

ORIGINAL RESEARCH—ANATOMY/PHYSIOLOGY

G-Spot Anatomy: A New Discovery

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ABSTRACT

Introduction. The anatomic existence of the G-spot has not been documented yet.

Aim. To identify the anatomic structure of the G-spot.

Methods. A stratum-by-stratum vaginal wall dissection on a fresh cadaver.

Main Outcome Measures. Primary outcome is the identification of the G-spot and the secondary outcome is its measurements and anatomic description of the G-spot.

Results. The G-spot has a distinguishable anatomic structure that is located on the dorsal perineal membrane, 16.5 mm from the upper part of the urethral meatus, and creates a 35° angle with the lateral border of the urethra. The lower pole (tail) and the upper pole (head) were located 3 and 15 mm next to the lateral border of the urethra, respectively. Grossly, the G-spot appeared as a well-delineated sac with walls that resembled fibroconnective tissues and resembled erectile tissues. The superior surface of the sac had bluish irregularities visible through the coat. Upon opening the sac's upper coat, blue grape-like anatomic compositions of the G-spot emerged with dimensions of length (L) of 8.1 mm × width (W) of 3.6–1.5 mm × height (H) of 0.4 mm. The G-spot structure had three distinct areas: the proximal part (the head) L 3.4 mm × W 3.6 mm, the middle part L 3.1 mm × W 3.3 mm, and the distal part (tail) L 3.3 mm × W 3.0 mm. From the distal tail, a rope-like structure emerged, which was seen for approximately 1.6 mm and then disappeared into the surrounding tissue.

Conclusion. The anatomic existence of the G-spot was documented with potential impact on the practice and clinical research in the field of female sexual function.

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Key Words. G-Spot; Cosmetic Gynecology; G-Spot Anatomy; Female Prostate; Vaginal Anatomy; Female Sexual Function; Female Erectile Body; Gräfenberg's Zone

Introduction

A very thoughtful scientific contribution to the challenging dilemma of the G-spot was the fact that the stimulation of the anterior vaginal wall resulted in an approximately 50% swelling of the anterior distal vaginal wall and provided high levels of sexual arousal with a powerful orgasm [1]. Also, it has been presented that women had reported the location of the G-spot on the anterior vaginal wall approximately one-third to one-half up from the vaginal introitus [2]. A surgical dissection of the anterior vaginal wall is usually executed to the level of the pubocervical fascia (the endopelvic fascia)

where site-specific defects can be identified and reconstructed. This traditional gynecologic procedure has been executed for decades and, so far, no single scientific article reported any anatomic structure corresponding to the G-spot being encountered during those many surgical interventions. Therefore, the author concluded that the anterior vaginal wall, up to the pubocervical fascia, most likely would not contain the anatomic G-spot and hypothesized that the G-spot maybe located between the superior dorsal perineal membrane and the inferior pubocervical fascia. As it has been documented that stimulation of the anterior vagina causes the vaginal wall to swell, a conclusion was

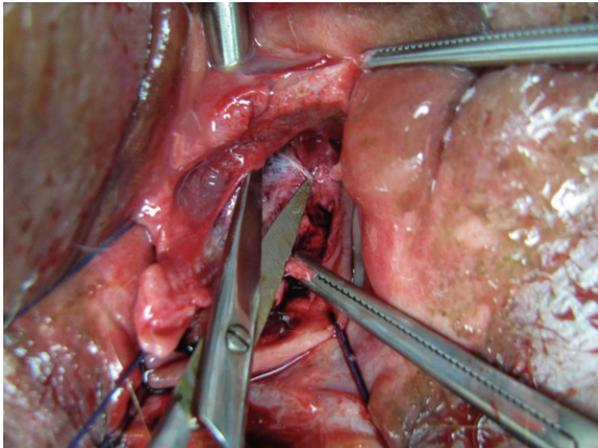


Figure 1 The vestibular bulb was dissected and the predetermined anterolateral vaginal stratum, aside from the lateral urethral border, was dissected for exploration. Under the vestibular bulb (above the scissors and between the scissor blades), the bluish structure, aside from the urethra of G-spot, is depicted.

drawn by the author that this structure must consist of erectile tissues that cause the anterior vaginal wall to swell. Therefore, to test this hypothesis, the objective was established to dissect the anterior vaginal wall layer by layer to potentially identify the existence of the anatomy. The study's results can have significant impact on the practice and clinical research.

Material and Method

The study was conducted on a fresh cadaver at the Department of Forensics Medicine, Warsaw Medical University, Warsaw, Poland. The woman was 83-year-old multipara who expired from trauma to the head 24 hours before this study. The stratum-by-stratum vaginal wall dissection was executed from the vaginal epithelium, subepithelium, smooth muscles (circular and longitudinal), and external fibrous layer connective (the endopelvic fascia) through the dorsal perineal membrane. The dissection stopped upon identifying the transverse vaginal muscle and urethrovaginal sphincter muscle. The vestibular bulb (VB) was dissected separately and documented (Figure 1). The anterolateral areas located aside from the outer urethral border were explored (Figure 1).

Results

The vaginal wall dissection on the fresh cadaver established the presence of a separate anatomic

G-spot structure, which was located on the superior surface of the dorsal perineal membrane, 16.5 mm from the upper part of the urethral meatus. The G-spot was identified as a sac with walls that grossly resembled the fibroconnective tissues, was easy to observe, and was a well-delineated structure. Also, the G-spot presented with limited mobility together with dorsal perineal membrane on which the G-spot was situated. The superior surface of the sac appeared as a mosaic of bluish irregularities visible through the coat. Upon opening the sac, the bluish grape-like anatomical composition of the G-spot was observed and dimensions established: length (L) of 8.1 mm, width (W) of 3.6–1.5 mm, and height (H) of 0.4 mm. The G-spot structure had three distinct parts: the proximal part (*the head*) with L 3.4 mm × W 3.6 mm, the *middle part* with L 3.1 mm × W 3.3 mm, and the distal part (*tail*) with L 3.3 mm × W 3.0 mm. In the most distal tail, part was an indentation from which a rope-like (vessel) structure emerged. The vessel (rope-like) was visible for approximately 1.6 mm and then disappeared into the surrounding tissue. The G-spot created a 35° angle with the anterolateral external border of the urethra at the level of 16.5 mm from the urethral meatus. The G-spot tail was located 3 mm adjacent to the latero-external border of the urethra and the head was located 15 mm (Figure 2). Upon removal of the entire structure with the adjacent margin tissues, the G-spot stretched from 8.1 to 33 mm upon being freed up from the sac tissues (Figure 3).

A search for the existing literature was carried out from 1900 to May 2010. Using Medical Subject Headings, which were selected and used in a search on the Information of Sciences Institute (ISI) Web of Science (including conference proceedings, 1950 PubMed, ACOGNET, ProQuest, OVID, Cochrane Collection, the Lancet on Line Collection, MDCConsultant, New England Journal of Medicine, American College of Physician on Line Resources, Highwire Journal, and Citation Index Reference), and utilizing a manual search failed to identify any anatomic documentation of the G-spot existence. Therefore, this presentation is the first description, in the scientific-clinical literature, of the location, size, and gross presentation of the G-spot.

Discussion

In 1950, Ernest Gräfenberg from New York, USA presented his findings related to “the role of

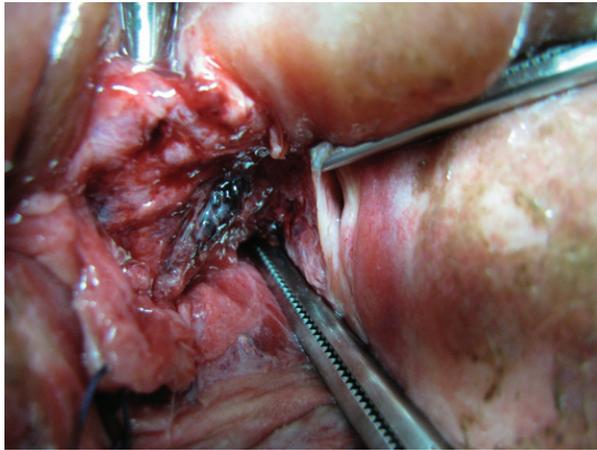


Figure 2 The G-spot is depicted as bluish grape-like compositions that was located between the superior dorsal perineal membrane and the inferior pubocervical fascia and grossly resembles the cavernous tissue, which creates a 35° angle with the lateral urethra. The rope-like structure emerges from the tail that disappears into the adjacent tissue. The low pole is 3 mm and the upper pole is 15 mm aside from the urethra. The G-spot's housing was illustrated that looked grossly a lot like the fibrotic-connective tissues.

urethra in female orgasm” [3]. Although his research did not focus on the role of the vagina in the female orgasm, in 1981, Addiego et al. named the vaginal erotogenic zone the Gräfenberg zone and later on the international media established the term of G-spot [4]. The G-spot has been adapted by the medical field and the public at large around the globe. Since Gräfenberg did not work



Figure 3 The G-spot was excised with the margin of the adjacent tissue. The structure looked like the cavernous tissues. Upon opening the upper sack's wall, the G-spot stretched from 8.1 mm being compacted in the sack to 33 mm being freed up from the sack tissues.

on the erotogenic aspect of the vagina, his name and the zone should not be used as a term for expression of the vaginal role in female sexuality.

The G-spot has been functioning as a concept of a physiologic phenomenon that expresses woman's personal sexual experiences. However, the anatomy of the G-spot has not been identified. The absence of the identification of the G-spot as an anatomic structure created considerable controversies and a biased interpretation of the scientific results worldwide, leading to a monolithic clitoral model of female sexual response. However, women have held the unwavering position that there are distinct areas in the anterior vagina which are responsible for a sensation of great sexual pleasure. Therefore, it seems reasonable to accept the notion that women are anatomically equipped with a G-spot, which is sensitive to tactile stimulation on the anterior vaginal wall.

Through the centuries, many attempts have been made to establish the anatomic existence, location, and size of the G-spot. It became one of the most intellectual-provoking topics on the female sexual expression field. The results of the recent attempt were presented in 2009 [5]. The anatomic documentations of the G-spot provided in this clinical intra-operative study clearly indicated the presence of the Skene's peri-urethral glands and the Skene's para-urethral ducts, which are located between the inferior urethra and the superior vagina and they have been labeled as a G-spot [5]. In addition, the superficial location of the G-spot anatomy did not correspond to the author's findings presented here. Also, histologic documentations offered in the study from 2009 are typical for the Skene's glands and ducts [5,6]. The current study documented that the G-spot did not run alongside of the urethra, as it was claimed in the article quoted above [5], but the G-spot creates a 35° angle between the urethra with the lower pole being positioned 3 mm from the urethra and the upper pole being situated 15 mm from the urethra. The current study established that the G-spot location was located much more deeply than it was previously observed during the anterior vaginal repair performed in 2009 [5]. The current study documented that the superior dorsal perineal membrane is the structure on which the G-spot is situated. The G-spot is not "... small flaccid balloon-like masses on either side of the urethra" as previously stated [5]. It is a well-defined and uniform structure within a sack and the G-spot appeared to be erectile tissue without any palpable gland within the tissues. Therefore,

neither anatomic nor histologic data presented in the 2009 intra-operative study corresponded to the anatomic G-spot existence [5].

There are scientific data that strongly support the physical presence of the G-spot. The G-spot gene has been identified and has been already incorporated into the Affymetrix GeneChip microarrays of probes to match specified genes [6]. The vaginal electric activities (the electrovaginogram) documented that a pacemaker was positioned to exist at the upper vagina evoking electric waves that could be recorded. Shafic et al. concluded that the vaginal pacemaker seemed to represent the G-spot, which women reported as a small area of erotic sensitivity in the vagina [7]. The ultrasonographic study postulated that clitoral bodies have a descending movement and come close to the distal anterior vaginal wall during a voluntary contraction and relaxation of the pelvic floor muscles. Investigators suggested that this fact can explain the particular sensitivity of the G-spot and its role in the female orgasm [8].

In this study, significant attention was given to compare the VB gross anatomy and the G-spot gross anatomy. Grossly, the differences between VB and G-spot are striking including the location and the angulation of the G-spot, which creates a 35° angle with the lateral urethra. The VB has a much longer structure than the G-spot (Figures 1 and 2). The distal part of VB is much thicker than the proximal part; it is very opposite in the case of the G-spot where the distal part is thinner than the proximal part. In the middle of the distal part of the G-spot, the rope-like structure is present and VB configuration does not have such a structure. The similarity on the gross examination between VB and G-spot was present in bluish grape-like compositions and both grossly resemble the cavernous tissue.

It is worthwhile to mention the modern, well-designed, well-executed, and well-presented female genital anatomy study, which was conducted by O'Connell et al. [9]. Although the authors' research had not integrated the G-spot anatomy, it is worthwhile to elaborate on the new concept of the clitoral complex, which may be integrated with the G-spot in the future. The clitoral complex that was introduced by O'Connell's group incorporates the clitoris, distal vagina, and the urethra [9]. This discovery brings to light a better understanding of the anterior distal vaginal wall and the urethra's role in the transmission of active forces generated during sexual stimulation to the clitoris. From the anatomic point of view, it does make a lot of sense as the vaginal introitus is intimately fused with the

urethrovaginal sphincter muscle. The vaginal-urethral ligaments reach from the lateral part of the anterior vaginal wall to the sides of the urethra and then run subcutaneously to the clitoris, where they unite around the base [10,11].

Additionally, O'Connell et al. brought to our attention that classic textbooks that provide descriptions of the female anatomy should be revised, as there are significant differences between modern anatomy, supported by the Magnetic Resonance Imaging (MRI) results, and traditional presentations. Also, O'Connell's group suggested new anatomic terminologies and the author supports this notion [12,13]. The results of our study presented in this article confirmed the need for revision of traditional approaches in textbooks related to the female organ anatomy and new terminologies should be considered.

The anatomic discovery of the G-spot existence may inspire a new study for establishing the anatomic presence of "a female prostate." Recently, the immunohistochemical study suggested that female prostate characteristic components can be identified in some women [14]. Other study substantiated the notion of "a female prostate" existence and the results of the study documented that the real female ejaculation consists of two fractions with distinct components: diluted urines and second fraction presents with very scanty, thick, and whitish fluid resembling prostatic secretions [15]. The anatomy of "a female prostate" structure still is waiting for its discovery.

Conclusion

The anatomic existence of the G-spot was documented in this study with potential impact on the practice and clinical research in the field of female sexual function.

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Statement of Authorship

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(b) Acquisition of Data

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(c) Analysis and Interpretation of Data

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Category 2

(a) Drafting the Article

Adam Ostrzenski

(b) Revising It for Intellectual Content

Adam Ostrzenski

Category 3

(a) Final Approval of the Completed Article

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