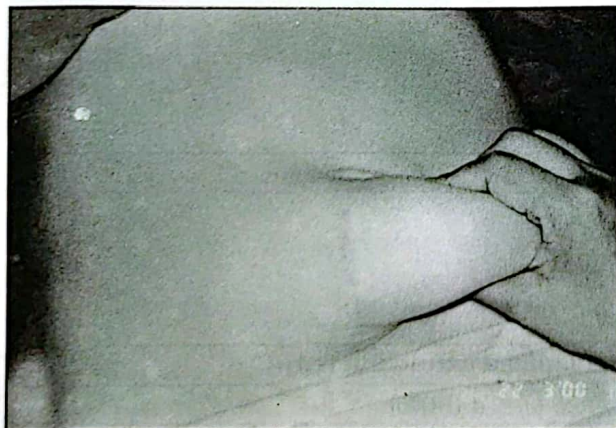
### Results

The volume of extracted fat ranged from 500 to 2500 ml for patients undergoing liposuction for cosmetic reasons. For lipoma patients the volume ranged from 20 to 150 ml. Skin fold thickness was reduced from about 3 inches to less than 1 inch (Figure 1 and figure 2). Most of the patients went home the same day. Over-night hospitalisation was required only in those patients who underwent the procedure in the evening under general anaesthesia. Regular follow up of the patients was done and the skin fold thickness measured. None of the patients on our series were found to regrow fat in the treated areas. This was evidenced by the fact the postoperative skin fold thickness as measured serially in the follow up were constant. Postoperative photographs of patients in standing position and in profile view were taken for comparison with preoperative

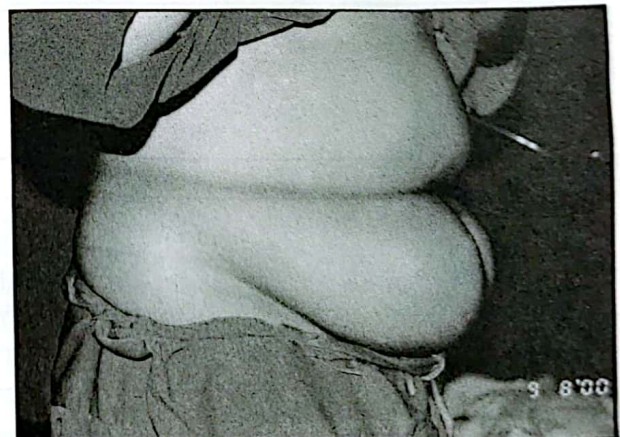


**Fig-2** : After liposuction- skin fold thickness reduced to less than 1 inch.

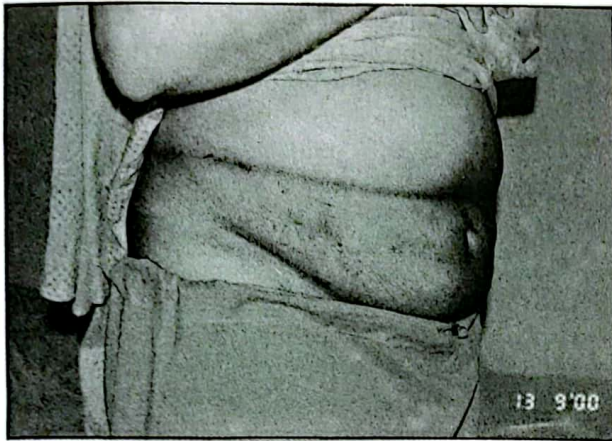
pictures (Fig. 3, 4). Evaluation of results could thus be made easily by the surgeon and patients.



**Fig-1** : Before liposuction- excess abdominal fat with skin fold thickness of 3 inches.



**Fig-3** : Female patient excess abdominal fat (specially lower abdomen)- before liposuction.



**Fig.-4 :** Same patient as in figure-3- after liposuction.

For those five patients under going treatment for lipomas, liposuction resulted in total disappearance of the tumour. Repeated follow up did not reveal recurrence in any one of them.

Skin flaccidity did not occur in any of the patients.

Frank discussion with the patient was done postoperatively to assess overall satisfaction. It was found out that satisfaction is high. Overall complications were minimal (Table-VI). Bruising were found in two cases but they resolved spontaneously with in a week. Blood loss usually occurs in an average of 9.3 ml per litre of aspirate, which is insignificant. None of our patients had blood loss ore than this. Temporary numbness around the umbilicus (due to cutaneous nerve twing injury) occurred in one patient. It was so insignificant that the patient realised about this problem only after interrogation and examination. The periumbilical numbness rapidly and completely recovered as confirmed in subsequent examination of the patient. Other infrequent complications as depicted in Table - VI were not encounterd in our series.

### Discussion

Liposuction is a new technique in Bangladesh. Our initial experience in this study has been very satisfactory. There is lack of knowledge about this procedure especially regarding its effectiveness and virtual absence of complications.

The false belief that skin sagging may occur after liposuction prompted surgeons to avoid superficial layer liposuction in the past. But it has been shown now a days that liposuction of the superficial layer of subcutaneous fat does not cause any skin sagging or wrinkling. It fact superficial liposuction first introduced in 1989 resulted in better skin retraction with better cosmetic result. The only danger is damaging the subdermal plexus of vessls. But this can easily can avoided by carefully directing the hole in the tip of cannula away from the skin while at the same time working very close to it<sup>1</sup>. So, we carried out liposuction of both the deep and superficial layers of fat in our patients, all with good results. Moreover, the areas of liposuction do not regrow fat even if one overeats<sup>4,5</sup>. This is because of the fact that the number of fat cells in the body remains constant through out the whole life. So, when a person gets "fat" there is enlargement of this existing fat cells and not introduction of new ones. So, when fat cells are removed by liposuction they are lost forever. The body does not and cannot replace them. It is wise to avoid overeating after liposuction for the maintenance of good health. But it has been documented that even if patients gain weight postoperatively by overeating, fat recollection does not occur in the treated areas.

The relationship of liposuction with an increase in protective HDL level also drew our attention. We are at present doing prospective study where the HDL level increases in patients undergoing liposuction<sup>6</sup>. The increase in HDL level decreases the risks of cardiovascular and cerebrovascular diseases. It therefore implies that people undergoing liposuction will be at a lower risk of getting ischaemic heart disease, myocardial infarction and paralysis from strokes.

The relationship of liposuction and management of diabetes mallitus is also interesting. Glucose tolerance and insulin requirement in diabetes patients has also been shown to improve in some studies<sup>7</sup>. Of course in potential diabetics if liposuction is carried out in a particular time of his/her life the individual may not develop diabetes at all<sup>7</sup>. In fact one of our patients is a male doctor who underwent this procedure because of this indication.

Aspirated fluid volume in our series ranged from only 20 ml to 2500 ml. It does not cause any significant fluid imbalance. In the U.S.A. liposuction of larger volumes of fat (about 5 liters ) are done, frequently and without any complications<sup>7</sup>.

Volume of fluid injected peroperatively should be given in a calculated way<sup>8</sup>. The total fluid replacement should be equal to twice the volume of aspirate. That is for a patient, whose aspirate volume is one litre he or she is supposed to get two litres of fluid replacement in the preparative period. These two litres of fluid replacement is the sum of the subcutaneous injection plus the intravenous administration. If this total replacement of administration is less than twice the volume of aspirate then additional intravenous fluid is given in the postoperative period.

Apprehension regarding lidocaine toxicity was never there in our series because we do not use it in our patients. Only those patients who underwent lipoma extraction under local anesthesia received lignocaine. But the amount was entirely within the permissive level. The maximum dose of lignocaine is 300 mg for a 70 kg man or 500 mg in presence of adrenaline<sup>9</sup>.

Complications are minimal and not significant. Bruising occurred in only two patients and appeared as small areas of discoloration. But they disappeared regularly within a few days. Patients may complain of some numbness in the overlying skin due to injury to cutaneous nerve twigs but they occur rarely and do not bother the patient as it recovers quickly. The relative simplicity of procedure along with virtual absence of complications helped tulip liposuction gain rapid and widespread popularity amongst plastic surgeons. The permanent nature of treatment as evidenced

by absence of recurrence is another interesting point. None of the patients in our series had recurrence and this findings conforms to other studies done elsewhere<sup>4,5</sup>.

### Conclusion

One can get rid of excess fat easily and safely by liposuction. Areas of liposuction do not regrow fat even if one overeats.

So, we conclude that Tulip liposuction is safe, effective and convenient way of reducing fat for cosmetic reasons and also for the treatment of subcutaneous lipomas.

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