

LABORATORY 31 - MALE REPRODUCTIVE SYSTEM - ACCESSORY REPRODUCTIVE GLANDS
(second of two laboratory sessions)

OBJECTIVES: LIGHT MICROSCOPY: Recognize characteristics of the seminal vesicle, prostate and bulbourethral glands. In the prostate gland observe the structures that are found in the urethral crest (colliculus seminalis). Recognize the membranous urethra and the structural characteristics of the penis including the corpora cavernosa and spongiosum and the penile urethra

ASSIGNMENT FOR TODAY'S LABORATORY

GLASS SLIDES:

- [SL 56](#) Seminal vesicle and prostate
- [SL 161](#) Seminal vesicle
- [SL 162](#) Prostate with urethral crest
- [SL 163](#) Prostate of child
- [SL 183](#) Bulbourethral gland
- [SL 164](#) Membranous urethra
- [SL 165](#) Penis, child

HISTOLOGY IMAGE REVIEW - available on computers in HSL

Chapter 16, Male Reproductive System

Frames: 1095-1109

SUPPLEMENTARY ELECTRON MICROGRAPHS

Rhodin, J. A.G., An Atlas of Histology

Copies of this text are on reserve in the HSL.

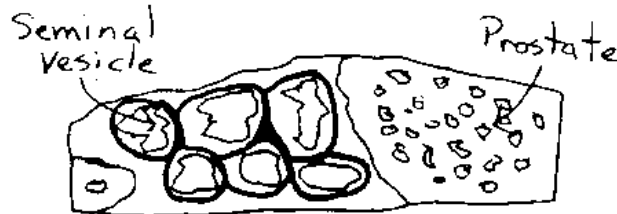
Male reproductive system, pp. 386-398

ACCESSORY REPRODUCTIVE GLANDS

A. SEMINAL VESICLE, PROSTATE AND BULBO URETHRAL GLAND.

It may be of help in interpreting these slides to realize that the seminal vesicle is a convoluted "sac-like" organ. Therefore, sections through this structure reveal a relatively small number (10 – 30) of cross or oblique profiles, each of which includes a lumen. Each cross section of the seminal vesicle may appear to have multiple lumina derived from the infoldings of the mucosa, but each of these apparent spaces is continuous with the main lumen of the structure. The prostate, in contrast, is an aggregation of branched tubuloalveolar glands. Compare (W. 18.14 and 18.16) for orientation.

Diagram of [SL 56 \(organs identified\)](#)



1. SEMINAL VESICLE AND PROSTATE. [SL 56](#)

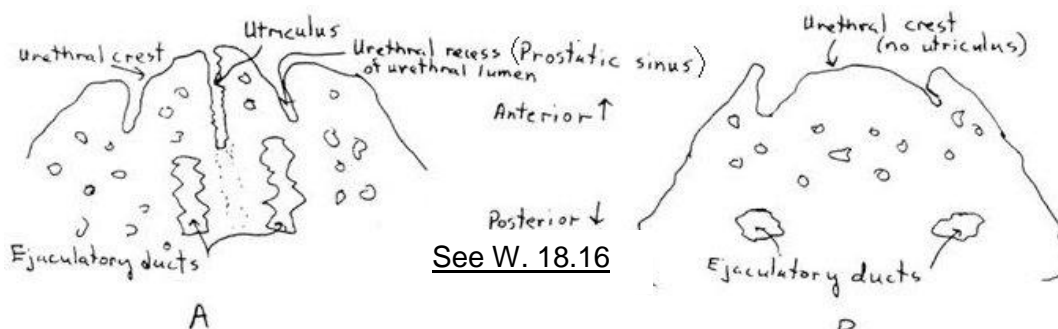
- The seminal vesicle is composed of three layers: mucosa, muscularis and adventitia. The extensive folds of the mucosa into the lumen of the tube create many diverticula. The muscularis lies below the mucosa, but the layer of smooth muscle is not as thick as in the vas deferens ([low](#), [med](#), [high](#), [mucosal folds](#), [red arrows](#); [diverticula](#), [blue arrows](#), [section of muscularis](#), [green rectangle](#)) (J. 21-18; W. 18.14)
- The prostate gland consists of many branched tubuloalveolar secretory units. Often, but not always, concretions may be found within the glands. Occasionally, epithelial cells appear to be isolated, "floating" in the lumina of the glands, but these "islands" ([red arrows](#)) are attached in other planes of sectioning (e.g., through blue line in same image). The characteristic stroma contains bundles of smooth muscle in addition to connective tissue, i.e. it is a fibromuscular stroma, ([med](#), [high](#), [small concretions](#), [red arrows](#); [bundles of smooth muscle](#), [blue arrows](#)) (J. 21-20, 21-21; W. 18.15 to 18.18)

2. SEMINAL VESICLE. [SL 161 \(low, high\)](#) – Find the structures as above. (J. 21-18; W. 18.14)

3. PROSTATE. [SL 162](#) (J. 21-20, 21-21; W. 18.16) - This section cuts through the urethral crest, (colliculus seminalis), utricle and urethra - 17-year old youth.

Diagram of [SL 162](#)

There is considerable variation in these slides, some sections are from a cut that resembles A others resemble B. The anterior wall of the urethra and prostate have been cut away.



- (a) This section shows typical [prostatic stroma and glands](#), in this case, without concretions.
 - (b) Find the [urethral crest](#) (colliculus) ([high](#)). This is a mass of condensed prostatic stroma projecting from the posterior wall into the lumen of the prostatic urethra. The anterior wall of the prostatic urethra is cut away on this slide. Some slides may show the prostatic [utricle](#) in the center of the crest and portions of the paired ejaculatory ducts within or near the crest ([urethral crest, red circle; ejaculatory ducts, blue arrows; utricle, green arrow](#)). The epithelium lining the utricle may resemble that observed in the prostatic acini. In some slides the epithelium is more squamous to cuboidal in appearance.
4. PROSTATE, child. [SL 163](#) ([low](#), [med](#)) Optional, slide shows immature appearance prior to testosterone stimulation to the adult condition.
 5. BULBOURETHRAL GLAND. [SL 183](#) ([scan](#), [low](#), [med](#)) The bulbourethral glands are compound tubuloalveolar glands that secrete mucus. Bundles of smooth muscle cells as well as skeletal muscle ([blue arrows](#)) fibers are found in the septa between lobes of the glands (see J. p. 446).

PENIS AND URETHRA

- A. MEMBRANOUS URETHRA, lower portion. [SL 164](#) ... [image from SL 164](#)
 1. Observe the [mucosa](#) in this region of the urethra. Try to distinguish the type of epithelium present; it may vary from transitional to pseudostratified columnar.
 2. The lamina propria contains a [venous plexus](#) that is characteristic feature.
 3. Some sections may include mucus secreting urethral glands that can be intraepithelial or intra-mucosal in location.
- B. PENIS, child. [SL 165](#) (J. 21-22; W. 18.19, 18.20)
 1. Study structural plan of penis. ([scan](#)). Identify [urethra](#), [corpus spongiosum](#), [corpora cavernosa](#).
 2. Study histology of erectile tissue. (W. 18.21)

Note histology of the [cavernous urethra](#) ([penile urethra](#)) ([low](#), [med](#)). Urethral glands may also be present in the [corpus spongiosum](#) (W. 18.22)

OBJECTIVES FOR LABORATORY 31: MALE REPRODUCTION – ACCESSORY GLANDS

1. Using the light microscope or digital slides, identify:

- Seminal vesicle
 - Mucosa
 - Muscularis
 - Adventitia
- Prostate gland
 - Concretions
 - Urethral crest (colliculus seminalis)
 - Utricle
 - Ejaculatory ducts
- Bulbourethral gland
- Membranous urethra
- Penis
 - Penile urethra
 - Corpus spongiosum
 - Corpus cavernosum

REVIEW OF MALE REPRODUCTIVE SYSTEM

1. What types of muscle are found in the seminal vesicle, the prostate gland and the bulbourethral glands and what is its distribution within these organs?
2. Compare the epithelium of the epididymis and the efferent ductules.