

9. FEMALE MEMBRANOUS URETHRA:

The glandular urethra (~2.5cm in length) joins the *membranous urethra* (~0,5cm in length). The opening of the membranous urethra is the *distal urethral orifice*. The *glandular and membranous urethra* are embedded in the middle of the *anterior wall of the vagina*.

The membranous urethra is anterior to the *colliculus feminalis* which contains the distal ends of the Gartner's ducts and lower end of the vagina.

The membranous urethra lies within the *distal sphincteric complex* (DSC). The DSC consists of the smooth muscle/involuntary sphincter (lissosphincter) and striated muscle/voluntary sphincter (rhabdosphincter).

The omega shaped *lissosphincter*, wraps around the bladder neck, glandular urethra, and membranous urethra, except in the posterior midline, where the medial borders of the lissosphincter insert in the lateral borders of the longitudinal, midline *connective tissue raphe*. The connective tissue raphe is embedded in the anterior wall of the vagina.

The *rhabdosphincter*, wraps around the sides of the membranous urethra, and colliculus feminalis (containing distal ends of Gartner's ducts and lower end of the vagina), and join around the posterior wall of the vagina. Lateral fibers of the rhabdosphincter fan upwards and backwards on the sides of the lower 2/3rd of the glandular urethra. The lower border of rhabdosphincter, is attached to upper surface of (inferior) perineal membrane.

Gartner's ducts descend in parallel in the posterior wall of the glandular and membranous urethra, just behind the *urethral crest*. They open on the posterior lip of the distal urethral meatus, anterior to the introitus of the vagina

Structures that pierce the (inferior) perineal membrane:

- mucosa of membranous urethra (not lissosphincter or rhabdosphincter)
- mucosa of terminal ends of Gartner's ducts, openings on posterior lip of distal urethral meatus
- lower end of vagina, containing hymen and introitus of the vagina.

Colliculus feminalis with its openings of the introitus of vagina, and tiny openings of Gartner's ducts, appears as a subtle projection in the roof of the *posterior section of the vestibule*.

Mucosa of the distal urethral meatus, and mucosa between the distal urethral orifice, and the suspensory ligament of the clitoris, forms the roof of the middle section of the vestibule.

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