Testicular Tumor

Primary T.T:
1. Non Germ cell T (NGCT). Only 5% of all T.T. which include (Lyeding cell T., Sertoli cell T., and Gonadoblastoma)
2. Germ Cell T (GCT). 90-95% of all T.T.
Incidence: 1-2% of all male Tumors .The life time risk of developing T.T. is 1in 500 .In USA 1-2 new cases per 100000 male appear each year .it is more common in men aged 20—45 Y and is rare below 15 and above 60 Y. Bilateral cases occur in 1—2%.And the Rt. side slightly more than the Lt. side.
Etiology: unknown but many risk factors

- Race: White 3 times more than black in USA.
- High socioeconomic class.
- Cryptorchidisim: 10% of T.T occurs in patients with hx. of undescended testis. Intraabdominal testis (1/20), inguinal testi (1/80). Seminoma is the most common. Orchiopexy doesn't completely eliminate the risk of developing T.T.
- Intratubular germ cell neoplasia (IGCN): CIS. 50% develop T.T.
- HIV
- Genetic factors: 1st. degree relatives at high risk but not a familial.
- Maternal estrogen ingestion.

Classification of GCT: By histological type:
1. *Seminoma GCT*. (35%): is the most common GCT in bilateral primary T.T. Grossly gray nodule. Microscopically sheets of large cells with clear cytoplasm and dense staining nuclei.
2. *Nonseminoma GCT*.

A. Embryonal cell CA. (20%).adult type and infantile type (yolk sac tumor) which is the most commo*n* T.T. of prepubertal children and infant. In adult type it responsible of AFP secretion. the cell resemble 1-2 wk. embryo.
B. Teratoma (5%).may be seen in children and adult. Mature one has elements derived from ectoderm, mesoderm, and endoderm while immature have undifferentiated primitive tissue.
C. Choriocarcinoma (< 1%). Have an aggressive behavior with early hematogenous spread (small T. with widespread metastatic disease).
D. Mixed cell type (40%). Have elements of Seminoma and Nonseminoma GCT. 25% of all T.T are Teratocarcinoma (combination of teratoma and embryonal cell carcinoma).Treatment of mixed like NSGCT.

Pattern of metastasis: with exception of Choriocarcinomawhuc demonstrates early hematogenous spread, Germ Cell T. spread in stepwise lymphatic fashion . L.N. extend From T1—L4 but concentrate at the renal hilum .on the Rt. Side the primary landing site is the interaortocaval L.N. groupe while the Lt. side is the paraaortic L.N. group.Rt. to Lt. crossover metastasis is common but not the reverse. Local extention into the Epid.,and spermatic cord allows spread to the ext. iliac L.N. ,and scrotal wall invasion Lymphatic spread to the inguinal L.N. groups.Mediastinal L.N. ,Supraclavicular L.N. may be involved after lumber L.N.Visceral metastasis specialy to the lung.

Clinical Staging: Many but they are variations of the original system which is propsed by Gibb (1951)
Stage 1 T. confined to the testis
Stage 2 has retroperitoneal L.N. metastasis 2A < 2 cm and 2B > 2cm.
Stage 3 has Supradiaphragmatic L.N. or visceral metastasis.
The TNMS classification describe the state of primary T., L.N. metastases, distant metastases and T. marker.

+ 962 79 5997395

Clinical Presentation:

Symptoms: painless scrotal mass observed by the patient or sexual partner , 10% may present with acute pain due to hemorrhage inside the T.T. or infarction , 10% may present with symptoms of metastatic disease (weight loss , intestinal symptoms , rspirotory symptoms,backache, or neck lump), 5-10% have no symptoms and T. was detected incidentally after trauma.

Signs: by inspection can see asymmetry of the scrotum, or slight skin discoloration. Careful bimanual palpation , the normal side 1st. examined followed by the abnormal side, this will reveal a hard nontender ,irregular, nontransmulated mass in the testis or replacing the testis. Examine the Epididymis, spermatic cord, and scrotal wall .10% have 2nd. hydrocele. Examination should include abdomen, chest, and supraclavicular L.N.

Investigatins:

U/S is an extention of Physical examination : it will confirm that the mass is within the testis.,any hypoechoic area is suspecios

Chest X-ray

CT-Scan of abdomen for staging.

Serum tumor marker: these markers are measured preoperatively for staging , 1-2 wks postoperativly and during followup

1.Alpha-Fetoproten(AFT) strongly sugest NSGCT.1/2 life 3-5 days (normal < 10ng/ml). and never increased in Seminoma and Choriocarcinoma.
2. Human Chorionic Gonadotrophin (hCG):1/2 life 24-36 hr. 100% in Choriocarcinoma, 60% in Embryonal CA.,25% in Teratoma and 7-10% in seminoma.
3. Lactae Dehydrogenase (LDH) 10-20 of seminoma.
4. Placental Alkaline Phosphetase (PLAP).4o% in advanced disease.

Differential Diagnosis： other scrotal masses**.**

Treatment: Inguinal Exploration with cross-clamping of the spermatic cord

Treatment of SGCT

A. **Low –Stage Seminoma (1 and 2A):** Radical inguinal Orchidectomy and Retroperitonial iiradiation (low dose) 90-95% are cured
B. **High Stage Seminoma (2B and 3) or any Seminoma with elevated AFP:** Radical inguinal Orchidectomy and Primary chemotherapy platenium- based) 90% achieve complete response and residual retroperitoneal mass are fibrosis in

90% unless larger than 3cm and well circumscribed which warrant surgical excision.

Treatment of NSGCT

A. **Low –Stage NSGCT (1 and 2A):** Standard treatment is Radical inguinal orchidectomy and standard Retroperitoneal L.N. Dissection (RPLND) (all L.N between the ureters from the renal vessels to the iliac vessels are removed) or the modified RPLND.And if relapse occurs starts Chemotherapy. Survival rate is 90-95%
B. **High- Stage NSGCT (2B and 3)** Radical inguinal Orchidectomy and Primary chemotherapy platinum- based. 70% the cure rate .and if residual mass present do surgical excision.

Follow-up care: all patients should be followed every 3 months for the 1st. year by careful examination of the remaining testis, abdomen, and the L.N. with AFP, hCG, and LDH levels and chest X- ray.

Primary Tumor (pT)

pTX Tumor cannot be assessed (e.g., no orchiectomy performed (

pT0 No tumor present (e.g., scar only (

pTis Intratubular germ cell neoplasia (carcinoma in situ (

pT1 Tumor limited to testis and epididymis without lymphovascular invasion, tunica albuginea invasion allowed but not tunica vaginalis

pT2 Tumor limited to testis with lymphovascular invasion or extension beyond tunica albuginea and involving the tunica vaginalis

pT3 Spermatic cord invasion with or without lymphovascular invasion

pT4 Scrotal invasion with or without lymphovascular invasion

Regional Lymph Nodes (N (

Clinical

Nx Regional nodes cannot be accessed

N0 No regional adenopathy

N1 One or more regional nodes, all are <2 cm in greatest dimension

N2 One or more regional nodes, any one node between 2 and 5 cm in greatest dimension
N3 One or more regional nodes, any one >5 cm in greatest dimension
Pathologic
pNX Regional nodes cannot be assessed
pN0 No regional nodes
pN1 < 5total nodes, all <2 cm in greatest dimension
pN2 Regional node between 2 and 5 cm greatest dimension, or >5 positive nodes none >5 cm in greatest dimension, or any node with extra nodal extension
pN3 Regional node(s), any one node >5 cm in greatest dimension
Distant Metastasis (M (
Mx Distant metastasis cannot be assessed
M0 No distant disease
M1 Distant disease
M1a Nonregional nodes (e.g., mediastinal) or pulmonary mass(es (
M1b Distant disease other than nonregional nodes or pulmonary disease
Serum Tumor Markers (S (
Sx Not available or not done
S0 All markers within normal limits
S1 LDH <1.5xN and □-hCG <5,000 mIU/mL and AFP <1,000 ng/mL
S2 LDH 1.5–10xN or □-hCG 5,000–50,000 mIU/mL or AFP 1,000–10,000 ng/mL
S3 LDH> 10xN or □-hcg>50,000 mlU/mL or AFP > 10,000 ng/mL