

group—Leydig cell tumors and Sertoli cell tumors—are described here.

Leydig Cell Tumors

Tumors of Leydig cells are particularly interesting, because they may elaborate androgens and in some cases both androgens and estrogens, and even corticosteroids. They may arise at any age, although most cases occur between 20 and 60 years of age. As with other testicular tumors, the most common presenting feature is testicular swelling, but in some patients gynecomastia may be the first symptom. In children, hormonal effects, manifested primarily as sexual precocity, are the dominant features.

MORPHOLOGY

These neoplasms form circumscribed nodules, usually less than 5 cm in diameter. They have a distinctive golden brown, homogeneous cut surface. Histologically, neoplastic Leydig cells have an appearance that is similar to their normal counterparts. They are large in size and have round or polygonal cell outlines, abundant granular eosinophilic cytoplasm, and a round central nucleus. The cytoplasm frequently contains lipid droplets, vacuoles, or lipofuscin pigment, and, most characteristically, rod-shaped **crystalloids of Reinke**, which are seen in about 25% of the tumors. Approximately 10% of the tumors in adults are invasive and produce metastases; most are benign.

Sertoli Cell Tumors

Most Sertoli cell tumors are hormonally silent and present as a testicular mass. These neoplasms appear as firm, small nodules with a homogeneous gray-white to yellow cut surface. Histologically the tumor cells are arranged in distinctive trabeculae that tend to form cordlike structures and tubules. Most Sertoli cell tumors are benign, but approximately 10% pursue a malignant course.

Gonadoblastoma

Gonadoblastomas are rare neoplasms comprised of a mixture of germ cells and gonadal stromal elements that almost always arise in gonads with some form of testicular dysgenesis (discussed earlier). In some cases the germ cell component becomes malignant, giving rise to seminoma.

Testicular Lymphoma

Aggressive non-Hodgkin lymphomas account for 5% of testicular neoplasms, and are the most common form of testicular neoplasms in men older than age 60 years. Although an uncommon tumor of the testis, testicular lymphoma is included here because affected patients may present with only a testicular mass, mimicking other, more common, testicular tumors. In most cases, the disease is already disseminated at the time of detection. The most common testicular lymphomas, in decreasing order of frequency, are diffuse large B-cell lymphoma, Burkitt lymphoma, and EBV-positive extranodal NK/T cell lymphoma (Chapter 13). Testicular lymphomas have a higher propensity for central nervous system involvement than do similar tumors arising at other sites.

KEY CONCEPTS

Testicular Tumors

- Testicular tumors are the most common cause of painless testicular enlargement. They occur with increased frequency in association with undescended testis and with testicular dysgenesis.
- Germ cells are the source of 95% of testicular tumors; most the remainder arise from Sertoli or Leydig cells. Germ cell tumors may be composed of a single histologic pattern (60% of cases) or mixed patterns (40%).
- The most common “pure” histologic patterns of germ cell tumors are seminoma, embryonal carcinoma, yolk sac tumors, choriocarcinoma, and teratoma. Mixed tumors contain more than one element, most commonly embryonal carcinoma, teratoma, and yolk sac tumor.
- Clinically, testicular germ cell tumors can be divided into two groups: seminomas and nonseminomatous tumors. Seminomas remain confined to the testis for a long time and spread mainly to paraaortic nodes—distant spread is rare. Nonseminomatous tumors tend to spread earlier, by both lymphatics and blood vessels.
- HCG is produced by syncytiotrophoblasts and is always elevated in patients with choriocarcinomas or seminomas containing syncytiotrophoblasts. AFP is elevated when there is a yolk sac tumor component.
- Non-germ cell tumors include sex cord-gonadal stroma tumors and non-Hodgkin lymphomas.
- Non-Hodgkin lymphoma is the most common testicular tumor in men older than 60 years.

Miscellaneous Lesions of Tunica Vaginalis

Brief mention should be made of the tunica vaginalis, which is a mesothelial-lined surface exterior to the testis that may accumulate serous fluid (*hydrocele*) causing considerable enlargement of the scrotal sac. By transillumination it is usually possible to define the clear, translucent character of the contained fluid. Hydrocele sacs are frequently lined by mesothelial cells. Rarely, malignant mesotheliomas also can arise from the tunica vaginalis.

Hematocele indicates the presence of blood in the tunica vaginalis. It is an uncommon condition usually encountered following testicular trauma or torsion, or in individuals with systemic bleeding disorders. *Chylocele* refers to the accumulation of lymph in the tunica and is almost always found in patients with elephantiasis who have widespread, severe lymphatic obstruction caused, for example, by filariasis (Chapter 8). *Spermatocele* refers to a small cystic accumulation of semen in dilated efferent ducts or ducts of the rete testis. *Varicocele* is a dilated vein in the spermatic cord. Varicoceles may be asymptomatic but have also been implicated in some men as a contributing factor to infertility. They can be corrected by surgical repair.

Prostate

In the normal adult the prostate weighs approximately 20 gm. The prostate is a retroperitoneal organ encircling the