

# HISTOLOGY OF GENITAL ORGANS

## PART -1

## Testes

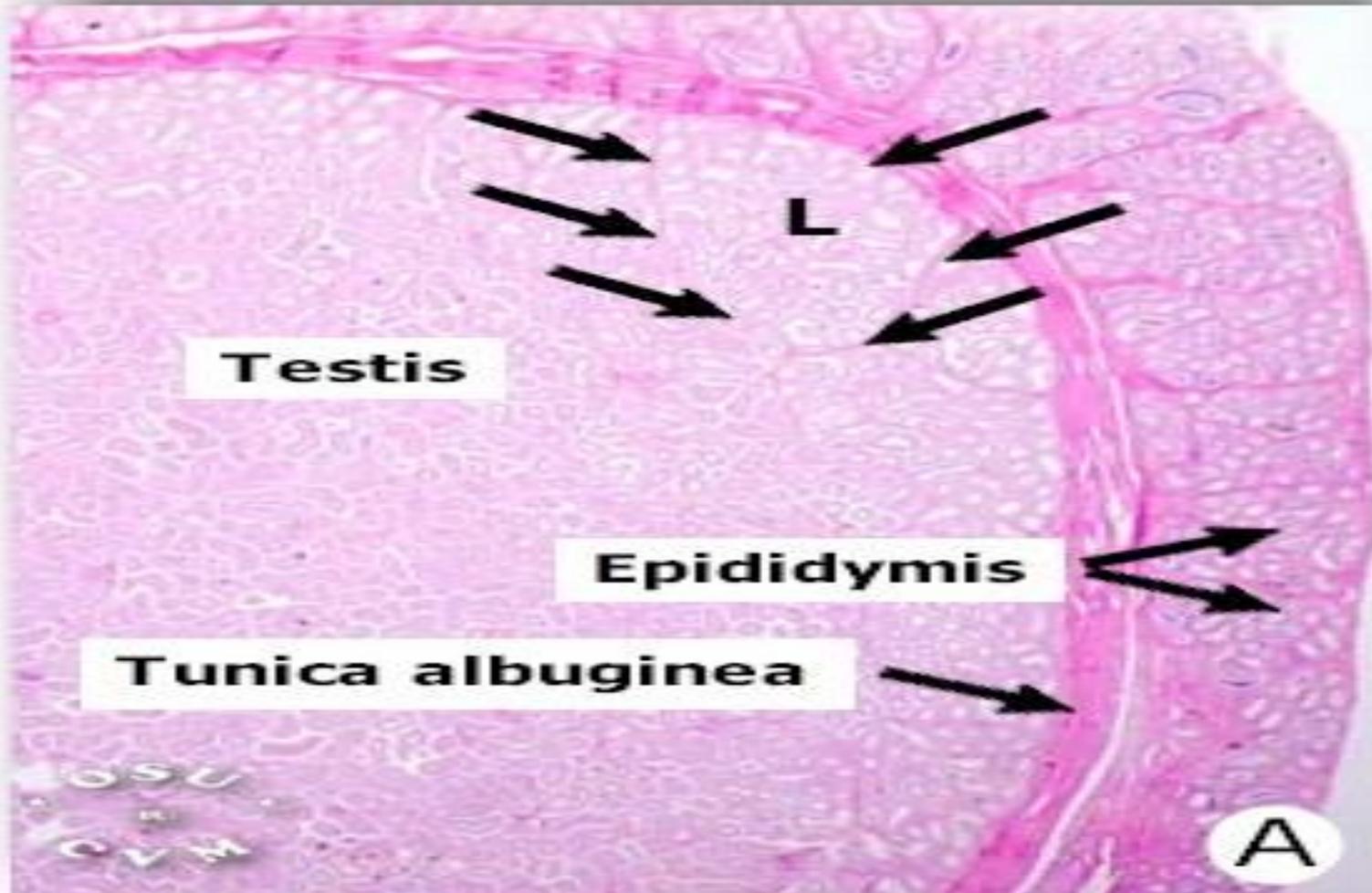
➤ The testes are paired organs, and each one is enclosed in a fibrous white capsule of dense connective tissue (**tunica albuginea**) containing blood vessels (the stratum vasculare).

A layer of peritoneum is tightly adhered to the tunica albuginea of each testis.

The stallion has smooth muscle fibers in the capsule.

The connective tissue of the capsule continues into the testis on the posterior aspect as the mediastinum testis.

# Section of testes



- Each **lobule** is composed of dense connective tissue
- The tunica albuginea is continuous with the loose areolar connective tissue of the septa which extend through the parenchyma of the testis and divide it into lobules containing several seminiferous tubules
- Spermatogenesis (formation of spermatozoa) occurs in the epithelial lining of the **seminiferous tubules**.
- The **interstitium** is composed of loose connective tissue containing fibroblasts and Leydig cells (**interstitial cells**).
- Spermatozoa produced in the seminiferous epithelium move through the lumen of the tubules to the **tubuli recti** (straight tubes) which extend to a network of spaces in the mediastinum, the **rete testis**

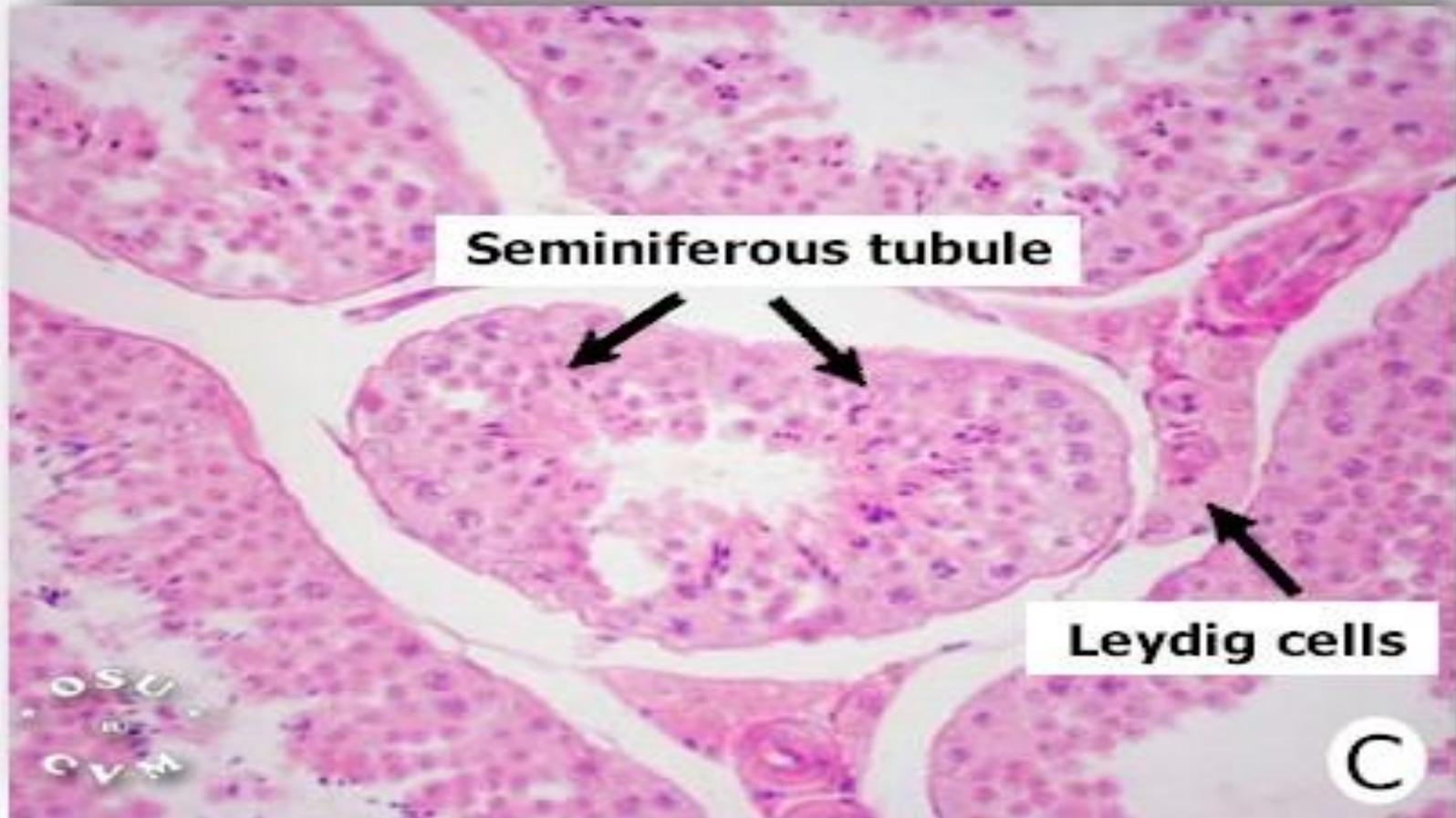
- **Efferent ductules** (ductuli efferentes) carry the spermatozoa from the rete testis, then converge to form the **ductus epididymis**
- The ductus epididymis straightens and becomes the **ductus deferens**. In domestic mammals, testes are not in a major body cavity, but are enclosed in the scrotum.
- Each testis is suspended at the end of a tissue called the spermatic cord which contains the **ductus deferens**, the blood vessels, and the nerves supplying the testis.

- Each testis is composed of an exocrine part (seminiferous tubules) and an endocrine part (interstitial or Leydig cells).
- The testis is divided into lobules by septa consisting of loose areolar connective tissue.
- Several seminiferous tubules are found in each lobule, and interstitial cells are found in the connective tissue septa surrounding the seminiferous tubules.
- The seminiferous tubules are the exocrine portion of the testis producing and "excreting" spermatozoa.
- These tubules are lined by a stratified epithelium that consists of the developing spermatozoa and supporting cells (Sertoli cells).

# Section of testes

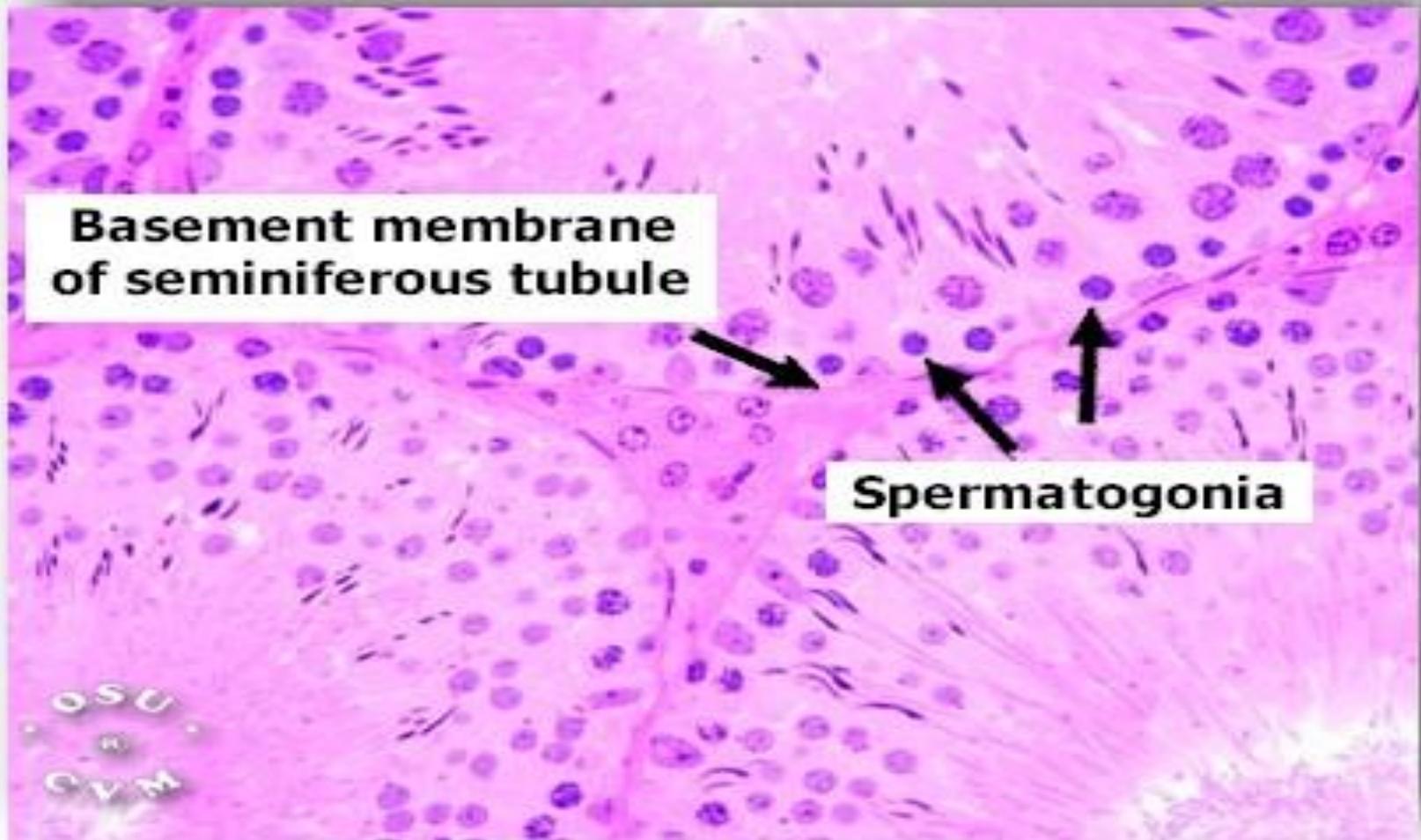


# Section of seminiferous tubules



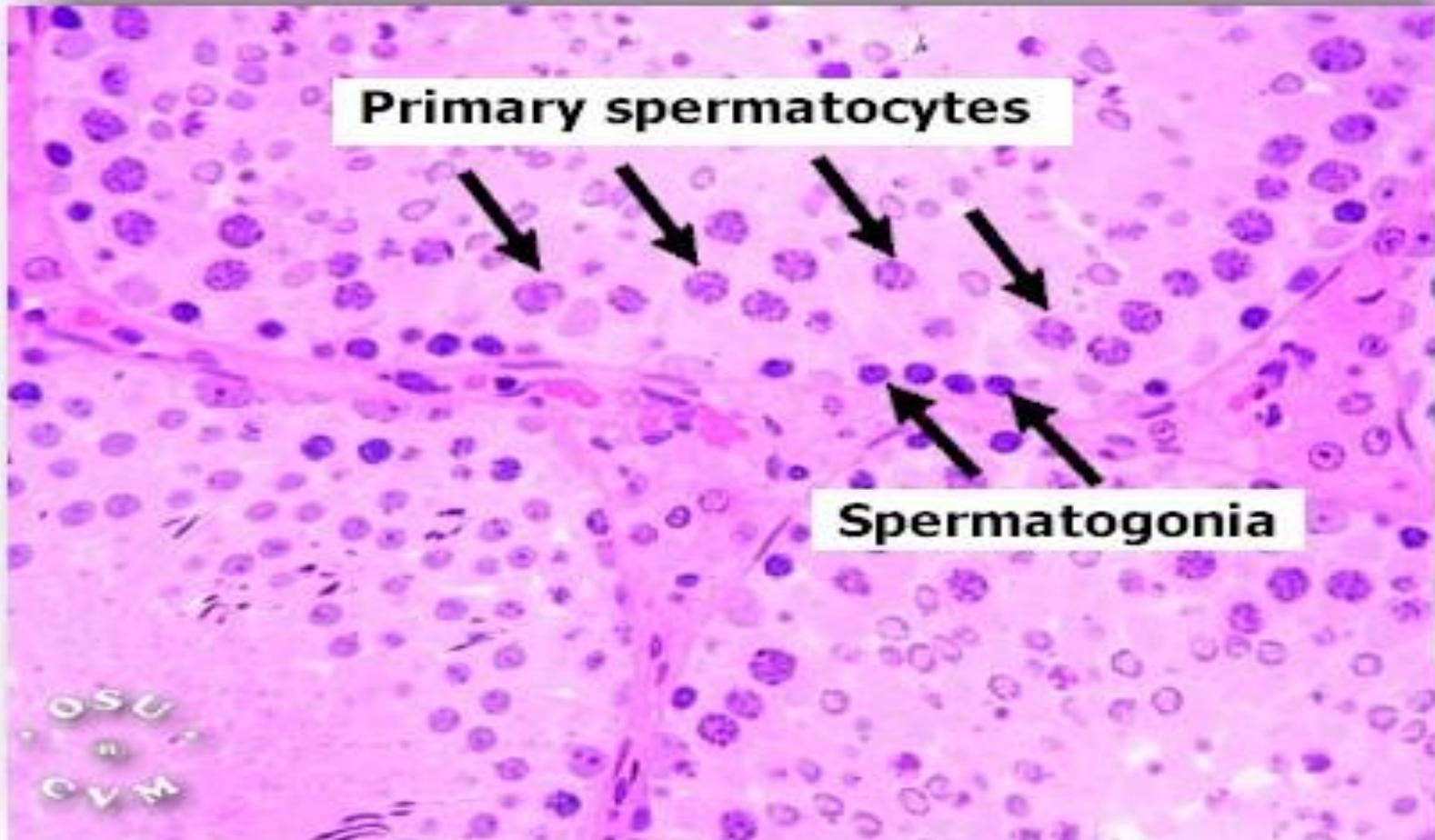
- ***Spermatocytogenesis:(also called Mitosis)***: Stem cells (**Type A spermatogonia**; singular = spermatogonium) divide mitotically to replace themselves and to produce cells that begin differentiation (**Type B spermatogonia**).
  
- Spermatogonia have spherical or oval nuclei, and rest on the basement membrane.

# Spermatogonia and basement membrane



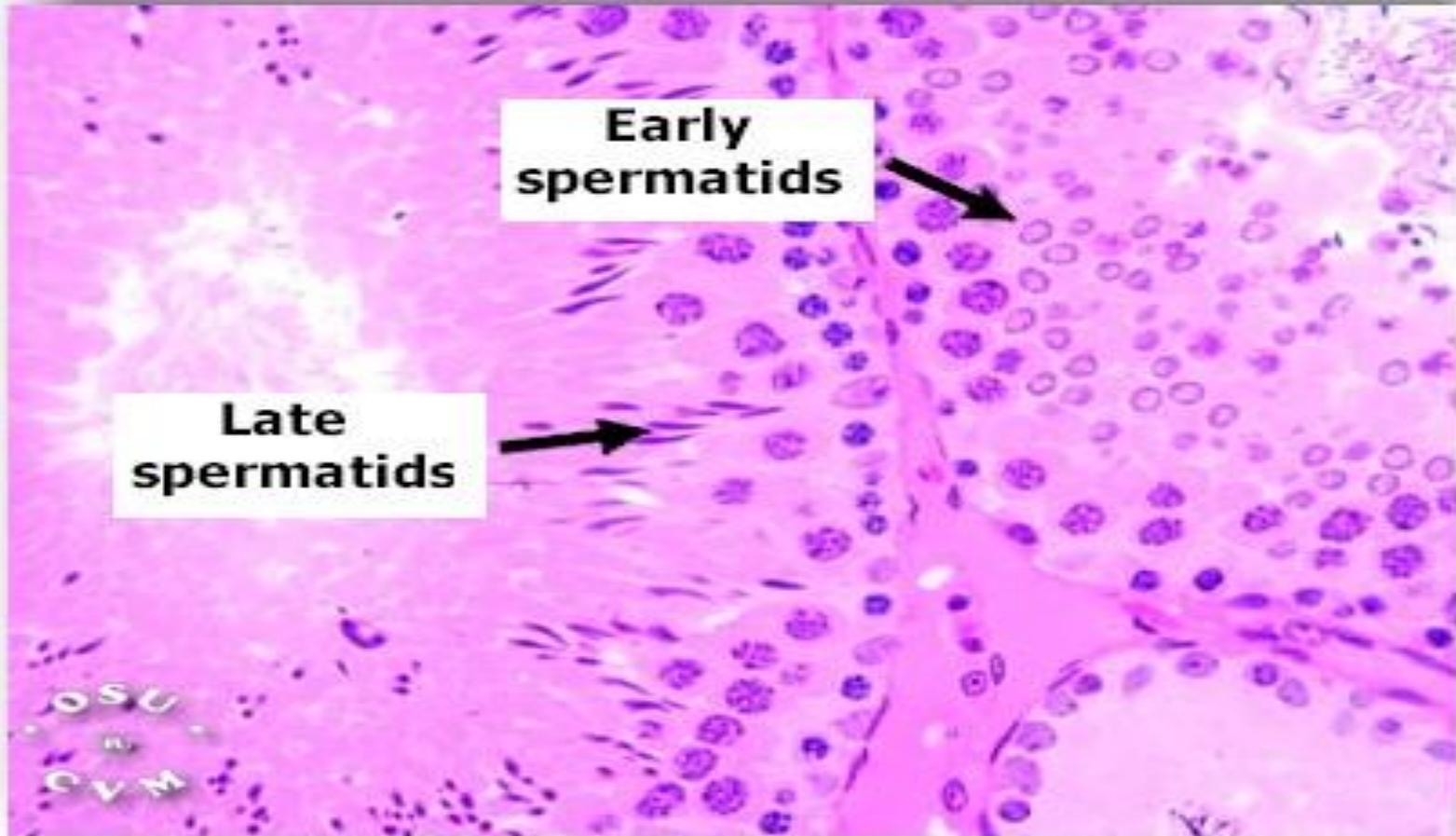
- Cells in prophase of the first meiotic division are **primary spermatocytes**.
- They are characterized by highly condensed chromosomes giving the nucleus a coarse chromatin pattern and an intermediate position in the seminiferous epithelium
- Primary spermatocytes go through the first meiotic division and become **secondary spermatocytes**.
- The cells quickly proceed through this stage and complete the second meiotic division. Because this stage is short there are few secondary spermatocytes to be seen in sections.
  
- Meiosis is the process by which the diploid number of chromosomes present in spermatogonia (the stem cells) is reduced to the haploid number present in mature spermatozoa.

# Structure of primary spermatocytes and spermatozoa

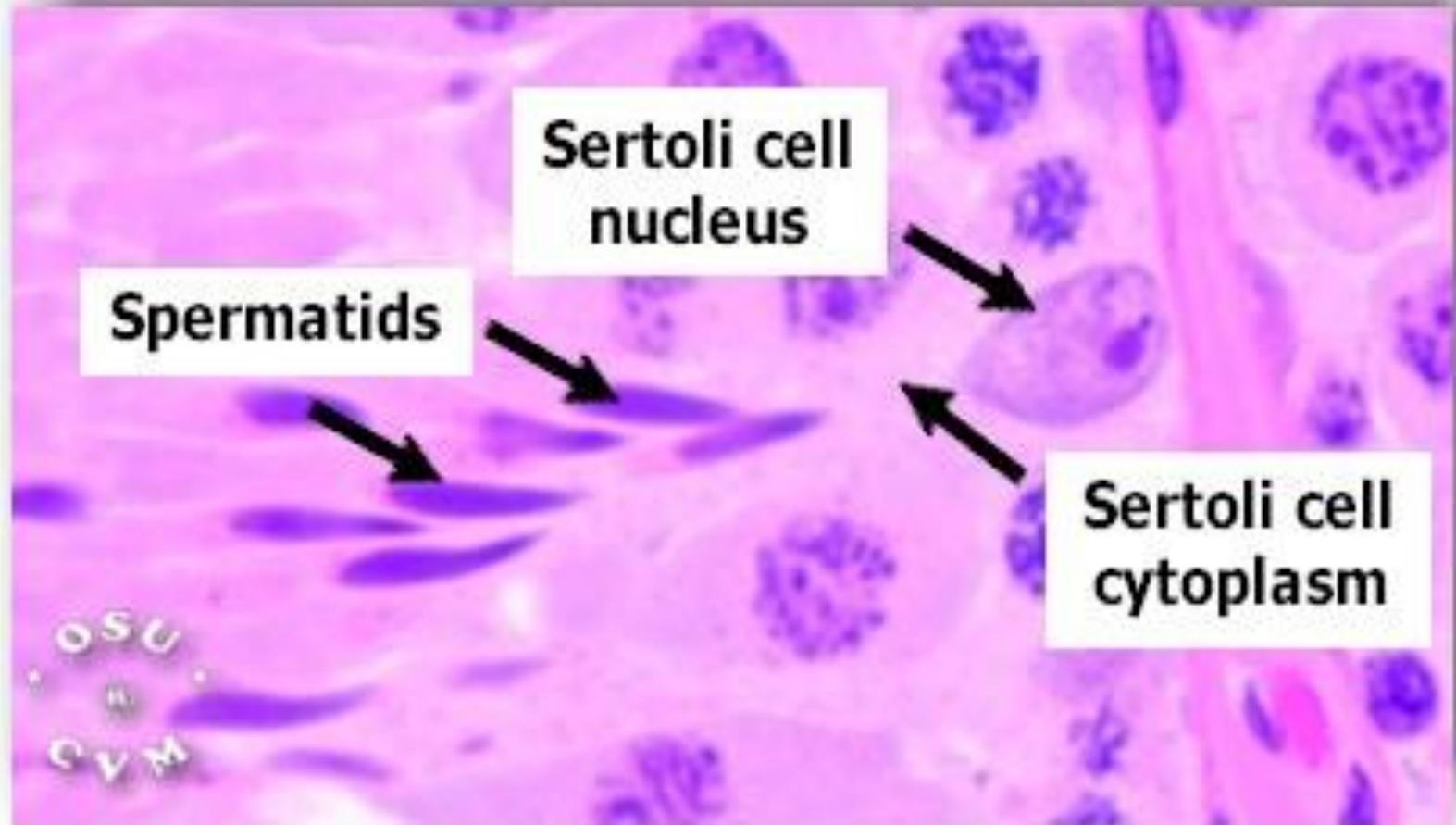


- The products of the second meiotic division are called **spermatids**.
- They are spherical cells with interphase nuclei, positioned high in the epithelium.
- The spermatids go through a metamorphosis into spermatozoa, and occur in late stages.
- All of these progeny cells remain attached to each other by cytoplasmic bridges.
- The bridges remain until sperm are fully differentiated.

# Structure of spermatids



# Sertoli cells



## Epididymis

➤ The ductus epididymis is lined with a pseudostratified stereociliated columnar epithelium.

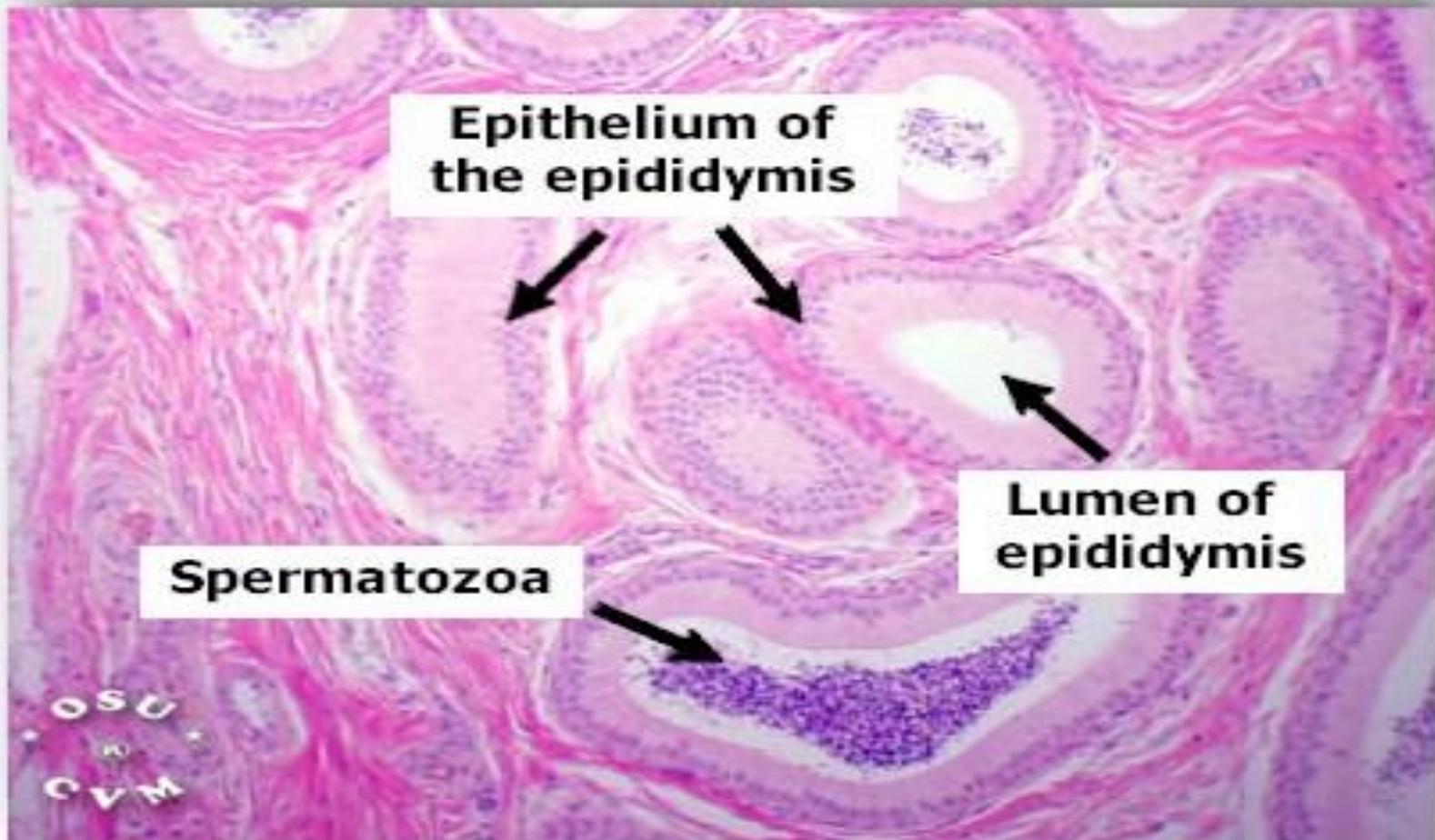
Stereocilia are actually nonmotile, long microvilli which serve to increase the absorptive and/or secretory surface of this epithelium.

With its associated connective tissue and muscle, the ductus epididymis coils to form the head, body and tail of the epididymis which then continues into the ductus deferens.

Spermatozoa are stored within the epididymis while they undergo maturation to become mature sperm.

---

# Structure of epididymis



# spermatozoa

