

Chapter 4

Structure of the Seminiferous Tubules



The testis is made up of the seminiferous tubules, where the spermatozoa develop, and interstitial cells (Leydig cells), where testosterone is produced. The seminiferous tubules are long U-shaped tubules which form their U-turn at the periphery of the testis as both distal ends drain toward the central superior and posterior regions of the testis into the rete testis, which has a flat cuboidal epithelium (Figs. 1.4, 1.7, 1.8, and 1.9). This is important clinically, because a testis biopsy at the periphery, no matter how extensive, will cause no obstruction, but a testis biopsy in the center will cause severe obstruction and damage. The rete testis prevents the passage of fluid from the epididymis backward into the seminiferous tubules. This valve-like effect of the rete testis explains why vasectomy causes pressure buildup and epididymal blowouts, but does not affect the testis or spermatogenesis. The seminiferous tubules loop peripherally toward the tunica albuginea (Figs. 1.4, 1.8, and 1.9). The rete testis lies along the epididymal edge of the testis and coalesces in the superior portion of the testis, to form 5–10 vasa efferent ductules. These vasa efferentia leave the testis and travel a short distance to enter the head or caput region of the epididymis. These vasa efferentia also protect the testis by rapidly moving their ciliated cells forward, forcing fluid forward into the epididymis, preventing backflow. The seminiferous tubules are arranged in anatomic lobules each containing between one and four tubules (Figs. 1.8, 1.9, and 1.11). Understanding this anatomic arrangement is key to performing microsurgical TESE for azoospermic patients.