Case Report:

Potpourri testicular tumour - combination of seminoma, teratoma and yolk sac tumour of testis in a young adult male

Amitabh Jena,[1] Rashmi Patnayak,[2] N. Anil Kumar,[3] Amit kumar Chowhan,[2] B. Vijaylakshmi Devi,[4] A.Y Lakshmi[4]

Departments of [1]Surgical Oncology, [2]Pathology, [3]Urology, [4]Radiology, Sri Venkateswara Institute Of Medical Sciences, Tirupati

ABSTRACT

Testicular germ cell tumours are the most common malignant tumours seen in adult males in the 20-40 years age group. The cure rate of these tumours is quite high even with the presence of metastasis. But many patients present quite late in the course of the disease, often with complications. We present the case of a young male who presented with mixed germ cell tumour consisting of the unusual combination of seminoma, yolk sac tumour and mature teratoma. Though mixed germ cell tumour is a common entity, presence of seminomatous and non- seminomatous components is quite unusual.

Key words: *Mixed germ cell tumour, Seminoma, Testis, Non-seminomatous germ cell tumour*

Jena A, Patnayak R, Anil Kumar N, Chowhan AK, Vijaylakshmi Devi B, Lakshmi AY. Potpourri testicular tumour - combination of seminoma, teratoma and yolk sac tumour of testis in a young adult male. J Clin Sci Res 2014;3:257-60. DOI: http://dx.doi.org/10.15380/2277-5706.JCSR.13.023.

INTRODUCTION

Testicular germ cell tumours are the most commonly encountered malignant tumours in adult males in the 20-40 year age group. They constitute one of the major leading causes of death.[1] Testicular germ cell tumours can be pathologically classified as seminomatous and non-seminomatous germ-cell tumour (NSGCT) types. NSGCT can be seen in pure and mixed forms.[2] The mixed variety contain more than one germ cell component and comprises 32% - 60 % of all germ cell tumours. But still the presence of, seminomatous and non-seminomatous components, in a germ cell tumour is rather unusual.[3] Unfortunately, many of these patients present quite late, often with complications. We report the case of a young male who presented with a mixed germ cell tumour which was an unusual combination of seminoma, yolk sac tumour and teratoma of testis.

Received: 14 May, 2013.

CASE REPORT

A 31-year-old male patient presented with complaint of cough and haemoptysis since 25 days. There was history of chest pain and breathlessness. There was no history of fever, syncope or palpitation. He was a tabacco smoker and was married with two children. On general examination he had bilateral gynaecomastia. There was no cervical lymphadenopathy. Abdomen was soft without any tenderness. Right testis was enlarged, nodular and irregular whereas left testis was normal. He gave the history of presence of right testicular mass since childhood.

Chest radiograph was suggestive of pulmonary metastatic deposits with mediastinal lymphadenopathy. A mass lesion was evident in right hilar region. Ultrasonography revealed mixed echogenic lesion noted in the right testis with solid component measuring 2.7 x 2.5 cm and cystic component with internal septation measuring 4.5 x 5.5 cm. Left testis was normal.

Corresponding author: Dr Amitabh Jena, Associate Professor, Department of Surgical Oncology, Sri Venketeswara Institute Of Medical Sciences, Tirupati, India.
e-mail: dramitabh2004@yahoo.co.in

Online access
http://svimstpt.ap.nic.in/jcsr/oct-dec14_files/2cr414.pdf
DOI: http://dx.doi.org/10.15380/2277-5706.JCSR.13.023

The patient underwent right high inguinal orchidectomy. The cut section of the gross specimen showed multiloculated cystic lesions with a couple of solid areas displacing the normal testicular tissue.

Histopathological examination revealed seminiferous tubules of testis and a germ cell tumour comprising both seminomatous (20%) and non-seminomatous (80%) components. The seminomatous component was characterized by tumour cells arranged in the form of nests separated by fibrous septae. The tumour cells had vesicular nuclei with many showing prominent nucleoli. The fibrous septae was infiltrated by lymphocytes (Figure 1). Majority of the non-seminomatous component was in the form of teratoma (70%) with presence of derivatives of all the three components like areas of cartilage (mesodermal), keratinized squamous epithelium (epidermal) and glands lined by columnar epithelium (endodermal) (Figure 2). The other non-seminomatous component was yolk sac tumour (10%) exhibiting tubulo papillary arrangement with occasional *Schiller-Duval bodies* and presence of hyaline globules (Figure 3). Microscopically there was evidence of capsular and vascular invasion. The patient was diagnosed to have mixed germ cell tumour of testis with seminoma, mature teratoma and yolk sac components.

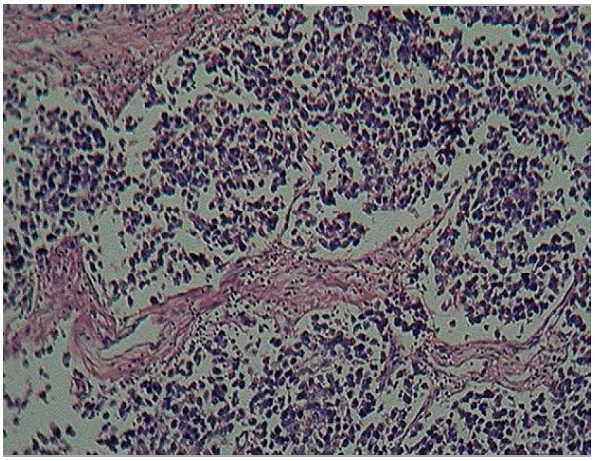

Figure 1: Photomicrograph showing seminomatous component characterized by tumour cells separated by fibrous septae with lymphocyte infiltrate (Haematoxylin and eosin, × 20)

After this the patient was referred to Medical Oncology department for further management. However, the patient was lost to follow-up.

DISCUSSION

Gonadal germ cell tumours possess diagnostically challenging issues for the pathologist. The correct diagnosis often has major important therapeutic and prognostic implications.[4] In young adult males, about 99% of testicular neoplasms are malignant[2] and used to be one of the common causes of mortality in them. Despite various advances made in all fields of oncology, early diagnosis and treatment of testicular malignancies still remains a challenge, particularly in developing countries.

Mixed germ cell tumours are uncommon prior to puberty in children. Patients present with painless or painful testicular swelling. Signs of metastatic disease include abdominal mass, gastrointestinal tract disturbances or pulmonary discomfort.[2,4] At the time of first presentation, up to 35% cases show evidence of metastasis, as seen in the present case. This delay is usually attributed to insidious onset and lack of telltale signs.[2] But usually the cases present within six months from the time the neoplasm is first detected.[2] Curiously, our patient gave the history of testicular swelling since childhood for which medical attention was never sought. Usually the mixed germ cell tumours that contain seminoma occur at a later age than those without a seminomatous component.[5] The apparent asymptomatic nature of the neoplasm for such a long period appears intriguing. This also illustrates the lack of awareness on the part of the patient as he did not seek medical consultation for a superficially palpable neoplasm until it presented with distant metastasis.

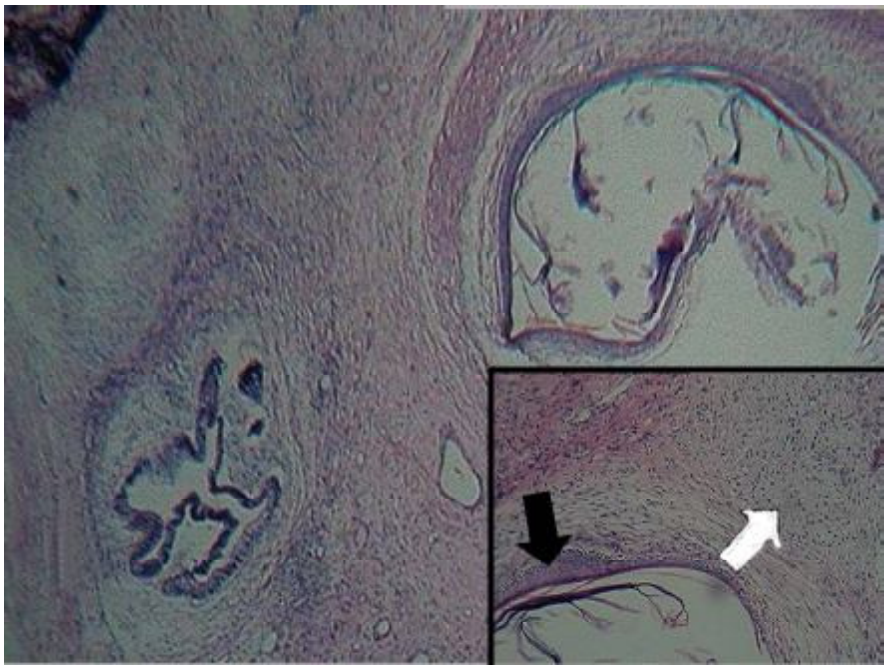

Figure 2: Teratoma. Photomicrograph showing squamous epithelium, glands lined by columnar epithelium and cartilage (Hematoxylin and eosin, × 20). Inset: Photomicrograph showing squamous epithelium (black arrow) and adjacent cartilage (white arrow) (Haematoxylin and eosin, × 40)

Mixed germ cell tumours (with various combinations of components) are common in the testis. In the testis, often a random admixture of elements, are noted.[4] Teratomas represent only about 4% of testicular germ cell tumours.[6,7] Most teratomatous elements in the testis occur as a component of mixed germ cell tumours. Mixed germ cell tumours represent about one-third of all testicular germ cell tumours and contain teratoma in about 50% of the cases.[4,6,7] Yolk sac tumour is a common component of mixed germ cell tumours of the testis, accounting for about 1% of testicular germ cell tumours. Pure yolk sac tumours of the testis are rare in adults but the most common testicular germ cell tumour in children.[8] In one series,[4] the most frequent combination of mixed germ cell tumours was composed of teratoma and embryonal carcinoma in which commonly minor foci of yolk sac tumour are encountered.

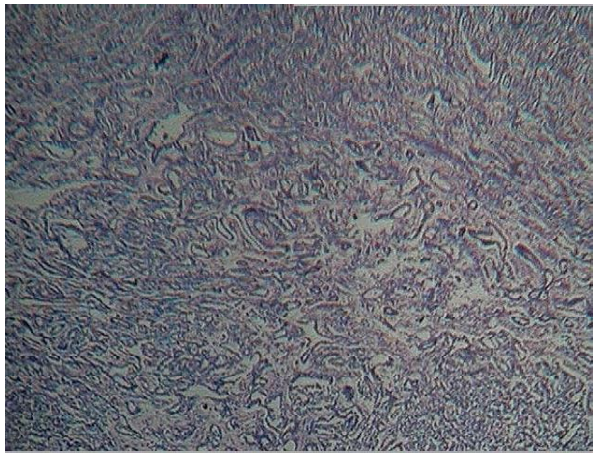

Figure 3: Photomicrograph showing yolk sac tumour exhibiting tubulopapillary arrangement (Haematoxylin and eosin, × 20)

Histologically, 59% of mixed germ cell tumours contain seminoma, 41% contain yolk sac tumour, and 47% contain embryonal carcinoma and teratoma.[5] The most common mixed germ cell tumour is the combination of teratoma, embryonal carcinoma, yolk sac tumour, and syncytiotrophoblastic cells with or without seminoma.[5] Seminoma when present along with the other neoplastic components can be termed as mixed germ cell tumour with the traditional rough quantitation of the various components in descending order of frequency.[9] The histogenesis of these combinations may be considered as due to multicentric neoplasia.[9]

In the present case, histopathological examination revealed the unusual combination of seminoma and non-seminomatous component (mature teratoma and yolk sac tumour). Though mixed germ cell tumour is commonly encountered in testis, presence of all these components in the orchidectomy specimen is a histopathological curiosity, emphasizing the origin of these tumours as a process of multicentric neoplasia.[3-5,9]

In an earlier report[3] a case with lymph node metastasis of embryonal carcinoma (non-seminomatous component) and presence of seminoma in the testis has been described.

Seminoma usually has a favourable course but the prognosis of mixed germ cell tumours depend on presence of the type and proportion of different histological components.[2, 10] NSGC tumours have a poorer prognosis compared to seminomas.[2] Testicular germ-cell tumours except spermatocytic seminoma usually develop retroperitoneal lymph node metastases.[2] Majority of patients with NSGC tumours present with advanced clinical disease. They metastasize both through lymphatic and haematogenous route.[2]

The therapy and prognosis of these testicular tumours can depend largely on clinical stage and on histopathological type.[10] Even with metastatic disease up to 70% of the tumours can be cured with appropriate therapy.[2]

The present case highlights the unusual combination in a mixed germ cell tumour diagnosed histopathologically, and the need for greater awareness in general population regarding early medical consultation in order to treat a potentially curable tumour.

REFERENCES

1. Coleman MP, Estève J, Damiecki P, Arslan A, Renard H. Trends in cancer incidence and mortality. IARC Sci Publ 1993;121:1-806.
2. Stamatiou K, Papadopoulos P, Perlepes G, Galariotis N, Olympitis M, Moschouris H, et al. Mixed germ cell tumour of the testicle with ravdomuosarcomatous component: a case report. Cases J 2009;2:9299.
3. Soriano Sarrió P, Chirivella I, Navarro Fos S. Coexistence of two germinal cell tumours, seminomatous and nonseminomatous, with an uncommon clinical presentation. Arch Esp Urol 2008;61:626-30.
4. Ulbright TM. Germ cell tumours of the gonads: a selective review emphasizing problems in differential diagnosis, newly appreciated, and controversial issues. Modern Pathol 2005;18:S61–S79.
5. Sesterhenn IA, Davis CJ Jr. Pathology of germ cell tumours of the testis. Cancer Control 2004;11:374-87.
6. Von Hochstetter AR, Hedinger CE. The differential diagnosis of testicular germ cell tumours in theory and practice: a critical analysis of two major systems of classification and review of 389 cases. Virchows Arch 1982;396:247-77.
7. Jacobsen GK, Barlebo H, Olsen J, et al. Testicular germ cell tumours in Denmark 1976-1980. Pathology of 1058 consecutive cases. Acta Radiol Oncol 1984;23:239-47.
8. Grady RW, Ross JH, Kay R. Patterns of metastatic spread in prepubertal yolk sac tumour of the testis. J Urol 1995;153:1259-61.
9. Young RH. Testicular tumours—some new and a few perennial problems. Arch Pathol Lab Med 2008;132:548-64.
10. Kruslin B, Turciæ M, Cupiæ H, Novosel I, Reljiæ A, Ruziæ B, et al. Importance of determination of various histologic components in testicular germ cell tumours. Lijec Vjesn 2003;125:242-5.