

CAVERNOUS ERECTILE SYSTEM IN WOMEN AND THE HYPEREROTICISM AREA (H AREA)

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The erectile organs of the vulva, through their structure and functionality, participate directly in determining the state of arousal and erection, necessary for sexual intercourse.

The command to trigger an erection is given by the brain and is transmitted through the medullary pathways and/or the sacral spinal cord S2-S4, through the reflex arch.

The direct connection between the cavernous erectile organs containing a venous plexus (vestibular bulbs) with the erectile tissue of the clitoris, the suburethral tissue, respectively the cavernous venous plexus of the urethra which constitutes the Vaginal Area of

Hypereroticism ("H"), stimulates the receptors of any of the above structures in order to increase the local congestion and the vulvo-vaginal erectile sensitivity, thus activating the desire to mate (the "libido").

It has to be mentioned that the erectile tissue covered by albuginea has a special functionality compared to the tissue with a simple local hyperemia (Nițescu).

Parasympathetic impulses dilate the arteries of erectile tissue due to acetylcholine, to nitric oxide and to VIP (Vasoactive Intestinal Polypeptide) released at the nerve endings, local hyperemia highlighting the vulvo-vaginal erectile tissue.

The connections between the corpora cavernosa of the clitoris and the corpora cavernosa of the urethra are also explained by the drainage of venous blood, that is mainly and directly to the circumflex veins, which is another proof of the direct link between the clitoris and H area, all considered by women as being the most important vulvo-vaginal erogenous zones.

Hypervascularization of the H area, determined by the existence of the urethro-vaginal cavernous structure, appears as an additional stimulating factor on the cavernous structure of the vaginal wall congested by Gussenbauer erectile tissue, during the period of local excitation of the trapezoidal “H” area.

Morphophysiologically, erection is an reaction based on a complex vascular-nervous mechanism, in which the relaxation of the cavernous spaces is the result of blood flow, in response to arousal stimuli recorded by tissue and central nervous receptors (brain), the erection being perceived by the woman as an “erotic state”.

The clitoris

From an anatomical point of view, in its anterior region, the body of the clitoris is covered by the foreskin, which leaves visible the clitoral gland with erectile spongy structure and which is very sensitive through tactile corpuscles; the clitoral erectile structures are considered similar to the corpus cavernosum of the penis.

Structurally, the clitoris consists of two cavernous bodies of low volume, consisting of erectile tissue wrapped in a fibroelastic membrane, slightly extensible, called albuginea, which fixes the roots of the clitoris to the ischio-pubic bone branches. In its constitution, there are two small muscles, that are the erector muscles of the clitoris, inserted on its root.

The blood influx into the cavernous structures, delimited by albuginea, increases the local congestion and also the sensitivity of

erectile formations through tactile corpuscles, including the glans, determining the congestion of all segments of the clitoris, thus preparing the genitals for copulation, ejaculation and orgasm.

Clitoral vasodilation occurs much faster in young women and more difficult in the elderly. The size and proximity to the vaginal introitus of the clitoris easily allow its mechanical arousal, being the most efficient structure in obtaining a number of orgasms.

Investigations and clinical observations have confirmed the direct link between hyperclitoridia and hyperandrogenism with the state of hypereroticism and in the increase of the orgasms number.

In addition to the exciting visual appearance of the much-enlarged clitoris (as in the case of the enlarged penis seen by a woman on her sex partner), it has an increased number of receptors on its surface, which gives it a special sensitivity, so that the longer it is the more the arousal surface is larger and therefore the woman’s erotic state is stronger.

According to our statistics, the clitoris provides the woman with the strongest erogenous support, followed by the Vaginal Area of Hypereroticism (H).

The sensory innervation of the clitoris is given by the dorsal nerve of the clitoris, the terminal branch of the internal pudendal nerve, which enters the body of the clitoris.

The dorsal nerve of the clitoris innervates the hood and clitoral mucosa, the upper part of the labia minora and the integuments of the anterior region of the labia majora, explaining the erogenous reaction of the labia (as well as H area) to clitoral excitation, and vice versa. The dorsal nerve of the clitoris is

distally a nerve plexus.

The body of the foreskin and the bulbo-vestibular muscles also contain vegetative-vascular branches. The sympathetic fibers go along with the pudendal nerve and the internal pudendal artery that gives rise to the superficial and profound bulbar perineal branches, cavernous arteries and the dorsal artery of the clitoris which are analogous to the dorsal artery of the penis (Testut/Latarjet).

The parasympathetic fibers run parallel to the pudendal artery, causing the erection of structures, especially of the erectile tissue.

From the internal pudendal artery emerges the clitoral artery, then the cavernous and dorsal artery of the clitoris (from the internal pudendal artery).

The venous system consists of the deep dorsal veins of the clitoris that go into the bladder vascular plexus.

The vestibular bulbs

They are cavernous erectile organs that contain a venous plexus covered by a thin fibrous membrane. The vestibular bulbs are located on the sides of the opening of the vagina and urethra, which surround the base of the labia minora (Fig.1). On their external face, these structures are covered by the bulbous-cavernous muscles which, together with the one on the opposite side, constitute the constrictor muscle of the vagina, which narrows the vaginal ostium.

In copulation, the excitability of the vulva and the penis increases due to the greater adhesion of the two surfaces (penis-vulva, respectively penis-vagina), by increasing their

erectile tension.

The inner part of the vestibular bulbs has upward relations with the terminal part of the urethra, then downwards with the inner face of the labia minora and of the Bartholin's glands. The two vestibular bulbs join in front of the urethra through their anterior extremities, taking on the general appearance of a „horseshoe” with the concavity posteriorly.

The bulbar venous plexus anastomoses with the veins of the clitoris. In the anterior region, a small venous plexus is formed between the vestibular bulbs and the clitoral gland called the „pars intermedia” (Kobelt).

The vestibular bulbs, especially through their posterior extremities which are more voluminous, increase their size during erection, participating in the determination of orgasm together with the constrictor muscle of the vagina.

The erectile tissue that forms the vestibular bulbs is connected to that of the vulvar erectile organs, forming an increased intensity erotic area (clitoris, vestibular bulbs, inner face of the labiae, urethra and sub-urethral tissue with H area), explaining why the involvement of one of these elements determine the erectile tension of all of them.

The tactile corpuscles of voluptuousness

These structures are located on the inside part of the labia minora and near the vaginal entrance.

On the hypertrophied vulva, performing stimulating manual maneuvers on the sensitive receptors of the internal surface of the

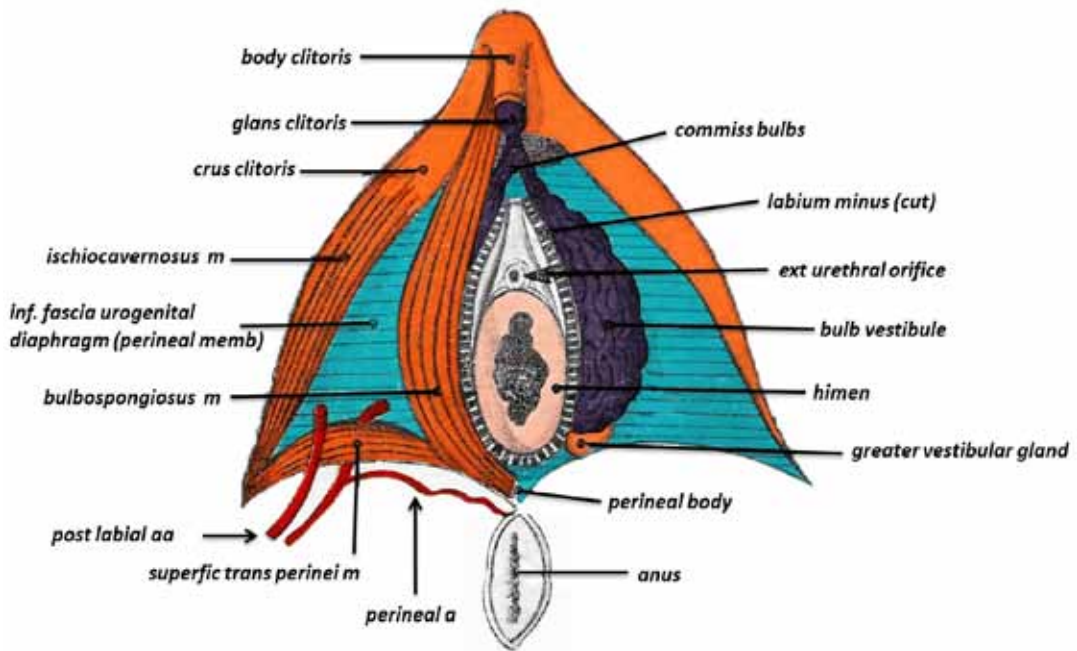


Fig. 1 The vestibular bulbs (Adapted after Jamieson's illustrations of regional anatomy)

labia minora, which have a high sensitivity, respectively on the lubricated vulvar surface, produces the orgasm, as it also occurs in the clitoral gland, respectively in the Hypererotic Zone of the Vagina (H).

The cavernous tissue of the clitoris is also evident in the vascular system of the labia minora in women (Benson), explaining the rapidity of the zonal erection, necessary for the existence of libido and copulation.

The direct implication of the labial tactile corpuscles potentiates the state of vulvar eroticism.

The vulvar erectile tissue and that of the Vaginal Area of Hypereroticism are controlled by parasympathetic nerves, which reach, through the pelvic nerves of the sacral plexus

(S2-S3-S4), to the vulvo-vaginal organs.

The nervous impulse, through the parasympathetic system, determines the vasodilation of the erectile vessels, by the discharge of nitric oxide from the epithelium, as well as by VIP release, through which the vasodilation is mediated (Netter). Acetylcholine blocks noradrenergic vasoconstrictor mechanisms. Nitric oxide is the main neurotransmitter responsible for the vulvar congestion.

The vaginal area of hypereroticism (H area)

In this context, the direct connection between the erectile tissue of the clitoris, vestibular bulbs, urethral tissue, urethro-vaginal tissue and vascular plexus of H area determi-

nes that the receptors of any of these above mentioned structures stimulation to cause the rapid erection of all the cavernous vulvar structures, i.e. the state of vulvo-vaginal hyperexcitability, which also results in genital lubrication and preparation for penetration and copulation, respectively for sexual intercourse itself (Fig.2).

Parasympathic nervous impulses dilate the erectile tissue arteries due to acetylcholine, nitric oxide and VIP (vasoactive intestinal polypeptide) enhancing the importance of the erectile tissue by nervous terminations hyperemia.

The anastomosis between the cavernous bodies of the clitoris and the urethral cavernous structure are explained by the venous specblood leakage, mainly and directly to the circumflex veins, which constitutes another evidence of the direct vascular connection between the clitoris and the H area, which women consider as the most important erogeneous vulvo-vaginal areas.

Thus, from a morpho-physiological point of view, the erection appears as a complex vasculo-nervous mechanism, in which the distension of cavernous spaces results from the blood influx, as a response reaction to the local and central nervous receptors excitation, being perceived by the individual as an "erotic status".

The H area hypervascularization, connected with urethro-vaginal spongy tissue, as well as common innervation with the other vulvo-vaginal erectile organs, explains, once again, why the touching maneuvers performed in H area also cause hyperemia to neighboring erectile organs, namely the vulvar erection.

Hypervascularization of H area appears as an additional factor for the utero-vaginal cavernous structure functionality, which acts on an already congested vaginal wall by

Gussenbauer erectile tissue, during the local arousal and by brain command.

The normal congestion of the vascular plexus in the vaginal wall has less erotic effects than congestion of cavernous tissue, which, thanks to albuginea, confers a special morpho-functional constitution to the respective organs, contributing to the copulation, ejaculation and orgasm.

The direct link of the labies with the clitoris area also causes stimulation of the erection of the Vaginal Area of Hypererotism due to the existence of clitoris neural synapses – H Area.

Nearby nerve threads represent the link between the erogenous areas. There are interneuronal synapses between the clitoris and the H area, proven by the transmission of the exciting nervous impulse from the clitoris to the H area and back, that determine certain interzonal morpho-physiological particularities.

Of all the vulvar structures, consisting of erectile tissue and with increased bioexcitability, the woman considers that the area with the highest erotic sensitivity belongs to the clitoris, which also determines the strongest orgasm, i.e. an increased number of orgasms.

In our statistics, on the same important position, or right on the secondary place, there is the vaginal area of hypererotism (H Area), which is directly linked to the clitoris.

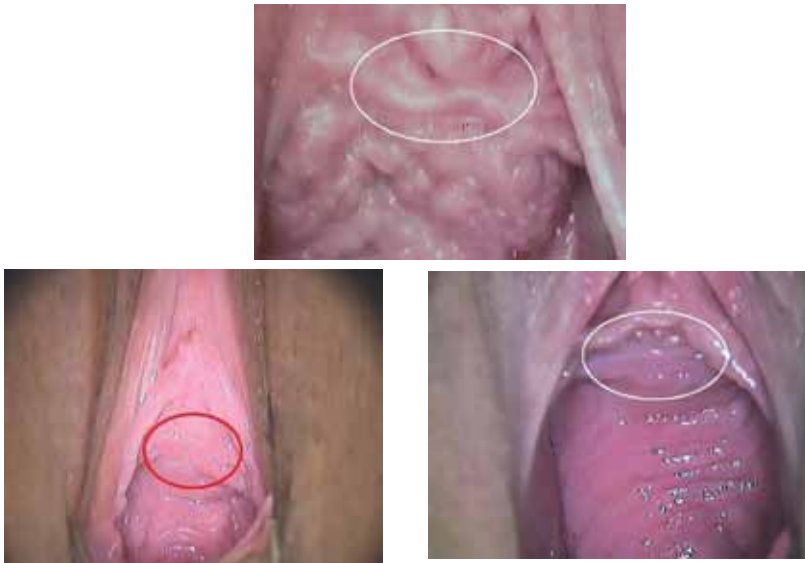


Fig. 2 Different aspects of the H area- images from Treaty of Clinical Sexology

Conflict of interest

The Author has no conflict of interests to declare, had full access to all of the data in the study, and takes responsibility for the accuracy of the data analysis.

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