

Miniscar Abdominoplasty Combined with Suction Lipectomy, our Experience with a New Technique

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ABSTRACT

Currently, miniscar abdominoplasty techniques to reshape the abdominal wall are carried on as a trend for downsizing incisions in some patients with limited exposure and skin removal. The aim of this work is to evaluate the periumbilical approach for body contouring in 26 patients with minimal skin laxity, moderate abdominal wall lipodystrophy, musculofascial diastasis and no concern for abdominal wall stretch marks or scars. The procedure consists of truncal liposuction and midabdominal vertical musculofascial plication through a periumbilical incision. Postoperatively, we recorded seroma (11.54%), sense of epigastric fullness (19.23%), abdominal wall irregularities which needed further liposuction (7.69%) with no abdominal wall slough, major sensory loss or musculofascial plication breakdown. On follow up, we detected hypertrophic scar (15.38%) and (11.54%) of the treated cases asked for further limited suprapubic skin excision. We concluded that, the periumbilical approach for body contouring in selected cases of abdominal wall deformities is a safe alternative to classic abdominoplasty, the scar is hidden in the umbilical pit, permits excellent body contouring with minimal complications, the surgical procedure is easier and the convalescence is much shorter with less hospital stay.

INTRODUCTION

The ideal abdominal aesthetics include, tight trunk and inguinal tissues with deep waist concavity, central tissues not as tight with mild convexity of hypogastrium and mild concavity of epigastrium, midline epigastrium valley between rectus muscle bulges and vertically oriented umbilicus [1-4]. The main causes of contour deformities of the abdominal wall are obesity, flaccidity of the muscles, localized lipodystrophy and sequelae of trauma, pregnancy or previous surgery that result in scars, hernias and eventeration [5]. During the past 25 years, the trend in abdominal contouring is toward the increased use of liposuction as both a primary and an adjunctive technique and toward shorter abdominoplasty incisions [6,7,8].

Alternative abdominoplasty techniques have included limiting the undermining to a central triangle in standard abdominoplasties which may

be combined with or without liposuction of truncal fat deposits in procedures known as mini, limited and modified abdominoplasties [9,10,11]. Although use of the shortest effective incision in body contouring surgery is an admirable goal, this primarily is limited to patients with minimal or isolated abdominal laxity with or without truncal fat deposits [12]. No one technique provides an optimal outcome for all patients and a systematic evaluation is essential to provide the optimal surgical intervention [2] and the key anatomic features include the elasticity of abdominal skin, distribution of extra-abdominal fatty tissue, presence of striae gravidarum and location of anteroposterior bulging secondary to musculofascial laxity, diastasis or hernia [13,14,15].

The aim of this study is to evaluate a surgical technique for miniscar abdominoplasty through a periumbilical incision in patients with minimal skin laxity, moderate fatty tissue deposits, musculofascial diastasis with no concern for abdominal stretch marks or previous scars.

PATIENTS AND METHODS

The study included 26 patients with abdominal myoaponeurotic deformities who were admitted to Plastic and Reconstructive Surgery Unit, Tanta University Hospital for abdominoplasty through periumbilical incision.

The Selection Criteria for the Studied Technique were:

- Minimal skin flaccidity.
- Musculofascial diastasis.
- Moderate abdominal wall lipodystrophy.
- No concern for the presence of stretch marks or scars of previous operations.
- The patient prefers avoiding the long transverse classic abdominoplasty scar (Fig. 1).



Fig. (1): Female patient with diastasis recti and minimal suprapubic skin laxity.

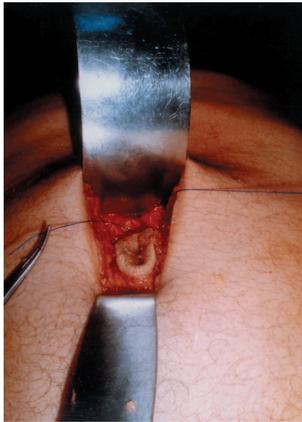


Fig. (2): Periumbilical incision with good retraction and fascial plication.



Fig. (3): On table, periumbilical wound closed (aspirated fat on the top).



Fig. (4): Same female patient in Fig. (1) with immediate postop. results (vacuum drainage is secured).

The amount, distribution of abdominal fat and abdominal contour were determined in the standing and supine positions. The patient was asked to relax and the contour of the abdomen was examined, then asked to tighten the abdominal musculature and any change in the abdominal contour was marked.

Operative Technique:

All patients had general anaesthesia with prophylactic antibiotic (1st generation cephalosporin).

- 1- Periumbilical incision (all around the umbilicus and within the umbilical pit) was done.
- 2- Tumescence liposuction through the periumbilical incision was performed for the fatty layers (minimally superficial and aggressively deep to Scarpa's fascia).
- 3- After adequate liposuction and through the periumbilical incision, dissection was done for the central abdomen up to xiphisternum and down to the suprapubic area, good retraction and haemostasis exposed the musculofascial plane of the midabdomen and we used no. (1) polypropylene continuous suturing to plicate the musculofascia of the midabdomen starting from the umbilicus upwards to xiphisternum and returning back to just above the umbilicus as a second layer of plication. Again we started plication below the umbilicus downwards to the marked suprapubic bulge and returned back to finish the plication in two layers at the umbilical end of the midline (Fig. 2).
- 4- Vacuum drainage was secured coming out from a separate stab in a hidden site at the lower abdomen.
- 5- The umbilical stalk was shortened to the rectus fascia with 3/0 polyglactin (vicryl), we trimmed any burned skin at the periumbilical incision from the friction of the liposuction cannula and the wound was closed by 4/0 polypropylene interrupted sutures (Fig. 3).

Postoperatively, adhesive elastoplast was applied for two weeks, then a compression garment was used for further 3 months.

Follow up every 2 weeks for the first month, then monthly for the next 6 months was our routine.

RESULTS

Females were the majority (92.3%) and age of the operated patients ranged from 22 to 48 years (Fig. 4). The average amount of the wetting solution instilled was 2100c.c and the average aspirate was

1900c.c. Early postoperatively, we reported seroma in 3 patients (11.54%), 5 patients (19.23%) were complaining of sense of epigastric fullness which relieved spontaneously by time but no skin slough or wound infection were detected. Within the first 6 months of follow up, three patients (11.54%) required minimal skin excision through a small transverse suprapubic incision and two cases (7.69%) asked for a minor further liposuction for flanks irregularities which was done under local anaesthesia as a day surgery. By the end of the first 6 months follow up, we reported hypertrophic scarring of the periumbilical incision in 4 cases (15.38%) that was managed by intralesional corticosteroid while we did not record any musculofascial repair breakdown (Table 1).

Table (1): Postoperative local complications.

Complication	No.	%
Seroma	3	11.54
Skin slough	0	00.00
Sense of epigastric fullness	5	19.23
Abdominal wall irregularities	2	07.69
Hypertrophic scarring of the incision	4	15.38
The need for limited postoperative skin excision.	3	11.54

DISCUSSION

Localized fat deposits and skin flaccidity are sometimes resistant to the most sincere efforts in weight loss and sport activities. Depending on the individual morphology, skin quality and laxity, the procedure of abdominoplasty with various contour restoring techniques was chosen [2,16]. Currently miniscar techniques are carried on as a trend for downsizing incisions and maximizing the use of these abdominoplasty procedures in some patients with limited exposure and skin removal [1,7]. According to recent statistics, abdominoplasty had the most significant increase (17%) of the major cosmetic surgery procedures for the previous years, and liposuction remained the most popular aesthetic surgery procedure in both genders [17]. Tumescence liposuction of the abdominal wall not only removes the excess adipose tissue of the deeper loose fibrous network but may also result in superficial skin contracture to further define the torso [18,19,20]. The selected twenty six cases in the present work had minimal skin laxity but needed adipose tissue removal and fascial plication for body contouring were the material of our study. Actually they had the strong desire to avoid long incision of the classic surgical abdominoplasty. The principal technique of the present surgical intervention included utilizing liposuction both aggressively for

the fatty layer deep to the Scarpa's fascia and minimally to the superficial fatty layer to avoid contour irregularities and skin complications, in addition to musculofascial plication of the midabdominal wall through a periumbilical incision. As we restricted aggressive liposuction to the deep fatty layer, our patients didn't experience the potential risks of skin necrosis, blistering or scarring when the used liposuction cannula came closer to the dermis. Early postoperatively we detected minimal amount of serous collection in 11.54% of our patients which was corrected by repeated aspiration and compression garment. Nahas and others [21] reported seroma in 8.3% and Persichetti and his colleagues [22] found such complication in 7.2% of their cases and the increased incidence of seroma formation among our cases may be attributed to our procedure, because earlier in our study we didn't use the vacuum drainage, depending on the immediate postoperative elastoplast and pressure garment to abolish the dead space that developed from central undermining and liposuction of the flanks. On follow up, we noticed abdominal wall irregularities in 7.69% of the corrected cases which were managed by further liposuction under local anaesthesia as a day surgery procedure. The used technique in this study preserved neurovascular structures that would be disrupted with the classic abdominoplasty, lessening the chance for skin sloughing, flap necrosis and numbness and even anaesthesia of the abdominal wall post classic abdominoplasty technique [23]. By the end of the first 6 postoperative months we noticed hypertrophic scarring of the periumbilical incision in 15.38% of our patients which was managed by interalesional corticosteroid and pressure garment while we excised minimal redundant skin through a small transverse suprapubic incision under local anaesthesia in three patients (11.54%). Rectus abdominis laxity was managed by fascial plication with polypropylene continuous suturing using a curved retractor without the need of lighted retractors or the use of endoscope as in other studies [24,25,26], because the skin mobility facilitated by suction lipectomy allowed retraction of the periumbilical skin superiorly up to the xiphisternum and inferiorly to the suprapubic area in all corrected cases [3]. We did not report any musculofascial plication breakdown among our corrected cases as we used nonabsorbable monofilament sutures and this was recently confirmed by Nahas et al., with computed tomographic scan slices [21]. Five patients (19.23%) of the corrected cases were complaining all the time of sense of fullness in the epigastric region which reduced by time and pressure garment and our results were matched with that of Dabb

and his colleagues [27] who used the combined liposuction and rectus fascia plication through a periumbilical incision and reported seroma in 15.6% with no neurosensory loss, skin slough or burn and 6.2% of patients needed minor surgery for scar revision or further liposuction for abdominal wall irregularities.

After one year follow up, the contour and silhouette were greatly improved and the supraumbilical bulge which was complained of by some patients disappeared that confirmed the results of the earlier work of Shestak et al. [28] who used short scar technique for infraumbilical muscle plication with endoscopic extension to the sub-xiphoid level if needed and reported efficient correction of the lower abdominal bulging.

We concluded that, suction lipectomy of the trunk with anterior rectus fascia plication through a periumbilical incision in selected cases with abdominal contour disfigurement which has minimal skin laxity, moderate abdominal wall dystrophy, musculofascial diastasis and who have no concern for the present stretch marks, is a safe alternative to classic abdominoplasty that permits excellent body contouring in a single surgical procedure with minimal complications. The results in term of skin improvement are suboptimal when compared with full open classic abdominoplasty, but cosmetically the scar is hidden, the surgical procedure is easier and the convalescence is much shorter with less hospital stay.

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