

1 **Response to Letter to the Editor regarding Anatomy, Histology and Nerve**
2 **Density of the Clitoris and Associated Structures: Clinical Applications to**
3 **Vulvar Surgery**

4 **Lindsey A. JACKSON, M.D.¹ ; Adam M. HARE, M.D.²; Kelley S. CARRICK**
5 **M.D.³; Denise M.O. RAMIREZ, Ph.D.⁴; Jennifer J. HAMNER D.O.⁵; Marlene M.**
6 **CORTON, M.D., MSCS²**

7 Urogynecology of San Antonio, San Antonio, TX, USA¹; University of Texas
8 Southwestern Medical Center, Dallas, Texas, USA, Department of Obstetrics and
9 Gynecology², Pathology³ and Neurology and Neurotherapeutics⁴; University of
10 Indiana, Indianapolis, IN, USA, Department of Obstetrics and Gynecology⁵

11

12 **Disclosure Statement:** The authors report no conflict of interest.

13 **Financial Support:** None

14 **Corresponding Author:**

15 Marlene M. Corton, M.D., MSCS
16 Department of Obstetrics and Gynecology
17 Division of Female Pelvic Medicine and Reconstructive Surgery
18 5323 Harry Hines Boulevard
19 Dallas, TX 75390-9032
20 G6.220
21 Office: 214-648-6430
22 Fax: 214-648-0328
23 Marlene.Corton@utsouthwestern.edu

24 **Word Count:** 768

25

This is the author's manuscript of the article published in final edited form as:

Jackson, L. A., Hare, A. M., Carrick, K. S., Ramirez, D. M. O., Hamner, J. J., & Corton, M. M. (2020). Reply. American Journal of Obstetrics & Gynecology. <https://doi.org/10.1016/j.ajog.2020.08.113>

1 We appreciate the thoughtful comments given by Dr. Pin and Ms. Pin in their letter to
2 the editor regarding our article entitled 'Anatomy, histology, and nerve density of
3 clitoris and associated structures: clinical applications to vulvar surgery'¹. Below are our
4 responses to each comment.

5 The effects of androgens on the female external genitalia were beyond the scope of this
6 descriptive study and no data were presented on this subject. In our Comment section,
7 we do paraphrase a sentence from ACOG Committee Opinion No. 378 (reference 27 in
8 original manuscript): "The American College of Obstetricians and Gynecologists
9 recommends labial alteration procedures for medical indications such as repair of
10 female genital cutting, treatment of labial hypertrophy or asymmetrical labial growth,
11 chronic irritation, or excessive androgenic hormones." Since publication of our
12 manuscript ACOG Committee Opinion No. 795² has replaced the aforementioned
13 Committee Opinion.

14 The letter authors also comment about the skin and arteries of the clitoris. Review of
15 sections of the clitoral body from our study specimens demonstrate that the deep
16 arteries of the clitoris are located medially within the corpora, close to the midline
17 septum, and not centrally, as depicted in our original schematic diagram in Figure 7. This
18 relationship was clearly evident and consistently demonstrated. In many sections the
19 deep arteries were noted to be surrounded by a cuff of dense fibroconnective tissue
20 which was continuous with the septum, such that the arteries appeared to be located at
21 the periphery of the septum in some sections, while in other sections there was a tiny
22 strip of corpus cavernosum tissue located between the artery and the septum.
23 Additionally, unlike the penis, the clitoris does not have circumferential skin; rather, the
24 prepuce skin flares laterally, the ventral surface of the clitoral body being bounded by
25 vestibular epithelium. These anatomic features are reflected in a revised schematic of
26 our original Figure 7 (Figure 1), and in a new higher power photomicrograph of the
27 clitoral body (Figure 2). Additionally, the dorsal vascular connection between the two
28 corpora identified consistently in our study specimens is now illustrated in Figure 1, and
29 shown clearly in Figure 2. This observation was discussed in Results section of our
30 manuscript: "A connective tissue septum between the paired erectile tissue structures
31 was noted during all gross dissections. Absence of this septum was noted at the 12
32 o'clock position in all histologic examinations."
33

34 In response to the comments about clitoral glans length and width, we reported
35 median, not average, values in this study as we assumed data would not be normally
36 distributed, given total number of specimens examined was relatively small (n=22).
37 However, median and mean for the glans width and length were the same. Our raw
38 data for glans width and length is included in Table below.
39
40
41
42

1 References:

- 2 1. Jackson, LA, Hare AM, Carrick, KS, Ramirez, DMO, Hamner, JJ, Corton, MM.
3 Anatomy of Clitoris and Associated Neurovascular Structures: Clinical
4 Applications to Vulvar Surgery. Am J Obstet Gynecol. Am J Obstet Gynecol. 2019
5 Jun 26.
6 2. ACOG Committee Opinion No. 795. Elective female genital cosmetic surgery.
7 Obstet Gynecol. 2020 Jan;135(1):249-250

8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36

1 **Figure Legends:**

2

3 **Figure 1. Body of clitoris cross-section**

4 Schematic view through mid clitoral body. Note relationship of dorsal nerves and
5 vessels of clitoris to corpora cavernosa and connective tissue layers surrounding
6 corpora and of deep arteries of clitoris to septum of corpora cavernosa.

7

8 **Figure 2. Photomicrograph of mid clitoral body**

9 Hematoxylin and eosin stained photomicrograph of mid clitoral body, 2x. Note deep
10 arteries of clitoris (arrow heads) positioned adjacent to septum of corpora
11 cavernosa (S), the surrounding cuff of dense fibroconnective tissue associated with
12 each deep artery, and dorsal vascular connections between the two corpora,
13 resulting in histologic appearance of an incomplete septum. *CC*, corpora cavernosa;
14 *DNC*, dorsal nerve of clitoris; *TA*, tunica albuginea.

15

16

1

Table. Raw data for width and length of glans of clitoris in 22 unembalmed cadavers.

2
3
4
5

Donor Number	Age	BMI	Glans of clitoris	
			Length (mm)	Width (mm)
1	65	18.9	9.5	4
2	65	24.2	8	4
3	70	27.2	10	6
4	78	29.6	9	4
5	65	25.8	11	4
6	61	19.7	7	3
7	69	16.8	10	3
8	88	20	7	4
9	71	17.7	8.5	5
10	64	19.5	11.5	4
11	89	27.5	6	4
12	70	27.5	6	4
13	58	34.3	7	4
14	64	26	9	4
15	48	17.2	6	3
16	83	18.3	6	3
17	76	22.9	9	4.5
18	74	18.2	4.5	3.5
19	66	20.1	10	10
20	83	29.3	7	4
21	71	24.3	7.5	4
22	74	13.3	8	4
Median	70	21.5	8	4
Mean	70.5	22.6	8.1	4.2



