

A Novel Skin Marking Technique for Excess Skin Resection by Fleur-de-lis Abdominoplasty

Abstract

Introduction: Fleur-de-lis abdominoplasty is used in vertical and horizontal correction of excess skin. However, determining how much skin to resect can be challenging. In this paper we describe a high-precision skin marking technique for this purpose.

Patients and methods: Between April 2012 and June 2016, 24 patients of both sexes were submitted to fleur-de-lis abdominoplasty under peridural anesthesia and sedation, without liposuction, by the same surgeon.

Results: The average age was 44 years (range: 23-61). The mean duration of surgery was 144 min (range: 120-160). All scars were adequately aligned.

Conclusion: The technique was found to be safe and easy to perform and reproduce. Moreover, high precision helps avoid sinuous and tense scars.

Level IV: Evidence obtained from multiple time series with or without the intervention, such as case studies. Dramatic results in uncontrolled trials might also be regarded as this type of evidence.

Keywords: Fleur-de-lis; Abdominoplasty; Skin; Anesthesia; *En bloc*

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Introduction

Anchor abdominoplasty was first performed by Weinhold in the early twentieth century. The procedure was later perfected by Somalo (1940), Dufourmentel (1959), Castañares (1967) and Regnald (1975) who introduced the fleur-de-lis design [1,2].

The procedure corrects excess skin in the vertical and horizontal dimension, but determining the amount of skin to resect can be challenging. The final tension, symmetry and quality of the scar and the risk of dehiscence, necrosis and complications potentially compromising the outcome all depend on the care taken at this first step [3,4].

The purpose of this study was to provide a stepwise description of a novel technique of skin marking for resection by fleur-de-lis abdominoplasty in formerly obese patients and identify the advantages associated with it.

Patients and Methods

The study included 24 formerly obese patients of both sexes submitted to fleur-de-lis abdominoplasty by the same surgeon at a public referral hospital in Northeastern Brazil between April 2012 and June 2016. All patients had experienced considerable weight loss following bariatric surgery two or more years previously. All had excess skin in the vertical and horizontal dimension and indication for fleur-de-lis abdominoplasty. Patients with excess skin in only one dimension (vertical or horizontal) were ineligible. The procedure was performed under peridural anesthesia and sedation, without liposuction.

Techniques

With the patient in the orthostatic position, the surgeon places a mark on the xiphoid process and another on the pubic midline at 5-7 cm above the vaginal commissure (women) or base of

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the penis (men) (**Figure 1**). From this point, a horizontal and slightly rising line is drawn to the right (X) and to the left, and two reference points equidistant in relation to the midline are marked on each side. Then the abdomen is divided vertically into three sections.

Using one hand, the surgeon tractions the excess skin of the upper third portion contralaterally and, starting at the xiphoid process, marks a line at right angles with the floor. The same is done for the middle third portion and the lower third portion. The procedure is repeated contralaterally. The result is a curved line on each side, joined at the xiphoid mark and the pubic mark (**Figure 1**).

Then the skin on the right side is tractioned downwards and medially in order to draw a second horizontal line joined with the previously drawn lower horizontal line on the right side. The procedure is repeated contralaterally (**Figure 2**). After placing the patient in dorsal decubitus, all markings are reviewed and, if

necessary, corrected. A little slack should be allowed to avoid the problem of insufficient skin at the close of the surgery.

After organizing the surgical field, the excess skin is resected *en bloc*, followed by hemostasis, vertical plication of the rectus abdominis muscles and insertion of a continuous vacuum suction drain (removed during recovery). The umbilical stump is preserved and sutured onto the abdominal flap using mononylon thread size 4.0. The deeper layer is sutured with polyglactin thread size 3.0 and the surface layer is sutured with polyglactin thread size 4.0 (**Figure 3**).

Results

Twenty-four formerly obese patients of both sexes (M=4/F=20) aged 44 years on the average (range: 23-61) were submitted to fleur-de-lis abdominoplasty by the same surgeon between April 2012 and June 2016. The mean duration of surgery was 144 min (range: 120-160). Follow-up in the outpatient setting lasted

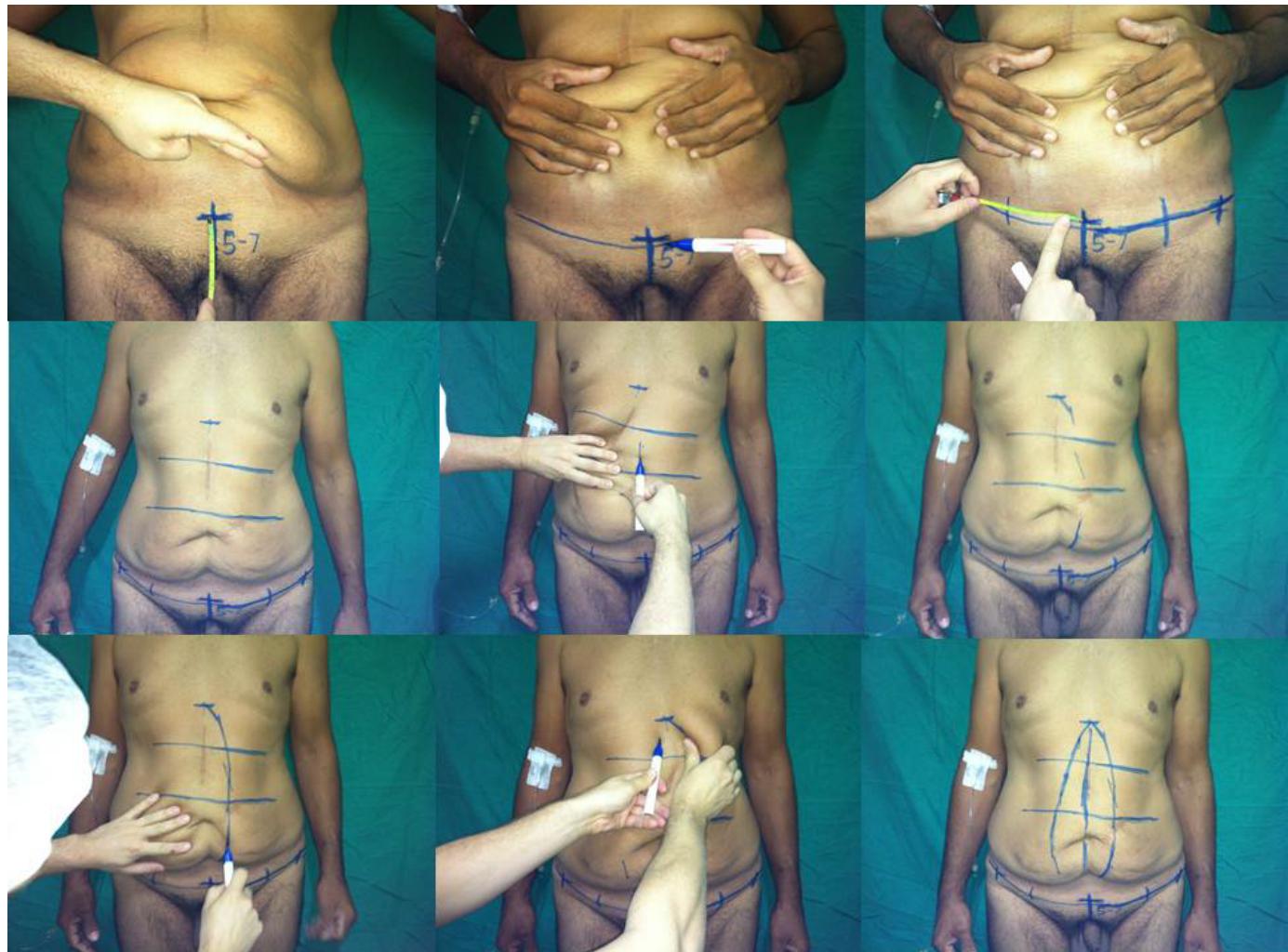


Figure 1 Skin marking: horizontal and slightly rising line to the right and to the left of the midline; bilateral reference points equidistant in relation to the midline; division of the abdomen into three vertical sections; vertical curved line on each side (joined at the xiphoid mark and the pubic mark) made while tractioning the excess skin contralaterally.



Figure 2 Skin marking: second horizontal line (joined with the extremity of the first horizontal line) made while tractioning the excess skin downwards and medially; final marking.



Figure 3 Closure of surgical wound; final aspect.

7.5 months on the average (range: 3-12). No hematoma, skin necrosis, tension upon surgical closure or need for additional skin

detachment occurred. All scars were adequately aligned (**Figures 4-6**).

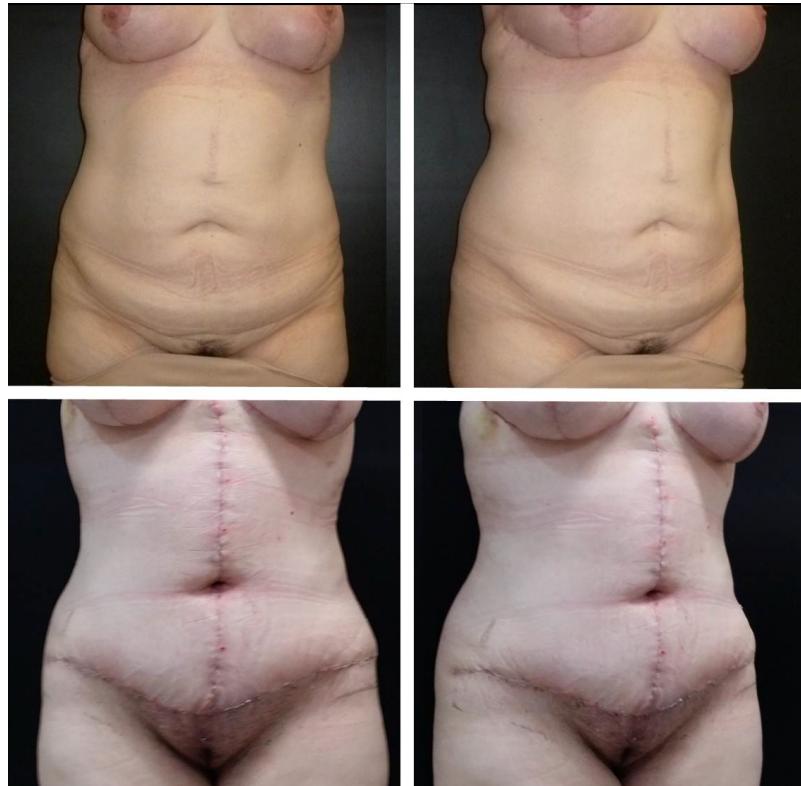


Figure 4 A and B: Preoperative view. C and D: Postoperative view (45 days).



Figure 5 A and B: Preoperative view. C and D: Postoperative view (70 days).



Figure 6 A and B: Preoperative view. C and D: Postoperative view (90 days).

Discussion

Fleur-de-lis abdominoplasty is the most appropriate technique for horizontal and vertical resection of excess skin [3-6]. Surgical marking has traditionally been based on the pinch test, but with this technique the amount of resected skin will depend on how carefully the test is performed, and the result is not uncommonly a sinuous or tense scar. In addition, scars vary considerably from one surgeon to another. In contrast, our technique uses reference points and lines which reduce these variables and are easily reproduced. Precise skin marking makes resection *en bloc* possible, reducing time of surgery. Moreover, the wound can be closed without additional skin detachment, which might otherwise increase the risk of complications, such as skin necrosis and seroma formation.

Conclusion

The technique described in this paper is safe and easy to perform and reproduce. In addition, high precision helps avoid sinuous and tense scars.

Acknowledgment

The authors declare that they have no conflicts of interest to disclose.

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