Adult Mature Teratoma – A Case Report And Reivew of the Literature

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Abstract:

Adult mature teratoma of testis is a rare tumour. A 53 year old gentleman was admitted in the department of Urology, BIRDEM with left hemi-scrotal swelling. Ultrasonogram of scrotum and CT scan confirmed it a solid tumour. Orchidectomy was done. Histopathology examination revealed adult mature teratoma.

Key Words: ***Mature teratoma, immature teratoma, teratocarcinoma, testis.***

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Introduction:

Teratomas are tumors that contain well-differentiated or incompletely differentiated elements of at least two of the three germ cell layers of endoderm, mesoderm, and ectoderm. Characteristically all components are intermixed. Teratomas have been reported to contain hair, teeth, bone and, very rarely, more complex organs or processes such as eyes, torso, and hands, feet, or other limbs.[1] They may arise from any organ but majority are found in the testis, ovary, sacrococcygeal region and mediastinum. They appear at any age, but are much more common in childhood, where they comprise up to 30% of all tu-mours. They are much less prevalent in adults, represen-ting only 7% of all testicular germ cell tumours.[2,3]

Case Report:

A 53 year old gentleman was admitted in the Department of Urology, BIRDEM with the complaints of left sided scrotal swelling and poor flow of urine with sense of incomplete evacuation for 3 months. The swelling gradually increased in size and he felt sense of heaviness on the scrotum. He also gave history of burning micturation for the same duration. There was no history of jaundice, cough, chest pain, haemoptysis and body ache. He is a known case of diabetes, HTN, CKD, hypothyroidism and was being treated accordingly. The patient was mildly anemic but non-icteric. There was no sign of edema, dehydration. Vital parameters were normal. Peripheral lymph nodes were not palpable. Examination of abdomen & urinary system was found normal. There was a non-tender swelling in the left hemi scrotum, left testis was found enlarged, local temperature was not raised. It was hard in consistency & transillumination test was negative. Right testis was found normal.

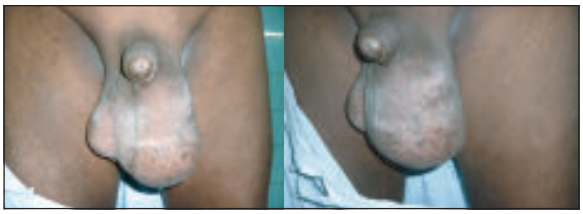

Fig.-1 & 2: *Scrotum*

His Hb% was 7.8 gm/dl, which was corrected by blood transfusion. Other serological and bio-chemical reports were normal. USG of scrotum showed large grossly heterogenous left scrotal mass with bilateral mild hydrocele. CT scan of abdomen and scrotum revealed mixed germ cell tumor in the left testis. His á-fetoprotein: 0.56 ng/ml, total âHCG: 1.20 uIU/ml, and LDH: 250 U/L. Left sided radical orchidectomy was done.

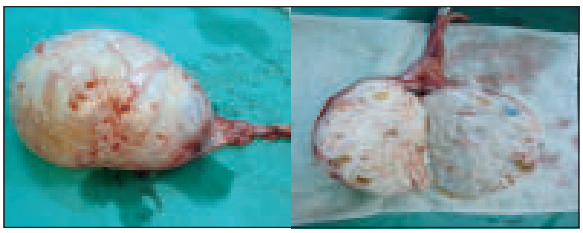

Fig.-3 & 4: *Specimen of left radical orchidectomy*

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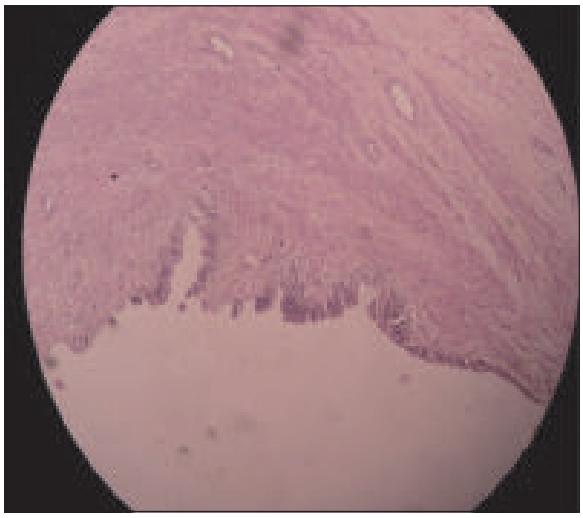

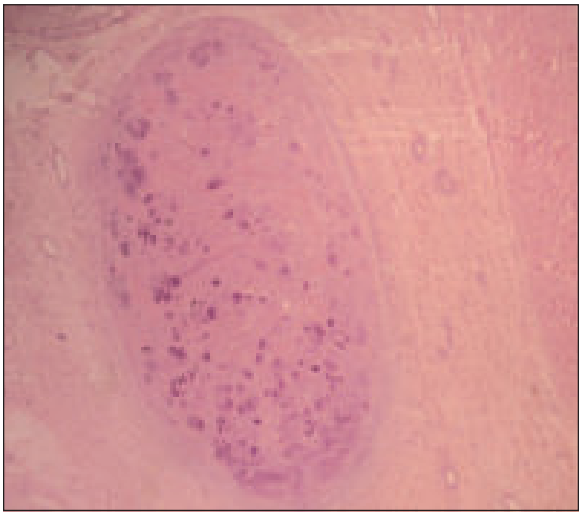

Figu.-5 & 6: *Histopathological Slides*

It is made of both epithelial and mesenchymal components. The tumor reveals mostly hyalinized fibrocollagenous stromal tissue with multiple small cystic spaces. Some of the spaces are lined by stratified squamous epithelium and some by tall columnar ciliated as well a mucinous epithelium. Occasional foci of cartilage and bone are present. No malignancy is seen.

Discussion:

A teratoma is a type of tumour of embryonic origin. The term teratoma is derived from the Greek "monstrous tu-mour". They are a type of tumour typically composed of various tissues which represent the different germ layers. They contain cells derived from the three embryonic la-yers (ectoderm, endoderm and mesoderm) which diffe-rentiate to form somatic tissues typical of adult or em-bryonic development[4]. The ectodermic elements include squamous epithelium and neural tissue. Those derived from the endoderm are cells of the gastrointestinal and respiratory epithelium and other mucous glands. The ele-ments derived from the mesoderm include bone, cartila-ge and muscle.[5,6]

Four sub-types of testicular teratomas are recognised ac-cording to their histological composition:

1) **Mature:** (5-10%) Composed exclusively of well-diffe-rentiated mature somatic tissues. They typically contain structures derived from the three germ layers. Although their histological appearance is reminiscent of adult tis-sues, an increase in cellularity, slight to moderate cyto-logic atypia, with aneuploidy, and occasional mitotic activity in both the mesenchymal and epithelial tissues is often found; however, these changes do not justify their classification as immature.[7]

2) **Immature:** (20-30%) Their immaturity is determined by the presence of tissues which cannot be recognised as normal adult elements. They contain incompletely di-fferentiated or embryonic elements, as well as variable amounts of mature elements. Foetal neuroectodermal elements, embryonic mucous glands, cartilage and im-mature mesenchymal elements are common components. Mitoses may be very numerous.[6]

3) **With malignant areas:** These are teratomas, generally immature in adults, which are characterised by the over-growth of a second non-germ cell malignant neoplasm, i.e. a sarcoma (rhabdomyosarcoma, chondrosarcomas), carcinoma (adenocarcinoma and epidermoid carcino-ma) or both. The presence of this malignant component in a teratoma in the testis does not alter the patient's prognosis, but if the metastases contain carcinoma or sarcoma derived from the teratoma, the prognosis is un-favourable.

4) **Monodermal variants:**

a. Carcinoid: Rare (0.17%). Characteristics identical to those of carcinoid tumours of other locations. Three quarters appear in pure testicular form, the remainder within teratomas. Most have benign

behaviour, with me-tastasis appearing in less than 10% of cases.[6]

b. Primitive Neuroectodermal Tumour (PNET): Its presen-ce in the pure form is extremely rare; most have a mini-mum component of mixed germinal tumours.[6]

Testicular teratoma is a tumour which appears at any age, with a mean presentation at 29 years. It has a sym-metric distribution as regards laterality, with some cases of synchronous bilateral involvement[8]. Its association with a history of previous ipsilateral cryptorchidism has been described in up to 7% of patients. It represents 20-30% of childhood tumours. In the literature, prepubertal mature teratoma of the testis is described as an entirely benign tumour without retroperitoneal or visceral invol-vement. However, in adults, pure mature teratoma represents only 2.7 to 3% of testicular tumours, and has variable metastatic involvement.[4,9-11]

Both mature and immature teratomas may undergo ma-lignization to carcinoma or sarcoma, with an associated possibility of vascular invasion. They have the potential to metastasise in the retroperitoneal lymph nodes or sys-tematically in other organs. In fact, the presence of a teratomatous compo-nent within a nonseminomatous mixed germ cell testicu-lar tumour, especially if it exceeds 50%, confers a lower incidence of metastatic involvement.[12]

The most common clinical finding in testicular teratoma is the appearance of a painless testicular mass, which can occasionally be confused with a hydrocele, due to its partially positive transillumination.[5]

Testicular ultrasound is usually very useful, as it has good sensitivity in the detection of scrotal masses and their localisation. However, on many occasions, it is not easy to differentiate between benign tumours, malignant tu-mours and inflammatory processes. There is no defined ultrasound pattern for testicular teratomas. Often in the ultrasound study, teratomas can have the appearance of cystic regions with septa and interposed by solid hype-rechogenic areas. The presence of calcifications in the tumour is another useful ultrasound finding associated with teratomas. However, at present, we are incapable of diagnosing a teratoma exclusively with ultrasound. We can obtain better information either at local or dis-tance level with other imaging techniques such as CT scanning or NMR. However, the diagnosis must always be confirmed with an anatomical pathology study.

Serum tumour markers such as beta-human chorionic gonadotrophin (â-HCG) and alpha-fetoprotein (AFP) are usually negative in cases of mature teratoma[5]. The serum alpha-fetoprotein (AFP) concentration is also use-ful for differentiating teratomas from yolk sac tumours. Teratomas do not stain positively for AFP by immuno-histochemistry, and high serum AFP concentrations have not been found in patients who have these tumours.

The standard treatment for all testicular germ cell tu-mours in adults is radical orchiectomy, performed using an inguinal approach. However, in patients with pure teratoma in the initial stages, there is controversy about the retroperitoneal approach. The therapeutic options for these patients include retroperitoneal lymph node dissection (RPL) or monitoring.

Conclusion:

A firm intratesticular mass should be considered cancer until proven otherwise and should be evaluated further with scrotal ultrasonography. In patients with a presumptive diagnosis of epididymo-orchitis, patients should be reevaluated within 2 to 4 weeks of completion of an appropriate course of oral antibiotics. In case of testicular solid swelling; most of the time the diagnosis is malignant tumor. Benign testicular tumor is very rare. So we should evaluate the patient very carefully for proper diagnosis and accurate management.

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