Germ Cell Tumors:

- Seminomas.
- Non-seminomatous germ cell tumors.

	Epidemiology	Clinical appearance	Histology	Metastasis	Prognosis
Seminoma	- Rare in prepubertal children - Age: 40-50	**Tumor appearance:** **- Pale** **- Fleshy** **- Homogenous** **- Soft** **- Well-demarcated** **NO HEMORRHAGE OR NECROSIS**	- Large uniform cells with **distinct cell borders.** - Clear, glycogen-rich cytoplasm - Round large nuclei - **Cells arrayed in small lobules** - **Intervening delicate fibrous septa** - **Lymphocytic infiltrate**	- Remains **localized to the testis** for a long period of time. - Metastases to paraaortic and Iliac LN's. - **Hematogenous metastasis:** Could occur **later.**	**Good Prognosis**

Non Seminomatous Germ Cell Tumors (NSGCT)					
Embryonal Carcinoma	Age: 20-30	- **Ill-defined mass** (unlike seminoma) - Foci of **hemorrhage and necrosis**	**- Sheets of undifferentiated cells + Primitive gland-like structures.** - **Nuclei**: Large & hyperchromatic - **Indistinct cell borders** (Unlike seminoma)		**Bad Prognosis** More aggressive than seminoma.
Yolk Sac Tumors	**Most common primary testicular neoplasm in children < 3 yo**	- **Serum Tumor marker: AFP- Alpha fetoprotein.** - Mass is **well demarcated** (Unlike embryonal carcinoma)	- **Schiller-Duvall Bodies: Structures resembling primitive glomeruli**		**Children**: Good prognosis **Adults** (rare): Worse prognosis
Choriocarcinoma	Age: 20-30	- **Serum**: **High level of HCG** **- Necrosis and Hemorrhage: extremely common.**	**1. Syncytiotrophoblasts:** Large multinucleated cells containing **HCG**. **2. Cytotrophoblasts:** Single, fairly uniform nucleus.	- **Early metastasis to the lungs and CNS**	**Bad Prognosis**

Teratoma	- All ages. **Common in infants and children.** - **2nd most common after Yolk Sac tumors.**	- Reminiscent of the normal derivatives of **more than one germ layer (ectoderm, mesoderm, endoderm)**	- Different types of mature tissues.	**In post pubertal males:** **Malignant → capable of metastasis.**	**Prepubertal males:** Benign course – Good prognosis **Post pubertal males:** Malignant – Bad prognosis.

Prostate Pathology:

	Epidemiology and Location	Pathogenesis	Clinical Symptoms & Appearance	Microscopic appearance	Notes
BPH Benign Prostatic Hyperplasia	- **Age**: Common in men > 40 - **Location**: **Transitional zone (inner)** of the prostate + part of the central zone.	- **Androgen-dependent** proliferation of epithelial and stromal elements. - DHT is synthesized in the prostate. It supports growth of prostatic epithelial & stromal cells by binding to androgen receptors.	**Morphology**: - **Enlarged prostate by well circumscribed nodules** bulging from the cut surface. - **Compressed urethra (since BPH involves the inner portions of the prostate)**	**Proliferating glands & fibromuscular stroma.** Hyperplastic glands are lined by 2 cell layers: 1. Tall columnar epithelial cells. 2. Peripheral flattened basal cells.	**Does not occur in males** with genetic diseases that **block androgen activity** (androgen-dependent).

			Clinical Symptoms: - **Hesitancy** - Lower urinary tract **obstruction (Risk of UTI)** - **Nocturia**, **frequency** and urinary **urgency**. - Intermittent **interruption** of urinary stream.		
Prostate Carcinoma	- **Most common form of cancer in men >40.** - **Location**: **Peripheral zone of the prostate.** -	1. Androgens: Doesn't develop in males castrated before puberty. 2. Environment: Westernized dietary habits. 3. Heredity: Increased risk among affected first degree relatives with prostatic cancer. 4. Acquired somatic mutations: TMPRSS2-ETS fusion genes	- Digital **rectal** examination: **Palpable hard nodules.** - Elevated serum **Prostate Specific Antigen (PSA) level.**		Bone metastases → osteoblastic lesions on bone scans.

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