Original article

Lift of female external genitalia after abdominoplasty: quantification and considerations about the surgical planning

MAURIZIO CAVALLINI[1], DANIELE BLANDINI[4], MARCO KLINGER[3], ANDREA LISA[3], RICCARDO GAZZOLA[2]

[1] *Centro Diagnostico Italiano, Milano - Servizio di Chirurgia Plastica*
[2] *IRCCS Policlinico San Donato - Università degli Studi di Milano - Plastic Surgery Department*
[3] *Istituto Clinico Humanitas, Rozzano - Plastic Surgery Department*
[4] *Ospedale Maggiore di Lodi - Plastic Surgery Department*

Background: weight gain and loss cause mons pubis ptosis and labia majora enlargement. This deformity may cause sexual impairment, difficult personal hygiene and discomfort. Abdominoplasty inevitably causes a lift of anterior commissure and may be sufficient to treat this condition. *Aims:* In this study we evaluate the amount of the lift of the anterior commissure. *Methods:* we analyzed seven women that underwent abdominoplasty in the last year. We measured the sternal notch – anterior commissure distance and the ground – anterior commissure distance before and 6 months after the procedure. Wilcoxon test for related samples was employed to analyze the differences after the procedure. *Results:* The sternal notch – anterior commissure distance decreased after surgery of 2.8 cm (p 0.028) and the ground – anterior commissure distance increased after surgery of 2.8 cm (p 0.028). The patients were discharged 6 days post-operatively and healed uneventfully in three weeks. *Conclusion:* Abdominoplasty could effectively correct mons pubis enlargement and ptosis of mons pubis and labia majora. We believe that the surgeon should know exactly the amount of lift of pubis after this procedure. This issue is essential to predict the results after abdominoplasty and for planning of possible suspension of mons pubis if required.

Keywords: Abdominoplasty; Labia majora; Mons pubis; Anterior commissure; Lifting.

INTRODUCTION

Several aesthetic procedures address the female genitalia. These procedures comprise those for vaginal prolapse as long as external genitalia. This kind of surgery has both a functional and aesthetic indication in most cases, although this distinction could not be clearly performed in many cases. Moreover literature is lacking about statistical and objective data concerning the true functional improvement of any single procedure on external genitalia. The border between these two indications is greatly influenced by sociocultural issues. According to some African cultures, protruding and elongated labia minora are considered attractive.[1] On the contrary, the same characteristic is often indication to surgery in western countries causing sexual embarrassment and impairment even at younger ages.[2]

In this setting, weight gain could upset and worsen the aspect of external genitalia. In fact mons pubis ptosis and labia majora enlargement are common effects of weight fluctuations. Compared to the previous mentioned hypertrophy of the labia minora alone, this deformity may cause even difficult personal hygiene, discomfort and concerns.

Several techniques have been described to correct the ptotic skin, the fatty labia majora and ptosis of the anterior commissure,[3] although this issue could be addressed also by other procedures not specifically designed for this purpose like abdominoplasty. Considering the high number of procedures, the importance of this phenomenon is high: in fact abdominoplasty is the fourth most common procedure in 2013. According to the American Society for Aesthetic Plastic Surgery, 160,077 abdominoplasty procedures are performed yearly in the U.S and 151,200 of these are performed on women.[4]

This procedure aims to correct the excess of abdominal skin and diastasis of recti muscles. However the lift of skin and subcutaneous tissue during this procedure inevitably causes a lift of the anterior commissure and mons pubis.

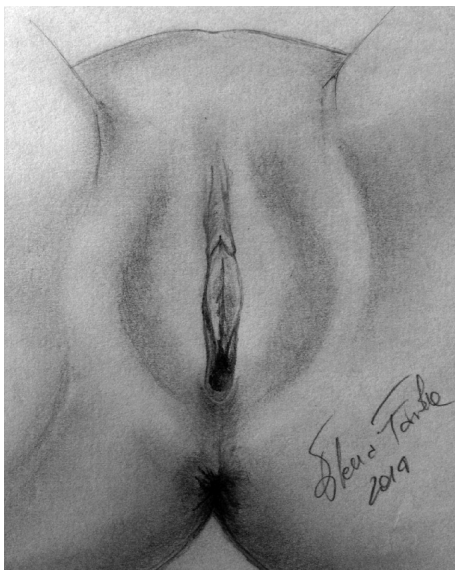
Moreover, as long as the pubis usually lengthens with age, a resection below the horizontal pubic hairline may reduce pubis height and width conferring a more youthful appearance.[5] This fact is able to positively influence the sexuality and body image of the patients changing the position of the clitoris, which becomes more exposed.[6] However literature is poor concerning the description of this important phenomenon. In our opinion the surgeon should be able to inform and indicate the patient about the grade of lift of the anterior commissure.

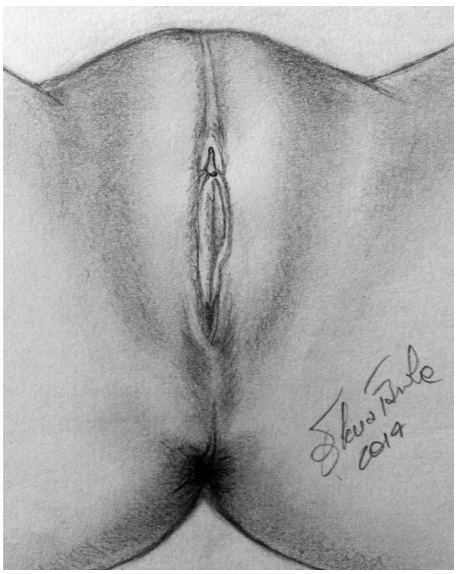
In this study we aim to study the amount of this phenomenon after a standard abdominoplasty.

MATERIALS AND METHODS

Seven women were enrolled for this study from March to December 2012. These patients underwent consistent weight loss in the past 12 months. Patients under psychiatric medication and/or affected by body dysmorphic disorders were excluded from the study. A proper informed consent was obtained in all cases.

The patients were evaluated pre-operatively and followed for 6 months after surgery. We evaluated the lift of the anterior commissure by evaluating of the sternal notch – anterior commissure distance and the ground – anterior commissure distance. In all cases a suprapubic incision extended to the supero-anterior iliac crest was performed. All the patients presented with no diastasis of the rectus abdominis muscle except one case. After correction of the cutaneous and subcutaneous excess, the umbilicus was transposed, the muscular diastasis corrected and the abdominal wall was closed in layers. Changes of the height of the anterior commissure after the procedure were analyzed with Wilcoxon test for related samples. Chi-square test was applied to study the relation between age, weight, height, BMI and commissure lift.





Figures 1-2. – The figures illustrate the changes of the anterior commissure after abdominoplasty. In some cases clitoral hood and labia majora are stretched along the antero-posterior axis, causing a better exposition of the clitoris. The mons pubis could be reduced and flattened. The posterior commissure is stretched and narrowed as well, although to a lesser degree than the anterior commissure. The changes may be transient in the post-operative period until the skin and subcutaneous layer stabilize. Illustration by Elena Fasola, MD instruments.

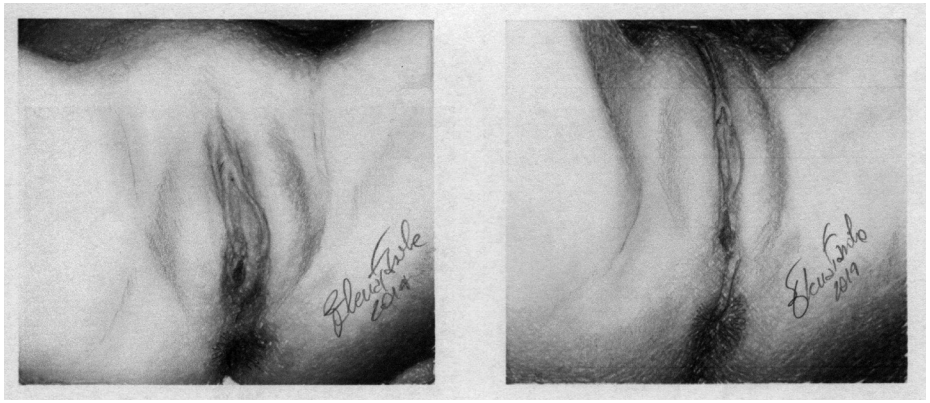


Figure 3. – The figures illustrate the changes of the anterior commissure after abdominoplasty. In some cases clitoral hood and labia majora are stretched along the antero-posterior axis, causing a better exposition of the clitoris. The mons pubis could be reduced and flattened.
The posterior commissure is stretched and narrowed as well, although to a lesser degree than the anterior commissure.
The changes may be transient in the post-operative period until the skin and subcutaneous layer stabilize.
Illustration by Elena Fasola, MD

RESULTS

The patients aged 52 years (33-71) and weighted an average of 75.2 Kg. All the patients experienced a consistent weight loss in the past two years and the mean BMI at surgery was 28.1 (Table 1).

The sternal notch – anterior commissure distance decreased after surgery of 2.8 cm (p 0.028) and the ground – anterior commissure distance increased after surgery of 2.8 cm (p 0.028) (Table 2, Figures 1-4). No significant association between age, weight, height, BMI and commissure lift was observed.

The patients were discharged 6 days post-operatively and healed uneventfully in three weeks (Figures 5-7).

DISCUSSION

The enlargement of the mons pubis and labia majora (and subsequent ptosis) are common effects of obesity in women. This condition could heavily affect the quality of life, causing sexual impairment and discomfort during the everyday life.

This issue could be addressed by a labia minora labiaplasty and clitoral hood reduction. Labiaplasty is the most common among these. Several variations of these techniques have been described since the first reports in the early ’80s.[7] These techniques mainly differ from the type of excision. The classical wedge of excision commonly produced scar adherences and contraction and was therefore replaced by different interrupted incisions, even in association with laser and radiofrequency.[8]

Instead clitoral hood reduction aims to eliminate the excess skin in the fold surrounding the clitoris, improving both the sexual function and the aesthetic appearance.[9]

Although the purpose of abdominoplasty is completely different, it could improve the aspect of ptotic external genitalia by lifting the anterior commissure. This action could be compared both to a labiaplasty and clitoral hood resection. The tightening of the abdominal skin inevitably produces the lift of the anterior commissure, better exposing clitoris and lifting labia minora.[3] This phenomenon corrects ptosis and confers a more juvenile aspect to the external genitalia. However abdominoplasty procedure could be coupled with dermal-fascial suspension, liposuction, and mons dermolipectomy to improve and stabilize the results over time.[10]

We believe that the surgeon should know exactly the lift of pubis after abdominoplasty. This is essential to predict the results after abdominoplasty, correctly inform the patient about surgery and for planning of possible suspension of mons pubis if required. In this study we observed a significant lift of 2.8 cm of the anterior commissure. The amount of lift does not depend on age, weight, height, BMI (no significant difference was found). We believe that the lift of external genitalia depends on the surgical technique and the cutaneous laxity.

The lift that we observed requires no fascial suspension, liposuction or other cutaneous excision beyond that required for the abdominoplasty. Excessive lift of the anterior commissure is to be avoided. In fact the umbilicus to pubis

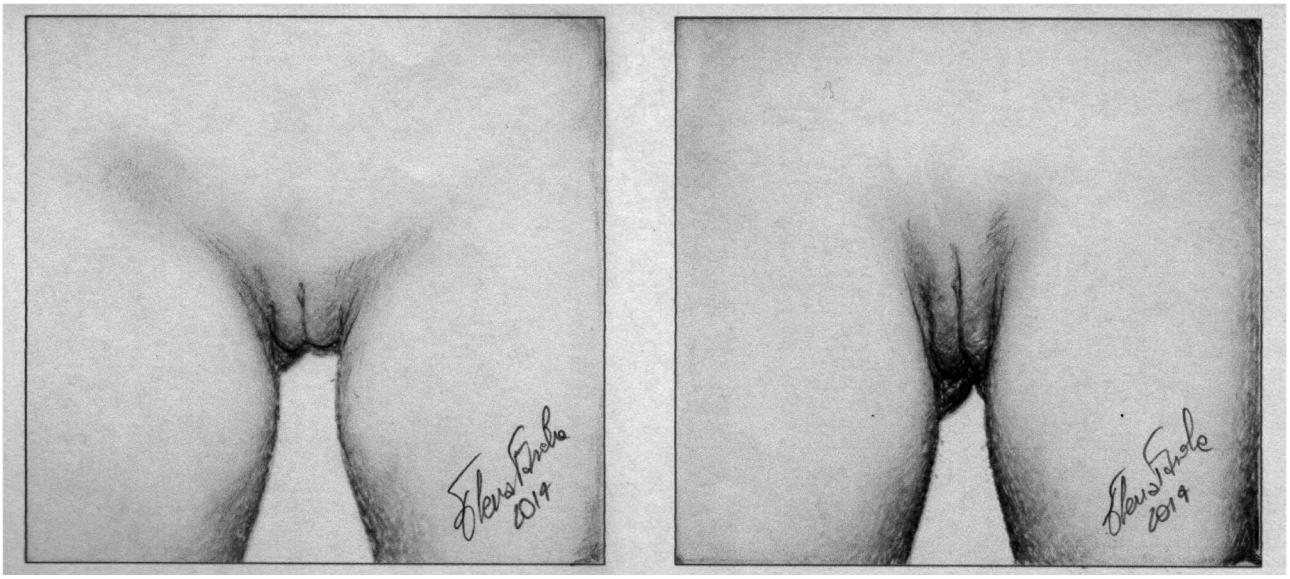
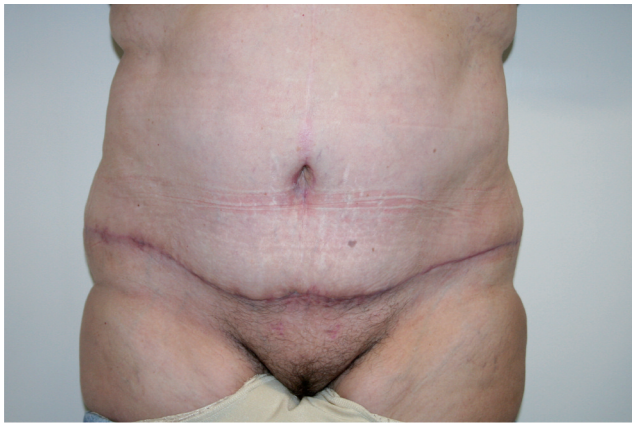
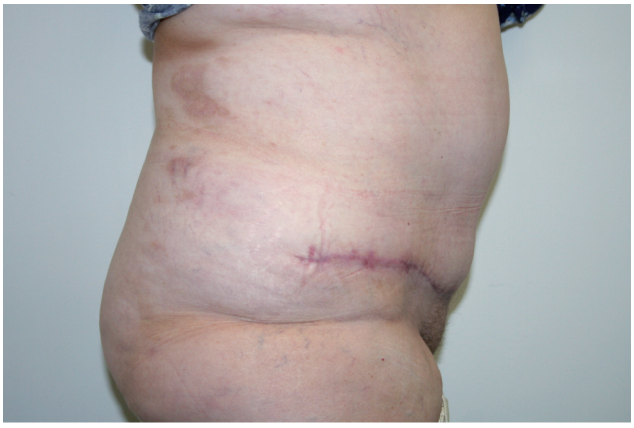


Figure 4. – Modification of the anterior commissure in orthostatism. Illustration by Elena Fasola, MD





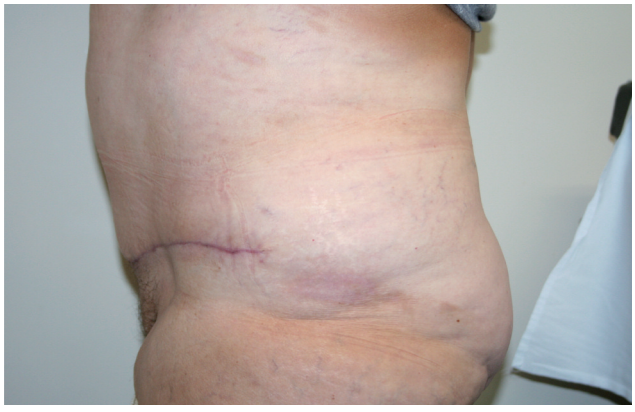


Figure 5-7. – 54 years old woman underwent abdominoplasty for cutaneous laxity after consistent weight loss (more than 20 kg). After surgery a lift of the anterior commissure of 2 cm was observed.

distance should not be inferior to 10 cm to have a natural appearance.[11]

The surgeon should be able to calculate and inform the patient concerning the amount of pubic lift and thus discuss with her the necessity of further procedures to correct the ptosis of this region.

Abdominoplasty is a procedure that can produce a lift of the anterior commissure and the mons pubis. The amount of the lift is 2.8 cm by mean. This value is fundamental and should be considered during the surgical planning in order to state the necessity of further corrective surgeries for genital rejuvenation.

Table 1.

	Average	Range
Age	52	33 - 71
Height (cm)	163.1	148 - 180
Weight (Kg)	75.2	56 - 85
BMI	28.1	22.7 - 30.1

Table 2.

	Pre-op	6 months post-op	Difference	P – Wilcoxon test
Sternal notch – anterior commissure	64	61.2	- 2,8	0.028
Ground – anterior commissure	71.3	74.1	2,8	0.028

Acknowledgements and disclosure stateament

We acknowledge Dr. Elena Fasola MD for the illustrations of figures 1-4 and or declare no conflict of interest.

REFERENCES

1. Koster M, Price LL. Rwandan female genital modification: elongation of the Labia minora and the use of local botanical species. *Cult Health Sex*. 2008. 10 (2): 191-204.
2. Michala L, Koliantzaki S,Antsaklis A. Protruding labia minora: abnormal or just uncool? *J Psychosom Obstet Gynaecol*. 2011. 32 (3): 154-156.
3. Alter GJ. Pubic contouring after massive weight loss in men and women: correction of hidden penis, mons ptosis, and labia majora enlargement. *Plast Reconstr Surg*. 2012. 130 (4): 936-947.
4. Surgery TASfAP, *Cosmetic Surgery National Data Bank Statistics*. 2013.
5. Grolleau JL, Lavigne B, Chavoin JP, Costagliola M. A predetermined design for easier aesthetic abdominoplasty. *Plast Reconstr Surg*. 1998. 101 (1): 215-221.
6. de Brito MJ, Nahas FX, Bussolaro RA, Shinmyo LM, Barbosa MV,Ferreira LM. Effects of abdominoplasty on female sexuality: a pilot study. *J Sex Med*. 2012. 9 (3): 918-926.
7. Hodgkinson DJ, Hait G. Aesthetic vaginal labioplasty. *Plast Reconstr Surg*. 1984. 74 (3): 414-416.
8. Iglesia CB, Yurteri-Kaplan L,Alinsod R. Female genital cosmetic surgery: a review of techniques and outcomes. *Int Urogynecol J*. 2013. 24 (12): 1997-2009.
9. Goodman MP. Female cosmetic genital surgery. *Obstet Gynecol*. 2009. 113 (1): 154-159.
10. El-Khatib HA. Mons pubis ptosis: classification and strategy for treatment. *Aesthetic Plast Surg*. 2011. 35 (1): 24-30.
11. Dardour JC, Vilain R. Alternatives to the classic abdominoplasty. *Ann Plast Surg*. 1986. 17 (3): 247-258.

Correspondence to:

Check carefully and correct or delete if necessary.
Riccardo Gazzola - Piazza Malan - San Donato Milanese 20097 Milano - Italy
E-mail: riccardogazzola@gmail.com

EDITORIAL COMMENT

The problem of the prominent Mons Pubis has been tackled in various ways with liposuction, abdominoplasty, and non-surgical fat reduction (such as with laser diode, ultrasound, infrared light, radiofrequency, and injected agents) or a combination of these modalities. Success rates and patient satisfaction for these surgeries is generally high. With significant weight loss there is loose skin on the abdomen and Mons and also on the labia majora. The labia minora is much less affected by weight loss and typically should be addressed both functionally and aesthetically as a separate unit from both the abdomen/Mons and the labia majora. As gynecologists and plastic surgeons gain skills and confidence in performing aesthetic vulvovaginal procedures it is tempting to combine abdominal surgery and liposuction with genital surgery all at the same date and time. Abdominal surgery and liposuction has a long established history of clinical research but aesthetic vulvovaginal surgery is newer and certainly not an established surgery taught and learned in surgical and gynecologic training programs. This results in a dilemma on knowing what to do first in terms of surgical sequencing when dealing with abdominal and genital surgery. Trying to do both body regions (abdomen and genital surgery) at the same time can be disastrous. For example, doing abdominal and Mons liposuction at the same time as labial surgery is filled with potential pitfalls. The edema that occurs after a Mons liposuction can often extend to the labia majora and minora that makes these areas quite puffy and can cause a dramatic pulling of surgical edges. Labia majora tissues can puff up and look like large testicles and any labial reduction effects can be lost due to the stretching of skin post liposuction.

In the series of patients presented, the quantification of results is admirable as there is no current method of assessing degrees of improvement. Currently an “eyeballing” method is used worldwide. Arguably, in some patients, modified abdominoplasty is sufficient to pull up on the Mons and eliminate the need for labia majoraplasty. However, in my opinion, the majority of patients will not be satisfied with a pulling up of labia majora since there will still be loose skin and sagging with the potential of fatty material below the majora skin. The “Camel Toe” remains. In these patients a formal labia majoraplasty with fat pad reduction is recommended. In most cases, labial issues should be managed on the labia and not from above on the abdomen except when a prominent Mons is present such as in this series. I personally favor the approach the authors have made in addressing the abdominal and Mons issue first and then deciding if labial surgery is warranted. Lastly, 6 days of hospitalization is much longer than the outpatient surgery abdominoplasty has become in the United States with the advent of both pain pumps and the use of Exparel.

To complete the whole vulvovaginal and abdominal rejuvenation aesthetics, labia minora and clitoral hood issues should be considered once the abdominoplasty and liposuction are done and the labia majoraplasty has been completed. I would personally perform labial surgery immediately after abdominoplasty if no liposuction is used but wait at least 2 months if liposuction of the Mons is performed. Liposuction can cause edema that affects the labia minora and majora.

Red Alinsod
Urogynecology Director, The Women’s Center and The Laguna Laser Center, South Coast, CA
e-mail: red@urogyn.org