POTPOURRI TESTICULAR TUMOUR- A RARE COMBINATION OF TESTICULAR SEMINOMATOUS MIXED GERM CELL TUMOUR WITH IMMATURE TERATOMA AND YOLK SAC TUMOUR IN A YOUNG ADULT MALE- A CASE REPORT

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PRESENTATION OF CASE

History of Present Illness

A 33-year-old young male was admitted under care of our surgical unit with painless swelling in right side of scrotum for 3 months. He had cough, breathlessness and chest pain but no haemoptysis for last one month. Also, he had intermittent fever and significant involuntary weight loss and anorexia for last one month. There was no history of syncope or palpitation.

Past History

No significant past medical and surgical history and no history of previous hospital admission.

Family History

No history of same illness in family members.

Examination

General Survey

Patient was sick-looking and dyspnoeic. Pallor was moderate and body temperature was raised. He had no cyanosis, icterus, clubbing or dependent oedema. Cervical lymph nodes were not palpable.

Local Examination

No organomegaly or remarkable positive finding in upper abdomen.

On examination of scrotum, a variegated nontender right testicular swelling (measuring 13 cm x 7.5 cm approx.) was felt and the swelling was extended through groin to the right lower abdomen. The scrotal skin was free from mass. Another hard mass, measuring about 14 cm x 8 cm was present in the inguinal pouch.

Investigations -

1. Haemoglobin- 6.4 g%.
2. Serum Tumour Markers-
 - a) LDH- 356 U/L (115-210 U/L)
 - b) AFP- 56.6 ng/mL (0.0-8.5 ng/mL)
 - c) Beta hCG- 2010 mIU/mL (<5 mIU/mL)
3. Chest X-ray PA view- Bilateral multiple cannon ball opacities in both lung fields suggestive of pulmonary metastasis.
4. USG Findings -
 - a) In scrotum- An enlarged right testis with heterogeneous echogenicity (i.e., combined solid and cystic components), measuring 13 cm x 7 cm x 4 cm.
 - b) In right inguinal region- Lymph nodal mass of 14 cm x 7 cm x 5 cm was detected.
 - c) In right pelvis- Suspected lymph nodal mass of 5 cm diameter was detected.

DIFFERENTIAL DIAGNOSIS

a) Common Causes of Painless Testicular Swelling

- A. Germ cell Tumour
 1. Seminoma
 2. Non-seminoma (Teratoma)
- B. Mixed germ cell tumour
- C. Yolk sac tumour
- D. Sex cord stromal tumour (Sertoli-Leydig cell tumour)
- E. Lymphoma.

b) Other Possibilities

Old haematocoele.

CLINICAL DIAGNOSIS: -

Surgical Procedure Performed

After stabilisation of the patient, we performed right-sided high inguinal orchidectomy with excision of right-sided inguinal lymph nodal mass with excision of lymph nodal mass from right-sided pelvis (iliohypogastric region adjacent to right side of bladder).

We sent the right orchidectomy specimen, right inguinal lymph nodal mass and excised pelvic mass for histopathological examination.

PATHOLOGICAL DISCUSSION

The testicular tumour showed mixed germ cell tumour showing a combination of seminoma, immature teratoma and yolk sac tumour with metastasis in right inguinal lymph node.

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Tunica albuginea - Free of lesion.
 Resection of spermatic cord- involved.
 Pelvic mass- Metastasis.

Few Photomicrographs of our Patient's Histopathological Report are given below-

Figure 1a. Photomicrographs showing Seminomatous Component

Figure 1b. Photomicrographs showing Seminomatous Component

Figure 1a and 1b Photomicrographs show seminomatous component characterised by polyhedral cells with centrally placed nucleus and abundant pale cytoplasm separated by fibrovascular septae with lymphocyte infiltrate with adjacent yolk sac component having microcystic pattern.

Figure 2. Photomicrograph showing Immature Cartilage, Glands and Acini, Abortive Tubules, Neutrophils, Fibrocollagenous Tissue consisting with Immature Teratoma.

Figure 3. Photomicrograph showing Mixed Germ Cell Tumour of Testes

Figure 4. Photomicrograph showing features of immature Teratoma

Figure 5. Photomicrograph showing Yolk Sac Tumour Exhibiting Microcystic, Papillary and Acinar Pattern, Presence of Hyaline Globules and Schiller-Duval Bodies

DISCUSSION OF MANAGEMENT

The patient was referred to Medical Oncology Department of our hospital for further evaluation and management plan after postoperative recovery.

In young males, about 99% of testicular neoplasms are malignant and used to be one of the common causes of mortality in them. Germ cell tumours (GCTs) comprise 95% of malignant tumours arising in the testes and these are relatively uncommon and account for 1% of all male tumours.¹

And testicular GCTs constitute the most common solid tumour in men between the ages of 20 and 34 years.² For unknown reasons, the incidence of these tumours has been increasing in the past two decades.³

GCTs are classified as seminoma or nonseminoma. NSGCTs can be seen in pure and mixed forms. The mixed variety contains more than one germ cell component and comprises 32% -60% of all GCTs. But still the presence of seminomatous and non-seminomatous components in a GCT is rather unusual.⁴ Non-seminomatous tumours often include multiple cell types, including embryonal cell carcinoma, choriocarcinoma, yolk sac tumour and teratoma. Teratomas are considered to be either mature or immature depending on whether adult-type differential cell types or partial somatic differentiation, similar to that present in the foetus, is found.

The serum tumour markers – AFP, LDH and beta-hCG are critical in diagnosing GCTs, determining prognosis and assessing treatment outcome.

Gonadal GCTs possess diagnostically challenging issues for the pathologist and the correct diagnosis often has important therapeutic and prognostic significance.

Several studies have reported specific combinations of different GCT elements in mixed type of testicular GCTs.⁵ MOSTOFI found >1 histopathological patterns in approximately 60% of cases with the most frequent combination of embryonal carcinoma, yolk sac tumour and choriocarcinoma. In our patient, the histopathology showed the mixed type of testicular GCT – combination of seminoma, immature teratoma and yolk sac tumour. This combination

was almost similar to that case as reported by Jena A. et al., where the mixed GCT of testes was the combination of seminoma, mature teratoma and yolk sac components. All these components in the orchidectomy specimen is a histopathological rarity, emphasizing the origin of these tumours as a process of multicentric neoplasia.⁶

Overall, non-seminomatous GCTs have poorer prognosis compared to seminomas.⁷ Majority of patients with NSGCTs present with advanced disease and they metastasise both through lymphatic and haematogenous route.⁷ The prognosis of mixed germ cell tumours depend on presence of the type and proportion of different histological components.⁸ As our patient presented with testicular tumour of short duration history with local lymph nodal spread and distant pulmonary metastasis, we can conclude that this rare type of mixed GCT has more aggressive course. Although further studies regarding this are essential.

FINAL DIAGNOSIS

In our patient, histopathological examination revealed the unusual combination of seminoma and non-seminomatous components (which were immature teratoma and yolk sac tumour). Though mixed GCT is commonly encountered in testes, presence of all these components in the orchidectomy specimen is a histopathological curiosity, emphasising the origin of these tumours as a process of multicentric neoplasia.

Thus, the present case not only reflects the heterogeneity in the biology of GCTs of the testes but also highlights the aggressiveness of this tumour considering the short duration of history and presentation with both local and distant metastasis in our patient.

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