Demystifying High-Lateral-Tension Abdominoplasty

The author clarifies “high-lateral-tension abdominoplasty” (HLT), a procedure based on the premise that the greatest abdominal excess is usually in the lateral abdomen and that tightening of lateral excess is what most improves contour the central abdomen. While the classic approach improves contour by pulling inferiorly on the central abdomen, thereby creating the highest tension along the central incision, HLT pulls obliquely from each of the incision’s 2 lateral arms, thereby placing the highest tension laterally. (Aesthetic Surg J 2006;26:325-329.)

I became fascinated with high-lateral-tension abdominoplasty (HLT) after noticing that patients who had undergone circumferential body lift had more attractive abdomens than comparable patients who had undergone only an abdominoplasty. It was a similar observation that prompted Ted Lockwood to conceive of the HLT, which he published 2 years after publishing his lower body lift paper.

Although several components of HLT have become widely used, the technique itself remains somewhat of a mystery to many surgeons. Here, I will clarify its defining principles, advantages, and disadvantages.

Background

Lockwood recognized 2 flaws in the classic abdominoplasty technique. The first flaw was that abdominoplasty was based on the concept that abdominal laxity was due to vertical excess in the central abdomen. His experience with body lifting went counter to that notion, convincing him that the greatest excess was usually in the lateral abdomen, and that tightening of that excess was what most improved the central abdomen. The second flaw was the standard practice of wide undermining, which he felt was unnecessary.

Working from these underlying premises he created HLT, including 4 defining principles, 3 of which can be incorporated into any abdominoplasty: (1) no undermining beyond what is excised or needed for rectus plication; (2) extensive, safe, simultaneous lipoplasty in nonundermined areas; and (3) closing of the superficial fascial system (SFS) with permanent sutures. Some of these principles have been widely adopted.

The fourth principle, which gives this procedure its name and uniquely distinguishes it, is the placement of tension along the incision. With the classic approach, tension is greatest in the central area. Using the HLT approach, the greatest tension occurs laterally.

Why the Confusion

An abdominoplasty does not become distinguished as an HLT abdominoplasty until the wound edges are brought together at final closure. Because this is determined intraoperatively, this defining step cannot be shown in preoperative markings. It was only after I visited Dr. Lockwood in the operating room that this became clear. Further, preoperative markings become substantially distorted based on patient position. Therefore, it is confusing to compare a preoperative marking with what is observed intraoperatively (Figure 1). Finally, it is difficult to apply markings from a single illustration in an article to the multitude of possible configurations that exist in the abdomen.

Understanding HLT

High-lateral-tension abdominoplasty becomes demystified after one recognizes that it is really the anterior portion of a Lockwood lower body lift that invariably results in a greater quantity of skin removal (Figure 2). The difference is not just the amount of excision, but also the concept behind it.

In a standard abdominoplasty, the surgeon focuses on excising the umbilical site. Once that is accomplished, there is a feeling of relief. When vertical laxity in the central abdomen is the target area, the surgeon views tension on the central portion of the incision as the necessary means to an optimal outcome. Operating under this premise, only insignificant contouring gains are expected from the lateral incisions; conceptually, they are relegated to the ancillary function of removing dog ears (Figure 3, A and B).

The concept of HLT embodies the opposite premise. Epigastric improvement is achieved by pulling obliquely

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from the incision’s lateral arms. Tension on the mons is an effect to be avoided. Dr. Lockwood conceived of HLT as a lower body lifting procedure in which the operating surgeon considers not just the abdomen, but also the flanks, inguinal region, and thighs. This approach translates into high lateral tension and a longer incision. If this final resection were to be drawn preoperatively, HLT would look similar to what has been alternately termed a “wide,” “extended,” or “270-degree” abdominoplasty, but always with high, angled lateral incisions (Figure 3, C).

Surgeons frequently think of final scars as assuming the position of the initial incision; however, the final resection incision is as important as the initial incision. With greater central tension, the mid portion of the final scar rises, resulting in a relatively horizontal scar orientation, even if the lateral initial incision did curve superiorly. With higher lateral tension, the scar remains low in the center and rises laterally. The final position of the scar is determined by the opposing forces above and below the incision, and the HLT resection takes into account the laxity on both sides of the initial incision.

**Advantages**

HLT avoids raising and distorting the mons pubis. It corrects epigastric flaccidity better than traditional
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Abdominoplasty by pulling from 2 inferolateral directions. If you imagine standing at the foot of a bed looking at folds in the sheets, it is easy to visualize smoothing those folds more successfully by pulling obliquely to the corners, rather than pulling only towards yourself. If you examine a patient with a lax abdomen, it is easy to demonstrate that the epigastrium will be better improved by pulling obliquely towards each groin than by pulling straight down the midline towards the pubis. Dr. Lockwood must be credited with recognizing that abdominoplasty can do far more than improve the hypogastrium and epigastrium; it is also an opportunity to improve the thigh, flanks, and even the buttocks.

Disadvantages

Patients must be prepared for a longer scar. Some patients may notice boxiness or laxity beyond the end of the scar because of the abrupt transition from highly tightened to untightened skin. Because of the tensions, conscientious SFS closure is recommended. Achieving the proper oblique angle of pull requires higher lateral scars that would be obvious in a “French cut” bikini and could be visible with some “low-riding” garments.

Avoiding mons distortion means that in more cases, the umbilical site is not excised and needs to be closed with a vertical scar. In fact, since epigastric laxity is often fully corrected by HLT, this procedure

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**Figure 2. A.** Preoperative view of a 36-year-old woman marked for a Lockwood lower body lift type #2 (combination of an HLT abdominoplasty and a lateral thigh/buttock lift). The green dotted line represents this patient’s favorite bikini line and will be used as an incision guide. The red marking represents the planned final scar location. The black marking is the inferior incision. The blue vertical lines serve as alignment guides. The horizontal blue line indicates the expected final resection. The superimposed blue shows how the resection might have looked if an HLT were performed. **B.** This postoperative view after 10 days is very similar to the way an HLT patient would look at this stage from this angle, except that with an HLT there would be less improvement in the lateral-most abdomen and thigh. The central incision is higher and the lateral incision is lower than indicated by the green line marking her favorite bikini (Figure 2, A). (However, this more horizontal scar is typical of the scar position that is presently most frequently preferred.) To have avoided this, closing with the same tension, the inferior incision could have been made more inferior centrally, and the flap could have been resected less centrally with less central flap resection, and the opposite laterally. The final scar location is the result of these 2 opposing forces.
Figure 3. **A**, Preoperative view demonstrating many of the complaints characteristic of the patient seeking abdominoplasty: aged mons, inguinal laxity, cellulite of thighs, hypogastric laxity, epigastric flaccidity, and redundancy of flank and abdominal skin. **B**, The patient is illustrated with a likely closure if using classic abdominoplasty principles. The greatest tension is central, raising the mons, shortening the distance to the umbilicus, and exposing the labia minora. There is little improvement to the inguinal and thigh regions. **C**, The patient is now illustrated with a typical closure if using HLT principles. The greatest tension is along the longer oblique lateral limbs, achieving better improvement in the epigastrum, and transferring forces to the inguinal and thigh regions, which are much improved. The mons is rejuvenated, but not excessively raised or distorted.
can lead to patients in whom the umbilicus does not need to be relocated, but may be floated several centimeters or even left in place.

I prefer excision of the umbilical site. Even if there is high mons tension, so long as tension lateral to it is even greater, distortion is not significant and, in my opinion, is preferable to the vertical scar, which is far too often a source of consternation for patients. I have ceased floating the umbilicus because even a minimally lowered umbilicus often looks too low and by impairing its blood supply puts the umbilicus at risk in the event of a possible transposition at a later time.

Lockwood also suggested creating a vertical slit for the new umbilical site, since the oblique tensions tend to pull it open. Whether or not you do this, it is important to realize that HLT does tend to widen the umbilicus, and you should plan for this (as shown in Figure 3, A).

**Conclusion**

As different as the HLT and classic approaches seem, they are at opposite ends of the same spectrum. A little more here, a little less there, and one operation gradually morphs into the other. Most surgeons probably incorporate some principles of each into their technique without awareness that they are doing so. The most important lesson of HLT is that an anterior incision can correct much more than just the central abdomen. One must look for the laxity in each patient and design the custom resection that will create the maximum benefit.

**References**


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