Commentary on: Decrease in Seroma Rate After Adopting Progressive Tension Sutures Without Drains: A Single Surgery Center Experience of 451 Abdominoplasties Over 7 Years

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Congratulations to the authors on contributing further evidence supporting the use of progressive tension sutures (PTS) in abdominoplasty. Since we initially introduced the concept of advancement and fixation of the abdominal flap to the abdominal wall in abdominoplasty into the literature in 2000, we have been surprised at how slow it has been for, what we believed to be a very empirically logical idea, to disseminate into common use. However, it became clear that simply being "empirically logical" was not adequate and that more clinical data were needed.

Over the subsequent years, many contributions to the body of data on progressive tension suture in abdominoplasty have accumulated in the literature. First, we should point out that Baroudi independently preceded our paper publishing a hundred cases of "Quilting sutures" in abdominoplasty which is essentially the same concept and gives the same results. Additionally, Mladick, in a brief communication, pointed out that his mentor, Nicholas Georgiade, taught a similar technique at Duke and it was included in a chapter of his textbook. This goes to show that good ideas are rarely of one source. Since then, many articles have addressed the progressive tension suture/quilting suture concept from a variety of perspectives.

Nahas et al used ultrasound to assess volumes of fluid that accumulated when PTS are used. He looked at 21 consecutive abdominoplasties between postoperative day 15 and 18 finding an average fluid volume of 8.2 cc. Only two patients had more than 20 cc (25 and 47 cc) and no clinical accumulations. Khan evaluated the effects of liposuction on abdominoplasty with and without PTS. In this study, the drain-only group had a 26% seroma rate while the PTS group had only 4% and liposuction was not statistically contributory to the seroma rate in either group.

Andrades et al, in the only prospective, randomized, double-blinded trial, used ultrasound to compare postoperative fluid amounts in abdominoplasties with PTS, drains, or both as compared to a control group. This study showed PTS and drains to be equivalent in seroma prevention and that there was no decreased in seroma incidence when both drains and PTS were used. It also showed that surgical time was similar for the drain group and the PTS group, dispelling the concern that PTS adds excessive OR time. Arantes looked at PTS with and without the concomitant use of a drain and found no statistical decrease in seroma when drains are added to PTS.

Similar to the current study, there have been several large retrospective studies that observed significant reductions in seroma rate when PTS were added to the abdominoplasty regimen. Antonetti reviewed 516 abdominoplasties performed by single surgeon over 28 years. They formed groups...
that were based on significant changes in technique. They showed that the biggest decrease in seroma rate came with the addition of PTS without drains. Trussler et al. analyzed a 20-year experience of abdominoplasties performed by Dr. Rohrich. They also observed the greatest decrease in seroma rates in the abdominoplasty regimen that included PTS. We also published our own 10-year experience with progressive tension suture in 597 consecutive abdominoplasty patients documenting a 0.1% seroma rate over this large group.11

Also of note, the addition of PTS has been shown to be effective in reducing seroma in an even more seroma-prone wound, the latissimus dorsi donor site.12 Prior to the addition of PTS, there was a 30% seromas seen in 23 consecutive latissimus donor sites compared to none in 22 consecutive latissimus donor sites of two surgeons using PTS.

Modifications to the progressive tension suture technique using running barbed13,14 and non-barbed15 sutures testify to the effectiveness of the concept and not just the technique. In no way is this list of studies assessing the use of PTS to reduce seromas meant to be comprehensive. It is simply meant to show that the technique has been assessed from a variety of perspectives and this body of literature continues to grow.

This current study1 adds to this growing body of literature. It demonstrates a very typical pattern of evolution of PTS becoming incorporated into common use in a center. One surgeon begins to use PTS and slowly others see the benefits, such as excellent outcomes, decreased seromas without the use of drains, and high patient satisfaction, and gradually others in the center adapt the technique. It is also common to hear that some surgeons continue to use drains when starting to use PTS, which is a very reasonable way to begin. This group’s technique in suture placement and number used was very similar to our technique.

Complications in this study seem to be high. However this was seen in both groups evaluated (26% and 29%) but few were serious and mostly unrelated to the use of PTS. This may relate to what was diagnosed as a complication. For instance, I would not necessarily call a dog-ear or stitch abscess a complication. This may relate to what was diagnosed as a complication. Common regimens include binders, extended bed rest, bent-over posture, as well as other restrictions in the postoperative period.17 One of the most impressive aspects that we have noted is the secure fixation provided by PTS between the abdominal flap and the muscle fascia allows the patient to ambulate early, assume an upright posture as soon as they are comfortable and limit the use of a binder for comfort only and not seroma prevention. It is our goal to have patients ambulate within 4 hours after surgery and stand upright as soon as comfortable. Upright posture is typically achieved in the first 2 days. This improved mobility and upright posture may also contribute to a reduction in VTE risk.

This current study adds to the growing body of data assessing the use of PTS in abdominoplasty. And like the many other studies before it, they have reached the same conclusion supporting the effectiveness of PTS in abdominoplasty. These studies also demonstrate the reproducibility and versatility of the technique over a wide range of surgeons. We would also add that in our experience, PTS speed convalescence, potentially reduce other complications like wound necrosis and VTE and most certainly improve the overall patient experience. These studies continue to break down the barriers to use of PTS expressed by those who hold fast to traditional abdominoplasty techniques. We are pleased to have seen the acceptance and use of PTS rise over the years and anticipate further growth. PTS are an “empirically logical” adjunct to abdominoplasty. Yet now, thanks to papers like this one, there are plentiful data to validate the intuition.

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REFERENCES


