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Female Abdominal Landmarks and Their Improvements Using Polydioxanone Thread Placement for Umbilicus Elevation

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Background: Different landmarks on the abdomen have been used to evaluate abdominal aesthetics. However, because researchers use different methods for landmark measurements, there is no consensus as to which landmarks to use for either assessing abdominal aesthetics or guiding surgical planning.

Methods: Female model photographs were analyzed for abdominal aesthetics with the umbilicus as the key dividing point. Because of the limitation on the number of landmarks that could be shown with model photographs, abdominal landmarks on actual female patients were studied. The variations of landmark metrics due to positional changes and before/after our polydioxanone (PDO)–assisted high-definition liposuctions were recorded.

Results: For model photographs, the abdominal apex to mid-umbilicus distance (AU) versus midumbilicus to lower abdominal skin crease (UC) ratio was 1.626. Almost all bony landmarks demonstrated significant caudal shift when switched from standing to supine positions. Meanwhile, other landmarks also underwent substantial changes. This provides evidence that metrics taken in different positions cannot be compared with one another. As expected, after umbilici were elevated with our special technique, the relevant metrics improved postoperatively, with results close to being ideal. However, marked deviations from the mean measured values do exist.

Conclusions: Abdominal landmarks change with positional adjustment. In standing position, many landmarks can be used for assessment of abdominal aesthetics. Ideally, efforts should be made such that the final AU/UC is close to 1.618, and XU/UP and UIC close to ideal, for satisfactory surgical results. Nevertheless, in actual practice, umbilicus positions can be varied to accomplish desired goals.
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INTRODUCTION

Although it is easy to appreciate beautiful umbilici in the right position, erring in umbilici positioning after abdominal makeover could be troublesome because umbilici levels could directly influence patients' preoperative concerns and opinions about their postoperative results.[1–9] Traditionally, the distance from the xyphoid process to the upper edge of the umbilicus (XU), the distance from the upper edge of the umbilicus to the pubis symphysis (UP), and the distance from the upper edge of the umbilicus to the iliac crests (UIC), among others, are used as reference points to determine the perfect umbilicus position.[8,10–18] However, because authors have measured the distances using different body positions (ie, standing versus supine),[9–14,17,19–22]

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XU/UP or UIC numbers are not comparable from one study to another (Fig. 1).

Of note is that although the lower abdominal skin crease (LASC) is visible in nearly all women, it was rarely mentioned in the literature. Nicoletis might be the first to describe the importance of the LASC in defining the lower abdominal boundary (separate from mons pubis, Fig. 1).[23–25] Visconti analyzed 81 bikini model pictures and found the xyphoid to mid-umbilicus distance versus the distance from mid-umbilicus to LASC (UC) being 1.62.[2]

For the upper abdominal boundary, controversies exist. Although some suggest the xyphoid processes being the upper limit of abdomen,[2,10–14,25,26] xyphoid process lengths are not fixed (Fig. 1). CT and cadaveric studies showed that the length could be 2–5 cm,[27] or even up to 6.3 cm.[28] Interestingly, only 23.1% of xyphoid processes have ventral deviation.[28] Therefore, all other xyphoid processes may not be visible.

Human eyes are very sensitive to proportions. When we look at the abdomen, the apex at the converging point of the two costal margins forms the upper limit of the abdomen (Figs. 1 and 2). This visual finding is consistent with palpation examinations on our patients with model-quality abdomens. Anatomically, the apex is found where the costal margins (7th ribs) meet the sternum at the xiphisternum joint.[27,28] Hence, the xyphoid process, an anchor for abdominal muscles, is part of the upper abdomen, rather than above it.

Other landmarks such as the anterior superior iliac spines (ASIS) and the vulva cleft were also advocated as markings for abdominal attractiveness.[12,13,29] To understand the values of the many landmarks of the abdomen and some neighboring areas, we set out to examine them on model photographs. This was coupled with evaluating

Takeaways

Question: Clinical relevance of various female abdominal skin and bony landmarks.

Findings: Metrics of the landmarks in relationship to positional changes and thread-assisted liposuction were studied.

Meaning: Skin landmarks change with positional adjustment and could be corrected by our surgical maneuvers.

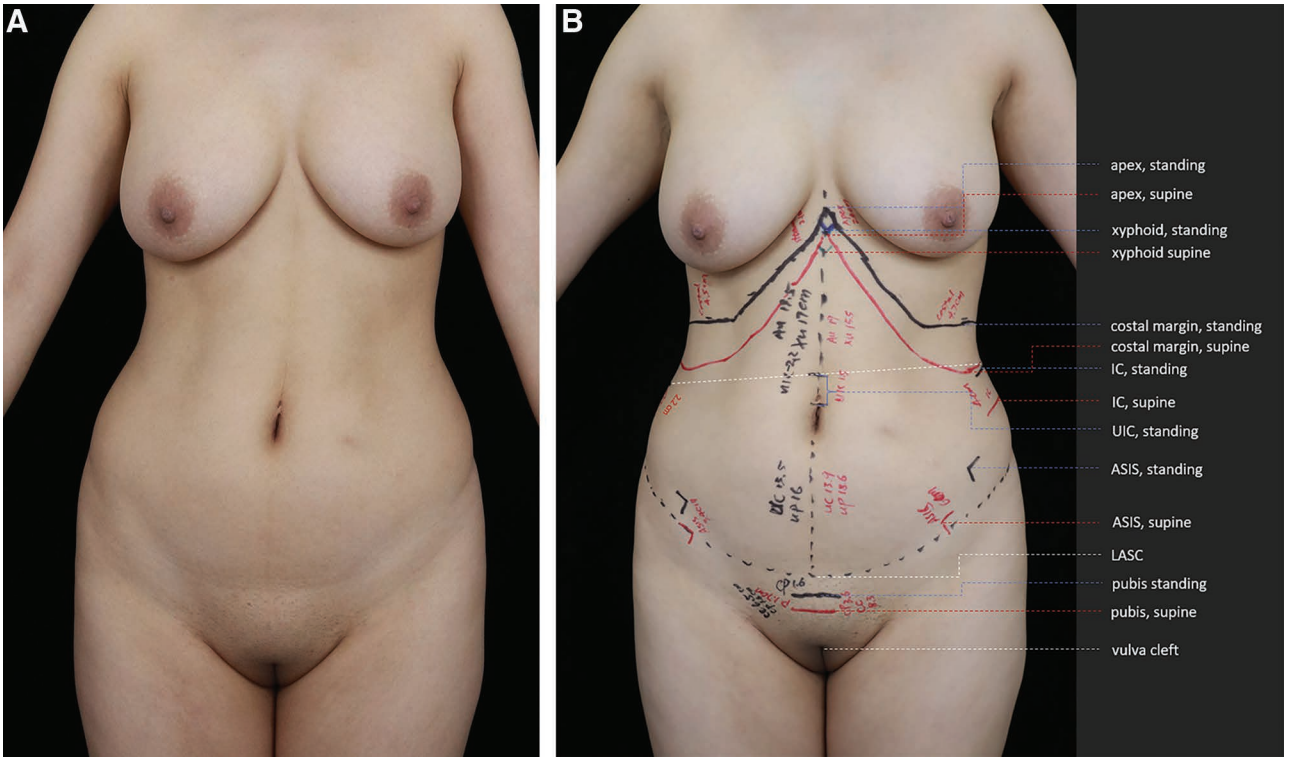

Fig. 1. A 30-year-old woman (nulliparous, height 164 cm, weight 63.5 kg, and BMI 23.6) presented for liposuction of the abdomen. The abdominal apex and lower abdominal skin crease (LASC) are clearly visible (A). The patient was examined in both standing and supine positions (B), and the relevant landmarks were marked out. Black ink denotes the markings made while standing, whereas pink ink denotes the landmarks while in supine position. Positional changes are shown: apex, 2.4 cm; xyphoid, 2.1 cm; costal margins, 4.5 (right) and 4.7 cm (left) (average 4.6); iliac crest (IC), 2.2 (right) and 4 cm (left) (average 3.1 cm); UIC, 3.7 cm; anterior superior iliac spine (ASIS), 3.4 (right) and 6 cm (right) (average 4.7 cm); LASC to pubis distance (CP), 2 cm (1.6 standing and 3.6 cm supine); LASC to vulva cleft distance (CC), 1.8 cm (6.5 standing and 8.3 cm supine); and pubis, 1.7 cm. Apex to mid-umbilicus distances (AU), mid-umbilicus to LASC distances (UC), XU, UC, UIC, and other measured numbers in standing (black ink) and supine (pink) positions were marked on the patient's skin. Remarkably, significant metrics differences were found between the left and right sides of the abdomen.

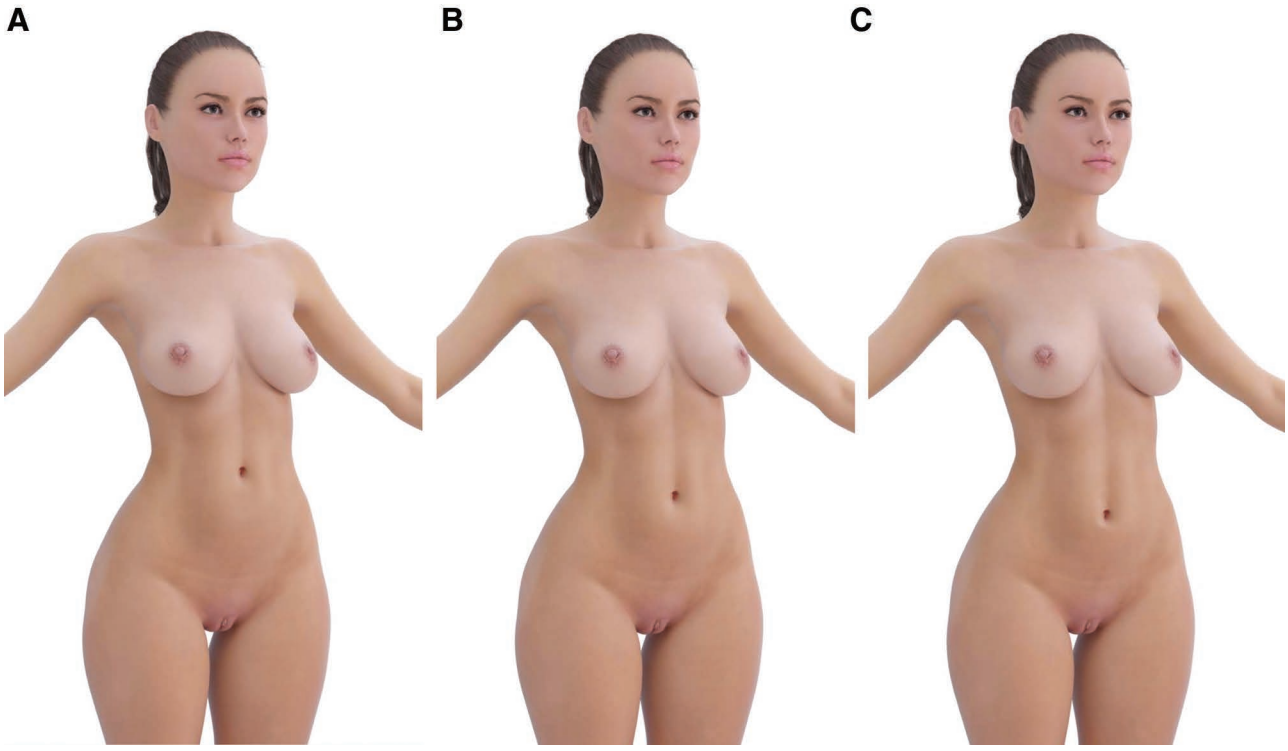

Fig. 2. The set of photographs generated by computer was presented to our prospective patients. Image of a woman with an AU/UC ratio of 1:1 (A), 1.618:1 (B), and 2:1 (C). Note that in all three pictures, the abdominal apex and LASC were clearly visible. (The original figure should be credited to an artwork from RenderHub.com, Astoria, NY).

them in liposuction patients in standing/supine position and before/after surgery scenarios.

PATIENTS AND METHODS

This retrospective study strictly followed the ethics principles of the Declaration of Helsinki. Written informed consent was acquired from all patients.

Model Studies

Color photographs from a Google search of female models in upright position were studied. The key words for the search were "bikini models" and "nude female models." The apex was visible in 89 (out of 100) models, and the LASC was identified in 78. Subsequently, the AU and UC were measured in these 78 photographs with Adobe Illustrator (Adobe Systems, San Jose, Calif.), with AU/UC ratios calculated.

Because models' facial and body attractiveness could sway people's judgement, 60 prospective female patients partook in a survey on one set of computer-generated model pictures varying only in umbilicus positions (Fig. 2). Then they marked one that was more eye-pleasing to them.

Patient Selection and Measurements

We included 117 consecutive Asian female patients for abdominal liposuction from August 2018 to July 2022. Patients with prior abdominoplasty, overt scoliosis, or considerable rectus diastasis were excluded. Patients lost to follow-up (29) were also excluded. The ages ranged from 21 to 56 (mean 36.88); height, 150 to 180 cm (mean 163.1); weight, 41 to 75 kg (mean 61.4); and body mass indices (BMI), 17.2 to 32 (mean 23.1). Although 36 patients were nulliparous, 81 had parity history. The umbilici were horizontal (101), round (11), or vertical (5) in shape.[13,17]

Though the LASC was visible in all patients, the apex was visible in 32 at rest and in 59 with abdomens flexed. For the others (26), the converging point of the costal margins (xiphisternum joint) was set as the "apex."

All measurements were made with straight line distances (Fig. 2): (1) Positional height changes (standing versus supine) of bony landmarks (measured in only 65 patients), including apex, xyphoid, ASIS, iliac crest (IC), costal margin (measured at the anterior axillary lines where the widest variations take place), and pubis, were recorded. ASIS, IC, and costal margin numbers were averaged if bilateral discrepancies exist in individuals. (2) Positional length changes of skin-related landmarks (measured in all patients) AU, UC, XU, UP, UIC, CP, and LASC to labial cleft distance (CC) were also documented.

Surgical Methods

High-definition liposuction combined with PDO-thread-assisted umbilicus lift was performed, as described before.[17] Briefly, liposuction was performed with a MicroAire (Chicago, Ill.) power-assisted liposuction

Table 1. Bony and Skin Landmark Changes (cm, Standing to Supine)

Landmarks	Mean	Range	SD	*P*
Apex (65)	1.847	1.2–2.5	0.363	
Xyphoid (65)	1.817	1–2.5	0.386	
ASIS (65)	4.17	2.9–6.8	0.684	
Iliac crests (65)	3.204	2–4.3	0.546	
Costal margin (65)	3.193	2.5–4.0	0.406	
Pubis symphysis (65)	1.079	0.4–2.0	0.342	
CP (117)	0.678	0–3.6	0.507	<0.001
CC (117)	0.668	−0.3 to 2.1	0.471	<0.001
XU (117)	−0.574	−3.4 to 1.4	0.847	<0.001
UP (117)	1.944	0 to 3.9	0.079	<0.001
AU (117)	−0.811	−3.6 to 2.3	1.027	<0.001
UC (117)	3.132	−0.8 to 6.2	1.526	<0.001
AU+UC (117)	2.321	−1.7 to 4.2	1.313	<0.001
UIC (117)	1.346	−1.1 to 4.2	1.001	<0.001
UM (171)	0.256	−0.3 to 1.1	0.272	<0.001

Abdominal landmark changes (from stand to supine) in relationship to the overlying skin are shown. The changes were calculated from differences of specified landmark measurements before/after positional alterations. Ranges of changes are shown, along with SDs. The *t* test was conducted with *P* values shown. Although only 65 patients had bony landmarks measured, all 117 patients were measured for skin-related landmarks. Negative numbers denote the distances becoming shorter, whereas positive numbers denote either measured changes in bony landmarks or increased distances for the other landmarks.

device. After liposuction, a double open-ended 16G cannula was inserted through a point in the midline of the upper abdomen, 16–18 cm from the umbilicus. The cannula traveled 1.5 to 2 mm under the dermis at about 5 mm away from the midline on the one side and exited the umbilicus adit, followed by passing one arm of a 43-cm-long, bidirectional 1-0 barbed MINT43 PDO thread (MINT, Santa Fe Springs, Calif.). The other arm was passed from the other side. The same maneuver was repeated with another thread via more laterally placed paths (0.5 cm more lateral). Afterward, the threads were pulled maximally and tied. The knots retracted into the umbilical adit, which was closed with a 5-0 plain gut suture. (**See Video [online],** which displays the placement of PDO threads after liposuction.) After surgery, all adits were left open, and the patients were wrapped loosely with an abdominal binder so that the fluid could drain freely. Starting from postoperative day 1, the patients' abdomens were compressed with a 2.5-inch-thick low-allergenic egg-shell bed-foam using a better-fitting corset with a moderate pressure for 24 hours a day (the patients need to wear a tight-fitting pure cotton tank top under the foam pad, to prevent contact allergic reactions), except for showering time. After 3 weeks, a half-inch commercial flat foam pad was used to help the compression of the abdomen for the next 2 months, with moderate pressure, for 14–16 hours a day. Beyond that, the patients were asked to wear home-wear compression garments for an additional 3 months.

The patients were followed on day 1, day 2, 3 weeks and 12 months postoperative. Before and 12 months after surgery, length changes of the above skin-related landmarks, along with umbilicus vertical lengths (UM), were charted.

Patient satisfaction was ranked by their own opinions as extremely dissatisfied, dissatisfied, acceptable, satisfied, or extremely satisfied.

Patients were divided into groups according to height, weight, BMI, age, and parity history for further data analysis. Statistics with *t* test were performed with Microsoft Excel (Microsoft, Seattle, Calif.).

RESULTS

Model Photographs

For models (71 White and Hispanic models, seven Black models), the mean AU/UC was 1.626 (1.313–2.150). The shapes of their umbilici were consistent with previous findings,[2,11,13] with 76.9% having vertical umbilici (60). The rest had round (12, 15.4%) or horizontal umbilici (6, 7.7%). Xyphoid processes were only visible in three (3.8%).

For the survey with model pictures in Figure 2, 52 of 60 prospective patients liked the model in Figure 2B, indicating that the AU/UC close to the golden ratio is more acceptable.

Positional Changes

Table 1 shows the extent of various landmark changes from standing to supine. Remarkably, all bony landmarks demonstrated significant caudal shift in relationship to the overlying skin, with the skin sliding cephalad. Skin-related landmarks (skin/bone and skin/skin) also underwent substantial length changes, with the AU and XU becoming shorter, and others becoming longer or elevated (Figs. 3–5, Table 1).

Interestingly, none of the changes were shown to be associated with age, weight, height, or BMI. When parity history was evaluated, CP was longer in nulliparous patients (36) when standing (2.075 versus1.552 cm, $P < 0.001$).

Postoperative Changes

While the pair of XU and UP also demonstrated significant measurement differences (Table 2), Table 3 and Figures 3–5 exhibit measurements of skin-related landmarks before and after PDO-assisted liposuction. Similarly, the AU and XU became shorter, and all other landmarks became elongated or elevated. Twelve-months postoperative, while AU/UC became 18.572/11.589 (1.603), XU/UP became 15.541/15.852 (0.98), and UIC changed from -2.396 to 0.178 cm.

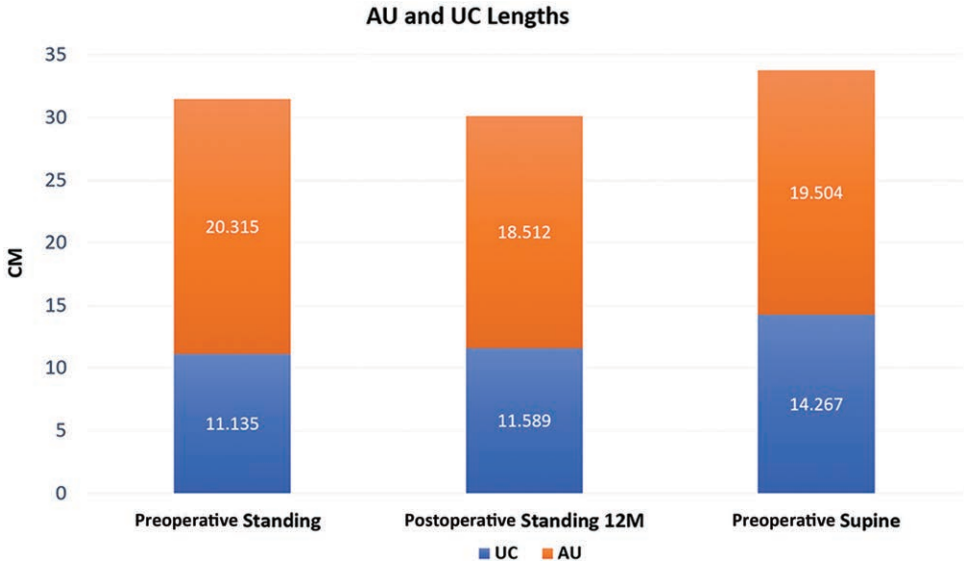

Fig. 3. The AU/UC changes are depicted in this stacked bar graph, showing measured AU and UC before/after surgery and in standing/supine positions. Mean values are embedded in the bars.

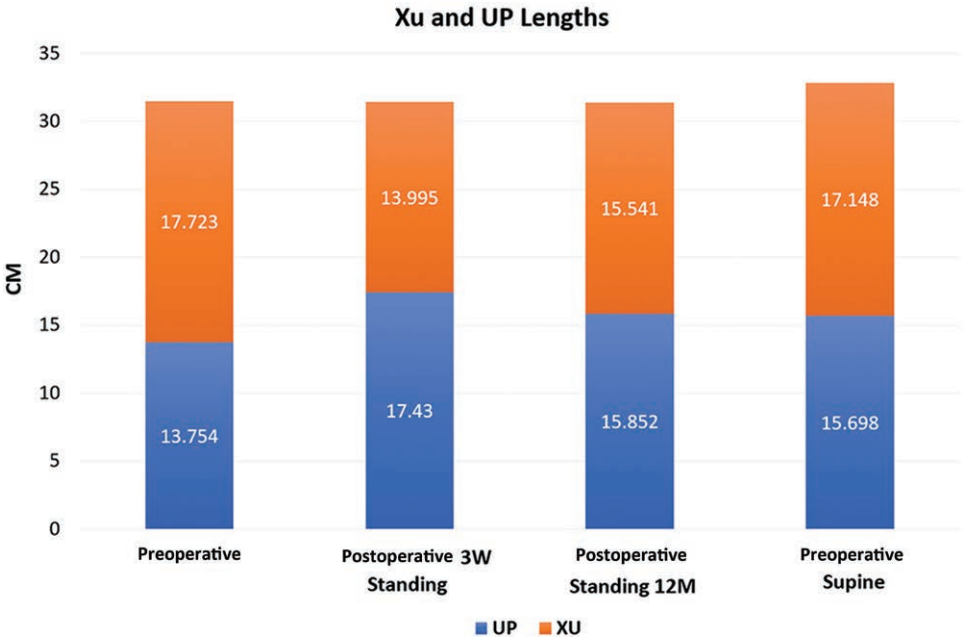

Fig. 4. The XU/UP changes are depicted in this stacked bar graph, showing measured XU and UP before/after surgery and in standing/supine positions. Mean values are embedded in the bars.

When BMI was considered, the only significant difference was found in umbilicus elevation postoperatively (BMI < 25, 2.054 cm, BMI ≥ 25, 2.404 cm, $P = 0.036$). Regarding parity history, we noticed a significant difference in umbilicus elevation 12 months postoperative (parity, 2.341 versus nulliparity, 1.653 cm, $p < 0.001$). The mean umbilicus elevation of all 117 patients was 2.182 ± 0.863 cm at 12 months.

All round-shaped umbilici became vertical, nine horizontally-shaped changed to round, and 10 horizontally-shaped remained horizontal. All other horizontally-shaped umbilici (82) turned vertical. Overall, all umbilical shapes improved, with the mean umbilicus length increased from 1.799 to 2.297 cm (Table 3).

The longest follow-up was 51 months, and no significant deterioration in landmark metrics was found. At the 12-month-point, 113 patients were extremely satisfied or satisfied with their results, especially with the improvement of lower abdominal "pooches." Our own assessment showed a similar level of satisfaction. Four patients were dissatisfied: two due to residual fat accumulation and the other two with some skin remaining

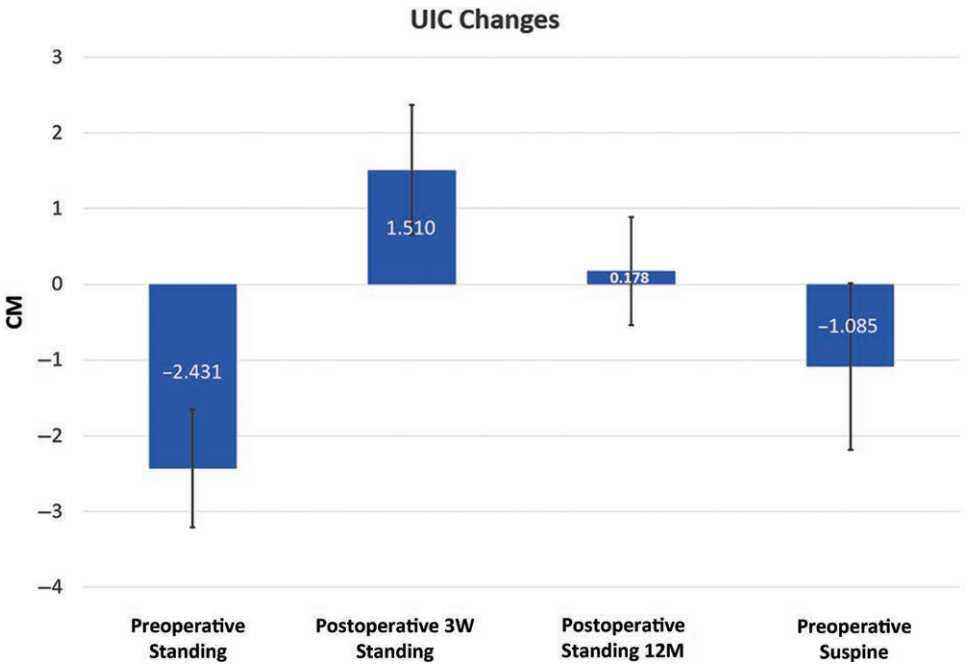

Fig. 5. The UIC changes are depicted in this bar graph, showing variations in the distance from umbilici to IC levels before/after surgery and in standing/supine positions. Mean values are embedded in the bars. Noted are the wide variations represented by SD.

Table 2. Bony and Skin Landmark Measurements (cm, before/12 Months after Surgery, Standing)

Landmarks	Before			After			
	Mean	Range	SD	Mean	Range	SD	*P*
AU	20.315	17–24.7	1.273	18.512	15.4–22	1.138	<0.001
UC	11.135	8.2–13.8	1.071	11.589	9–14	0.921	<0.001
AU+UC	31.45	29–35.5	1.474	30.101	28–34.2	1.202	<0.001
XU	17.723	15–20.5	1.101	15.541	14.2–18.6	0.845	<0.001
UP	13.754	11.5–16.2	1.11	15.852	14–17.6	0.874	<0.001
UIC	−2.431	−4 to 1.5	0.858	0.178	−4 to 1.5	0.716	<0.001
UM	1.799	1–2.7	0.353	2.297	1.6–2.7	0.353	<0.001
CP	1.713	0–3.3	0.658	2.919	1–4.1	1.934	<0.001
CC	6.425	5–7.5	0.582	7.321	6–8.3	0.442	<0.001

For the parous and nulliparous groups, landmark measurements (when standing) are shown.

Table 3. Parity versus Nulliparity: Measurements (cm, Standing, Mean Value)

Landmarks	Parity	Nulliparity	*P*
AU	20.485	19.931	0.014
UC	11.069	11.283	0.16
XU	17.852	17.431	0.028
UP	13.569	14.172	0.003
CC	6.481	6.297	0.057
CP	1.552	2.075	<0.001

Landmark measurements before and 12 months after surgery are shown. The numbers reflect the actual measurements of specified landmarks. Ranges of changes were shown.

loose lateral to their umbilici (both had large breast implants).

The time required for the smoothening of upper abdominal skin bunching ranged from 2 to 7 months. No seroma, hematoma, thread extrusion, or infection occurred. The most frequent complaints (28 patients) were soreness in the threaded area within 5 months postoperative, but none required pain medication.

DISCUSSION

While exploring ideal umbilicus positions, researchers used different positions (eg, standing versus supine positions), and results varied considerably.[2,8,10–17,19–22] Further, because many studies were carried out in general populations,[10,12,14,17,19–22] the conclusions drawn, although insightful, may not reflect "ideal" umbilicus positions.

Statistics from female model photographs did demonstrate the mean AU/UC (1.626) being close to 1.618. Nevertheless, even these models have wide variations in umbilicus shapes and locations. Intriguingly, the two female models in the extremes (AU/UC, 1.313

versus 2.150, pictures not shown for copyright reasons) still looked very attractive. Plausibly, their other beautiful features could have made up for their umbilicus "defects." One of the limitations is that we cannot rule out the possibility that certain photographers might have manipulated some of the photographs.

The divinity of the golden ratio could also be seen from the survey with computer-generated pictures (Fig. 2) on our prospective patients, as most decided that the best-looking picture was Figure 2B, with the AU/UC at 1.618. However, biases could exist, as it was solely conducted by our team.

When patients turned from standing to supine, the positions of bony landmarks (in reference to the overlying skin, Fig. 1) apex, xyphoid, ASIS, IC, costal margin, and pubis all changed significantly. The same is true for the lengths and positions of all skin-related landmarks. (Table 1, Figs. 3–5).

Of note is the differences in the extent of landmark changes resulting from different positions (Table 1, Figs. 1, 3–5): (1) The changes of the apex, xyphoid, pubis, CP, and CC were smaller, partly due to the existence of circum-mammary ligaments around the xyphoid,[30] and increased dense fibers under the LASC (where it sends many fibers to the Scarpa fascia and the deep fascia, which were routinely found in our abdominoplasties). The dense ligaments/fibers, forming "zones of adherence,"[31] could hinder relevant landmark movements; These landmarks exist at the upper and lower ends of the abdomen, with range of motion limited when compared with that of the structures in-between. (2) Because the umbilicus is a floating structure, changes around it (AU, UC, XU, UP, and UIC) could be subject to combined effects of bone positioning, skin/fascia laxity and lengths of umbilicus stalks. (3) As for bony landmarks, the ASIS shows the biggest changes (Table 1), probably because it has singular bony points that rotate at the same degree as that of the pelvic sagittal inclinational rotation.[32]

The variations in abdominal landmark measurements due to positional changes also differ significantly from person to person (Tables 1, 2, Fig. 5), which could potentially affect operative results if surgeons do not understand the dynamic nature of the landmarks. Because abdominal aesthetics is mostly judged with the subjects standing, we recommend that future studies use the standing position for surgical planning.

Umbilicus level in the standing position is reportedly affected by aging,[21] yet our patients did not show a significant difference in umbilicus levels preoperatively among different age groups. Height, weight, and BMI did not have significant influence on umbilicus levels either, at least within our patients' restricted age (21–56) and BMI range. Of course, the lack of difference could also be partly due to selection biases because our patients all had issues needing correction. Interestingly, parity history does impart its influences on some landmarks preoperatively (Table 2), suggesting skin/fascia laxity could be more pronounced in parous patients.

Most bony landmarks such as the XU/UP or UIC could purely be useful for surgeons (Fig. 6). Yet, when lay people look at the abdomen, the apex, umbilicus, LASC,

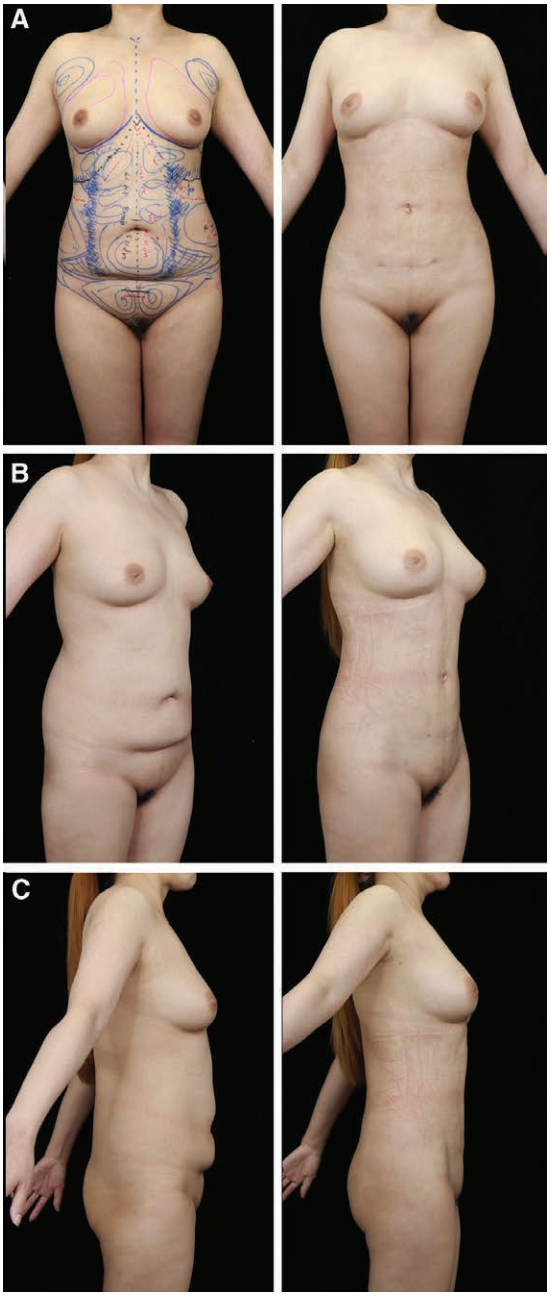

Fig. 6. A 48-year-old woman (164 cm, 56.5 kg, BMI 21, G2P2, with a history of C-sections) presented for PDO thread-assisted high-definition liposuction. Preoperatively, AU/UC was 20.7/9.5 cm, XU/UP was 19/12.3 cm (standing) and 17.7/14.5 cm (supine). UIC was −1.6 cm (standing) and 0 (supine). One liter of fat was removed from the abdomen and frontal waist area; 1.8 liters was removed from the accessory breasts, breast tails, back, hips, posterior waist areas, groin lines, and mons pubis areas. Fat grafting to breasts and buttocks was also done. The abdomen was improved significantly 12 months after surgery, with the umbilicus turning from a sad-looking horizontal shape to vertical. Standing AU/UC changed to 18.9/10.8 cm, XU/UP changed to 16.3/16 cm, and UIC, to 0.2 cm. More important is the near perfect improvement of the lower abdominal "pooch." Noteworthy is the C-section scar at 2 cm above the LASC, the presence of which seriously disrupted the harmony of abdominal proportions. A, Frontal view. B, three-fourths view. C, Side view. Left side, before surgery; right side, after surgery.

and other features such as corset lines, waistline, groin lines, mons pubis, and even breasts could all influence our judgement on attractiveness of abdomens (Figs. 1, 6).[2,17]

Although it has been difficult for surgeons to correct umbilicus positions for liposuction patients,[33] our PDO-thread-assisted high-definition liposuction resulted in satisfactory umbilicus position improvement (Table 3, Figs. 3-6), with the AU/UC at 1.603 (close to 1.618), XU/UP at 0.98, and UIC at 0.178 cm. The latter two postoperative numbers are close to ideal.[8,10–12,17] The umbilicus length (UM, Table 3) also increased from 1.799 to 2.297 cm, close to the postoperative results by Borille et al.[33] These results supported the notion that our patients did have unfavorable changes to their abdomens, leading them to seek surgical treatments (Figs. 1, 6). This is further echoed by the fact that when BMI was considered, umbilicus levels in "bigger" patients enjoyed more elevation. Likewise, parous patients also had more umbilicus elevation. Overall, it seems that preoperative skin/fascia laxity caused more down-migration of umbilici, which could be effectively treated with our PDO-thread-assisted liposuction procedures. An abdominal liposuction case performed without PDO-thread-assisted umbilicus elevation was presented for comparison. (**See figure, Supplemental Digital Content 1.** This 49-year-old woman, 155 cm, 58 kg, BMI 24.1, G2P2, presented for abdominal liposuction. The surgery was performed without PDO-thread assistance. Preoperatively, her AU/UC was 19.3/9.3; postoperatively, AU/UC was 19.4/8.9. The umbilicus became more transverse. The lower abdominal "pooch" remained, although slightly better than before. **http://links.lww.com/PRSGO/C867**.)

Statistics aside, perhaps the importance of our technique lies in the powerful correction of umbilicus shapes and lower abdominal "pooches" when it comes to individual patients (Fig. 6). Accordingly, even though Table 3 shows wide variations of landmark measurements after surgery, with AU/UC ratios in many not ideal (like the findings in our model photograph study), most patients were still satisfied. In other words, although useful, AU/UC ratios are not the sole determinant of abdominal aesthetics. This notion is supported by Hoyos et al,[15,34] who advocated that a zone of umbilicus locations should be allowed after abdominal makeover.

One particularly important problem exists in the patient shown in Figure 6. The C-section incision was placed too high (2 cm higher than LASC), resulting in an artificially high pseudo-LASC that overrides the existing one, leading to disruption of abdominal harmony. Our recommendation would be to place C-section incisions at the LASC to preserve abdominal aesthetics.

One drawback of our study is that we could not find enough standing Asian models on the internet. Another limitation is that patients reported here are Asian, who might not represent other populations, although beauty standards could be shared among different races. Yet another limitation is that this is a single-surgeon, retrospective study with a relatively limited number of cases. The solution might be to perform a multi-institutional prospective investigation.

An additional limitation is that some patients lack discernable apexes, especially in patients with a BMI of more than 24. However, we did find that abdominal apexes coincide with xiphisternum joints, the converging points of costal margins, which could be palpated.

This study is not intended to overthrow previous works on abdominal metrics; rather, it should serve as a supplemental guide for surgeons to create good abdominal aesthetics. Additional comments on the abdomen and its related landmarks are presented. (**See table, Supplemental Digital Content 2,** which shows additional comments on the clinical relevance of the abdomen and its related landmarks. References to each landmark were provided. **http://links.lww.com/PRSGO/C868**.)[2,8,10–18,23,24,31,34–37] We advocate that standing AU/UC be used for visual guidance to gauge preoperative deficiencies and postoperative results, serving both patients and surgeons. At the same time, we also suggest that the XU/UP and UIC (standing) be used as feasible guides for surgical planning.[8,10,12,17] Although for full abdominoplasties, the situation could be more complicated. At present, we are working on a project that could most likely input additional insights for proper umbilicus positioning during abdominoplasties.

CONCLUSIONS

Abdominal landmarks change with positional adjustment. Because we mostly judge abdominal aesthetics in the standing position, it is important that we use this position when evaluating our patients. Ideally, efforts should be made such that the final AU/UC is close to the golden ratio, and the XU/UP and UIC are close to ideal, for visually supreme surgical results. However, in actual practice, umbilicus positions can be varied to accomplish overall desired goals. Finally, more studies are needed to further our understanding of abdominal landmark metrics and their dynamic nature.

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DISCLOSURES

Arthur Y. Yu serves as a committee member on ASPS subcommittee for Education and Conferences and acknowledges absolutely no conflicts of interest in any aspect, during any period. All the other authors have no financial interest to declare in relation to the content of this article.

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