Epididymo-orchitis

Acute epididymitis is a clinical syndrome consisting of pain, swelling, and tenderness of the epididymis of less than 6 weeks.
Chronic epididymitis, which involves long-standing pain in the epididymis and testicle, usually without swelling.

Etiology of Epididymo-orchitis.

- Nonspecific bacterial infections:Urinary coliforms (eg, Escherichia coli, pseudomonads) are more common in children and in men older than 40 years.
- Sexually transmitted diseases (STDs): Chlamydia is most commonly identified (50%). Neisseria gonorrhoeae, Ureaplasma urealyticum, Treponema pallidum, Trichomonas, and Gardnerella vaginalis are also observed. More common at age 15-35 year.
- systemic disease such as tuberculosis, Brucella, Actinomyces, and fungal diseases are rare and other organisms that cause systemic infections.
- Sterile reflux or urethro-vasal reflux may occur.
- viral epididymitis like mumps orchitis occure in 30%of postpubertal males.
- noninfectious cause secondary to treatment with the antiarrhythmic drug amiodarone.
- Trauma to the scrotum can be a precipitating event.
- Obstruction: Adults older than 40 years usually have a BOO (eg, benign prostatic hyperplasia [BPH]) or urethral stricture; children may have various congenital abnormalities or functional voiding problems.

Diagnosis

History:

Acute epididymitis and orchitis

- Gradual onset of scrotal pain and swelling
- Dysuria, frequency, and urgency
- Fever and chills occur in only 25% of patients with acute epididymitis.
- Urethral discharge may precede acute epididymitis by more than 30 days or may not occur at all.

Mumps orchitis

- Fever, malaise, and myalgia
- Parotiditis typically precedes the onset of orchitis by 3-5 days.
- Subclinical infections occur in 30-40% of patients.

Physical signs:

- Tenderness and induration first occur in the epididymal tail, then the body, and then the spermatic cord (funiculitis) or the ipsilateral testis (epididymo-orchitis).
- *Prehn sign*: Elevation of the affected hemiscrotum relieves the pain of epididymitis and exacerbates the pain of torsion.
- A normal cremasteric reflex
- Erythema and mild scrotal cellulitis may be present.
- A reactive hydrocele which makes difficult scrotal examination.
- TB can cause focal epididymitis, a draining sinus, or classical beading of the vas deferens with extensive involvement. Orchitis rarely occurs without epididymitis in TB.
- In orchitis the testicular enlargement, induration, and a reactive hydrocele commonly occur and the epididymis is not tender.

Lab Studies:

A. WBC count can be elevated
B. Urinalysis findings are positive for pyuria in only 25% of patients.
C. Performing a midstream urine culture and Gram stain are useful to guide therapy.
D. Obtain a urethral swab culture (before void, after prostate massage) for gonorrheal and chlamydial infections .
E. Perform blood cultures if the patient is systemically ill.

Imaging Studies: to distinguish acute epididymitis from testicular torsion (not allow studies to delay intervention or exploration if testicular torsion is suspected).And also to diagnose the complications (Scrotal abscess and pyocele).

▪*Color Doppler ultrasound* Increased blood flow occurs with epididymitis
▪*Radionuclide scans* technetium Tc 99m scanning shows an increased tracer uptake

Differential Diagnosis :Other causes of *Acute scrotum* specially *Testicular Torsion*.

Complication of acute Epididymorchitis

- Scrotal abscess and pyocele.
- Atrophy
- Chronic pain
- Infertility

Treatment for acute epididymitis

Medical Care:

Nonspecific bacterial epididymitis and orchitis require empiric treatment with trimethoprim-sulfamethoxazole or a fluoroquinolone antibiotic for 2 weeks. STDs must also be considered lts based on history and context. Empiric therapy consists of ceftriaxone and doxycycline for 10 days. A single dose of azithromycin is an alternative to doxycycline. In addition to antibiotics, the mainstays of supportive therapy for acute epididymitis and orchitis are as follows:(Bedrest, Scrotal support and elevation, Ice packs, Anti-inflammatory agents, &Analgesics)

Surgical Care:

Perform a scrotal exploration if the torsion or tumor cannot be ruled out and for the complications of acute epididymitis and orchitis (eg, abscess, pyocele, testicular infarction). Epididymectomy refractory chronic epididymitis .Viral mumps has no surgical indications.

TB Epididymo-orchitis: is caused by metastatic spread of organisms through the blood stream. The disease usually starts in the globus minor, because it has a greater blood supply than other parts of the epididymis may also be associated with renal TB. Beading of the palpable vas & a discharging sinus may be found. If there is no sinus and the M . tuberculosis organisms are absent from the urine, treatment with an appropriate antibiotic, such as co-trimoxazole. If no improvement occurs after 2 to 3 weeks, antituberculous chemotherapy should be started. After an additional 3 weeks, if the lesion becomes nodular, firm, and painless, exploration of the testis is mandatory without delay**.**

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.

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.

Investigations:

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.