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# Atypical Presentation of Testicular Tumour – Review of 3 Cases with Literature Review

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***Abstract:*** *Testicular cancer is most common cancer in male between the age group of 20-40 years and it is rare before 15 years of age. Testicular mass is common presentation. Mass can be painful in 10% of the cases. However there can be atypical presentation where patient present with disseminated disease without palpable mass in the testis sometimes with secondary hydrocele. Mass lesion may also present in the retro peritoneum along line of descent of the testis, very rarely in the inguinal canal. Patient may also present with secondary lymph nodal mass lesions in the retro peritoneum, mediastinum. Ultra sound scrotum will help in assessing the mass lesion in the scrotum. Micro or macro calcification in the testis on USG is a strong point to suspect malignancy in atypical cases without mass lesion. Mass lesion in the testis along with elevated levels of tumour markers will confirm the diagnosis. CT scan will help in assessing the enlarged lymphnodal masses in the abdomen and mediastinum. Pulmonary metastases can be assessed by X-ray chest however CT chest is needed to identify metastatic lesion less than 2cm in the lung. High inguinal orchidectomy is initial surgical treatment of the choice in all types of testicular cancers with adjuvant radiation to retroperitoneal nodes in seminoma. Platinum based chemotherapy is given in an advanced stage. Retroperitoneal lymphadenectomy is done in low grade teratoma and combination chemotherapy is given in advanced stage. We wish to review our three cases which are presented atypically. Two of our three cases presented with impalpable primary tumour with distant lymph nodal metastases and elevated tumour markers. The other one presented as inguinal mass with elevated tumour markers and pulmonary metastasis. On intense search of literature we could not find any testicular cancer presenting as mass in the inguinal canal.*

***Keywords:*** *Beta human chorionic gonadotrophin - β-hCG, Lactate dehydrogenase - LDH, Mixed germ cell tumour, testicular cancer-TC.*

## I. Introduction

Testicular cancer is common in males between the age group of 15–35 years. It is rarely seen before the age of 15 years [1]. It is more common in Europeans and white Americans than the blacks and Indians. Increased incidences are attributed due to usage of cannabis in Europe [2]. Undescended testis (cryptorchidism) is a major risk factor for the development of testicular cancer. Rapidly enlarging testicular mass is the most common presentation. The mass is painless and heavy however, less than 10% of tumors may present with pain. Tumor may present with secondary hydrocele with or without testicular mass. Impalpable tumor sometime present with generalized lymphadenopathy, or lymph nodal mass lesion in the abdomen and metastasis in the lungs. Patient is likely to present with retroperitonial mass or mass in the inguinal canal in a patient who had undescended testis.

USG scrotum is initial investigation of the choice followed by CT abdomen to evaluate the metastatic lymph nodal masses. However no biopsy is entertained since it may precipitate rapid dissemination of the disease. In case of silent primary, elevated levels of serum tumor markers like α-feto protein, β-hCG and LDH or biopsy from lymph nodal mass will confirm the diagnosis.

Three modality of treatment for TC is surgery, radiation therapy, and chemotherapy [3]. High inguinal orchidectomy (radical orchidectomy) is initial treatment of the choice followed by chemo radiation. Retroperitoneal lymphadenectomy may be necessary if residual retroperitoneal lymph nodes are present after chemo radiation. Prognosis is very good since it s most curable cancer. Average five year survival rate is 80%-98%, with metastatic disease 79% [4].

## II. Material & methods

**Case: 1**

TC presented with secondary hydrocele with normal palpable testis on palpation

25 year old male presented with right scrotal swelling for last six months with a size of 9X7 cm. Swelling was soft and cystic, fluctuant with positive trans illumination. Testis was normal on palpation. Our provisional diagnosis was secondary hydrocele possibly of infective origin. USG scrotum revealed macro calcification on mediastinum of right testis with moderate amount of fluid in right scrotal sac. USG abdomen revealed enlarged para aortic lymph nodes. Testicular malignancy with retro peritoneal lymphadenopathy was the initial diagnosis. Tumour markers, both α-feto protein β-hCG were elevated. Final diagnosis was testicular tumour with secondary hydrocele. Chest X- ray was normal. High inguinal orchidectomy was done. Surgical specimen, superior pole was prominent with increased vascularity (Fig.1), raising doubt of malignancy. Specimen was sent for histopathological examination.

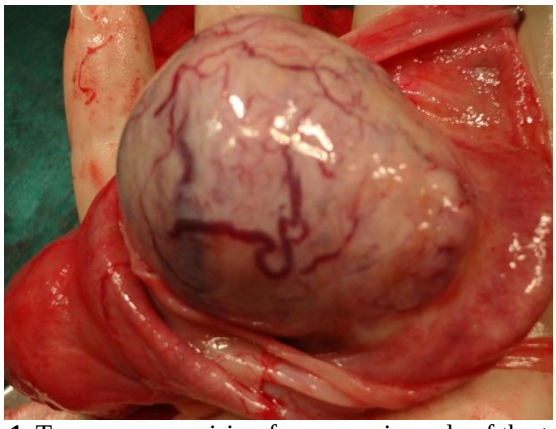

**Fig. 1.** Tumour mass arising from superior pole of the testis

Gross specimen was containing testis and cord. Cut section was showing grey white tumour arising from superior pole of the testis, measuring 4X3X1cm in size with areas of haemorrhage (fig.2).

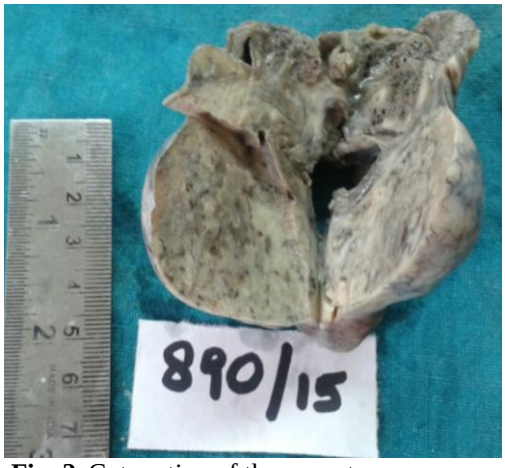


**Fig. 2.** Cut section of the gross tumour mass.

Microscopic picture was showing sheets and nests of tumour cells arranged in solid, papillary and glandular pattern. Abundant area of haemorrhage and necrosis are present. Foci shows Shiller Duval bodies with perivascular distribution of tumour cells (fig. 3) and it is a specific feature of yolk sac tumour.

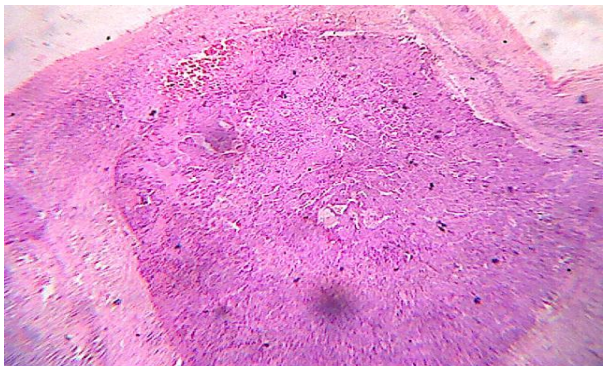

**Fig. 3.** Tumour Section shows sheets & nests tumour cells arranged in papillary and glandular pattern with areas of necrosis.

**Case: 2**

**TC presented with cervical lymphadenopathy :**

18 year old male presented with multiple swelling in the left supra clavicular region for three months and pain abdomen for one month. Patient had loss of appetite, had significant weight loss with low grade fever and malaise. On examination, lymph nodes in the posterior triangle were palpable, firm in consistency, adherent to each other but not adherent to underlying structures. Abdominal mass was mainly located in the right lumbar region which was firm in consistency with irregular surface. Rest of the abdomen was normal, no free fluid present in the peritoneal cavity and no organomegaly. Scrotum and testes were normal. Other group of lymph nodes were not palpable. Our provisional diagnosis was cervical lymphadenopathy either from lymphoma or tubercular in origin.

ESR was elevated however, Mantoux test was negative. X-ray chest was normal. USG abdomen revealed enlarged right para aortic lymph nodes and confirmed by CE- CT abdomen. USG scrotum revealed 2x2 cm heterogeneous lesion in the left testis. Neck lymph node biopsy revealed loss of lymph node architecture with fibrous stroma and large polyhedral closely packed tumour cells with round to oval nuclei and prominent nucleoli suggestive of seminoma (fig.4). Serum α-feto protein and β-HCG was elevated. Patient was referred to oncologist.

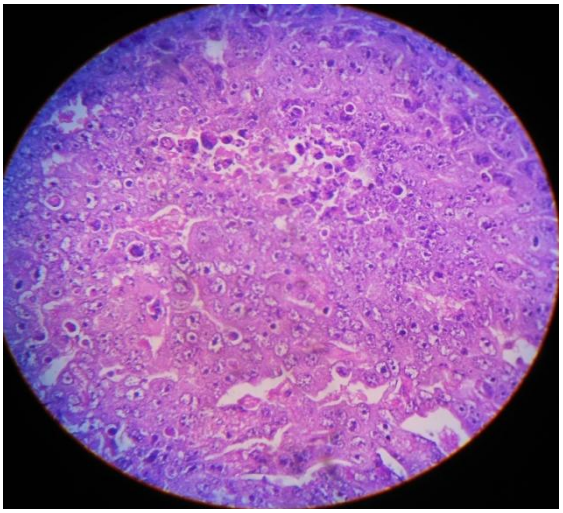

**Fig. 4.** Microscopic picture of lymph node biopsy showing large polyhedral closely packed tumour cell are seen

**Case: 3**

TC presented as right inguinal mass in an undescended testis and lung metastasis

40 years male presented with right groin swelling of six months duration. Swelling was gradually increasing initially but rapidly increasing in size for last three months. Loss 8 kg of weight for three months however his appetite was normal. Patient gives h/o dry cough for one week however no chest pain or haemoptysis. Patient says he had reducible swelling prior to development of firm swelling in the groin. On examination, swelling was 8X7 cm in size, firm to hard in consistency. Swelling was painful on manipulation and adherent to underlying structures. Right hemi scrotum was poorly developed with absence of testis. Our provisional diagnosis was testicular tumour, arising from undescended testis which was probably located in the inguinal canal. However, soft tissue sarcoma like liposarcoma, histiofibrosarcoma, rhabdomyosarcoma and synovial sarcoma was a possibility. Diagnosis was confirmed by an elevation of serum α-feto protein and β-hCG. X-ray chest showed

large metastatic lesion in the lower and middle lobe of right lung (fig.5). Patient was referred to oncology centre in view fixed inguinal mass.

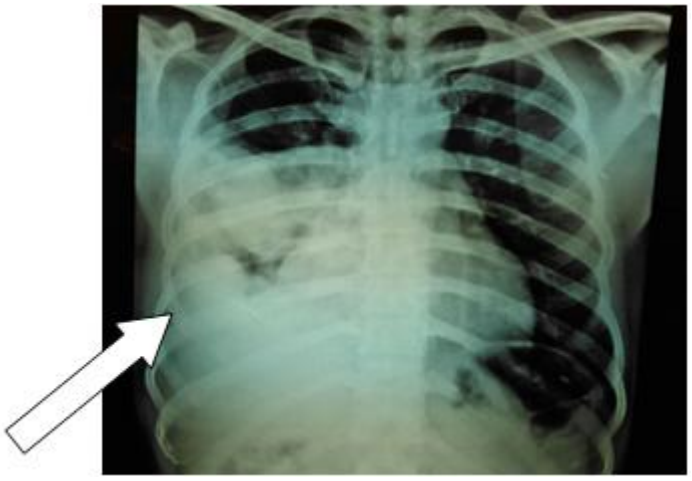

**Fig. 5**. X- Ray showing large metastatic lesion i the mid and lower lobe of rt. Lung. There was an attempt of cannon ball lesion winch a feature of testicular tumour.

## III. Discussion

Testicular cancer is most common cancer in males between the age group of 15–35 years and it is rare before the age of 15 years [1]. Non seminomatous tumours commonly occur early in the life, usually before the age group of 25-30 years where as seminomatous tumour usually occurs after 35-45 years. Out of our three cases one was 18 years old and other was 25 and 40 years old.

### III.1, Aetiology and risk factors

No known aetiological factors are found however, it is more common in Europeans and white Americans than the blacks and Indians [2]. More incidences were attributed to usage of cannabis in Europe [5]. Undescended testis (Cryptorchidism) is major known risk factor for the development of testicular cancer. One of our three patients presented with inguinal mass, who had an undescended testis. Other risk factors include inguinal hernia, Klinefelter syndrome, and mumps orchitis [6]. Physical exercise is associated with decreased risk and sedentary lifestyle enhances the risk for testicular cancer. Obesity, family history of testicular tumor, HIV infection is other relative risk factors for development of testicular cancer. Most testicular germ cell tumors have too many chromosomes, and most often they are triploid to tetraploid. An isochromosome 12p is located on short arm of chromosome 12 on both sides in about 80% of the testicular cancers.

### III.2, Pathology

Testicular tumours have been divided in to germinal cell and sex cord stromal tumours derived from Leydig cells and Sertoli cells. Germinal cell tumours are broadly divided in to seminomatous and non-seminomatous type for treatment convenience sake. Non- seminomatous tumours further divided in to teratoma anaplastica or otherwise called embryonal cell carcinoma wherein it secrets serum α-feto protein as tumour marker. Teratoma trophoblastica is another variety wherein it secrets β-hCG as tumour marker. Teratoma trophoblastica is more aggressive tumour disseminates rapidly with poor prognosis. However pure histological type is rarely seen that is why the term mixed germ cell tumour is coined where in tumour secrets all the tumour markers i.e. α-feto protein, β-hCG and LDH. Patient may present with gynaecomastia when tumour secrets β-HCG with positive pregnancy test [7]. Lymphoma comprises about 7 % of all testicular tumours is another common tumour arising from testis after germ cell tumours. Histologically, one was diagnosed as mixed germ cell tumours, other was seminoma. inguial mass was not confirmed histologically as a testicular tumour , however tumour markers serum α-feto protein and β-hCG were elevated in all three cases. LDH levels were not estimated.

### III.3, Clinical features

Painless testicular mass is most common clinical presentation of testicular cancer (TC). The mass is usually heavy on palpation and patient also claim that scrotum is heavy [8, 9]. TC may present with secondary hydrocele, sometimes hydrocele is only presenting feature without palpable testicular mass. Two of our three cases presented with impalpable mass lesion in the testis. One case presented with secondary hydrocele where testis was normal on palpation. The other one presented as mass lesion in the inguinal canal who had undescended testis earlier. On intense search of literature we could not find any testicular mass arising in the

inguinal region [citation needed]. TC presents with pain in about 10% of the cases. Pain can be sharp to dull in nature in the scrotum in such cases it is difficult to differentiate from epididymo-orchitis [10]. Low back pain indicates involvement of retroperitoneal lymph nodes.

Patient may also present with lymph nodal masses in the abdomen, mediatinum and supraclavicular region with or without palpable testicular mass. One of our three cases presented with cervical lymphadenopathy [9, 10] and palpable right para aortic lymph nodal mass without palpable mass in the testis. Another case presented with para aortic lymph nodes on USG abdomen.

Lung metastasis: lung is the second most common site for metastatic disease after lymphatic spread. Our third case with inguinal mass was presented with lung metastasis in the lower and middle lobe of right lung without symptoms. Patient may have cough, dyspnoea, chest pain and haemoptysis in a case of symptomatic metastatic diseases in the lung. Other than lung, liver is the other common site for visceral metastases, present with enlarged liver. Patient may have loss of weight and loss of appetite in advanced disease. All of our three cases presented with weight loss. Patient may also present with gynecomastia when high levels of β-hCG is being secreted by tumour mass.

**III.4, Differential diagnosis:**

Other conditions like haematocele, epididymitis and epididymo-orchitis is closely mimic as testicular tumour, since 10 % of testicular cancer present with pain. Haematocele is also difficult to differentiate from testicular masses since it present as painless testicular mass which can also be felt as heavy, even on table not possible to differentiate form testicular cancer. Histological examination can only rule out testicular cancer from haematocele.

**III.5, Staging:**

Staging helps in assessing the suitable treatment to gain optimal cure rate. TNM staging (as published in AJCC American joint committee on cancer, and cancer staging manual) is taken into consideration [11]. T staging includes, Tis – intra tubular germ cell tumor, T 1 – limited to testis, T 2 – beyond tunica albuginea or involves epididymis, T 3 – invades spermatic card and T 4 – invades scrotum. N-staging includes, N0 – lymph nodes are not enlarged, N 1 – one node < 2cm in diameter, N 2 – one node 2-5 cm in diameter or multiple nodes adherent to each other, N 3 – node metastases > 5cm (bulky) adherent to underlying structures. M-stage includes, M0 – no distant metastases, M1 – enlarged non regional lymph nodes include common ileac, inguinal lymph nodes and pulmonary metastases. M2 – visceral metastases.

Staging is also based on tumour markers called S-staging has got prognostic value. S – Staging based on serum tumour markers, serum α-feta protein, lactate dehydrogenase-LDH, β-human chorionic gonadotrophins β-HCG. Elevated levels of tumour markers will have poor prognosis and treatment also changes. S0 – serum α-FP, β-hCG, LDH are within normal. S1 – α-FP - < 1000 ng/mL, β-hCG is < 5000 mlU/ML, and LDH is < 1.5xN. S2 – α-FP- 1000-10000 ng/mL, β-hCG 5000-50000 mlU/ML, LDH 1.5-10xN. S3 – α-FP > 10000 ng/mL, β-hCG > 50000 mlU/ML, LDH >10xN.

**III.6, Investigation:**

USG scrotum will help to confirm both palpable and clinically impalpable lesion in the testis. Malignant lesion is seen as heteroechoeic lesion. Presence of micro or macro calcification on USG is an indirect evidence of malignancy. Macro calcification was noted in our first case where tumour markers were also elevated which helped us in clinching the diagnosis. USG also helps in assessing lymph nodal masses in the abdomen.

Excision biopsy by high inguinal orchidectomy is the normal way of confirming the diagnosis. No biopsy (either FNAC or incisional) is indicated in testicular masses as it increase the risk of spreading cancer cells into the scrotum. X-ray chest helps to rule out metastatic disease in the lung however, smaller multiple lung metastases can be picked up by CT chest. CT abdomen will confirm the enlargement of lymph nodal masses in the retro peritoneum and mediastinum.

**III.7, Treatment:**

Surgery, radiotherapy and chemotherapy are three modalities of treatment available for TC [12]. Surgery is the initial treatment by high (inguinal) orchidectomy (orchiectomy - American term). High inguinal orchidectomy includes excision of testis along with epididymous and spermatic cord. Spermatic cord is exposed by opening inguinal canal and cord is excised at internal ring, cord along with testis is excised in toto from scrotum. Partial orchidectomy is mentioned in the literature however no one is practicing because the possibility of intra testicular dissemination of the tumour.

**Seminoma:** early stage (Stage I and II) orchidectomy followed by adjuvant radiotherapy is given to retroperitonium since seminoma is sensitive to radiation. Advanced stage (stage III and IV) adjuvant platinum based chemotherapy is preferred as an alternative to radiation therapy since radiation therapy appears to have more significant long-term side effects and increased risks of second malignancy.

**Teratoma:** early stage (I & II), without retroperitoneal lymph node metastasis, low grade tumour with normal tumour markers, orchidectomy followed by prophylactic retro peritoneal lymphadenectomy is carried out. In advanced stage (III & IV), presence of metastatic retro peritoneal lymph nodes with elevated tumour markers; orchidectomy followed by combination chemotherapy is given. Residual lymph nodal dissection is carried out after chemotherapy. Chemotherapy is the standard treatment for non-seminomatous tumours with metastatic disease. Most favoured chemotherapeutics are cisplatin, bleomycin and etoposide in four to five cycles [13]. Another alternate and equally effective regime is cisplatin and etoposide is given in four cycles [14].

**III.8, Prognosis**

Five year survival response rate is more than 90% regardless of stage [15]. In 2011 overall reported cure rate was more than 95% for non metastatic disease while 80% cure rate for metastatic disease. The improvement has been attributed to cisplatin [16].

## IV. Conclusion

Testicular cancer is common in males however general incidence is only 1-2% of all malignant tumours. TC is more common between the age group of 15- 35 years but rare before 15 years and after 45 years. Undescended testis is undoubtedly is a major risk factors. Other risk factors include Klinefelter syndrome, obesity, HIV infection and family history.

Testicular mass is most common presentation. Patient may present with secondary hydrocele in 30% of the cases. Pain may present in 10% of the cases where it is difficult to differentiate from epididymoorchitis. Patient may also present with palpable lump in the abdomen when tumour disseminate to para aortic and common iliac lymph nodes. Inguinal lymph nodes are palpable only when scrotal layers are involved. Tumour may spread to mediatinal and supra clavicular lymph nodes. Lung metastases are common by haematogenous route, rarely liver may also be involved. Surgery by high inguinal orchedectomy is the treatment of the choice followed by chemo radiation. Cisplatin chemotherapy has improved the survival rate to a great extent. Retro peritoneal lymph nodal dissection is carried out if residual retroperitoneal lymph nodes are present after chemo radiation. Prognosis with combined chemotherapy is 95% in non metastatic TC and 80% in case of metastatic disease.

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