Case Report

Synchronous Bilateral Testicular Germ Cell Tumor with Different Histology: A Case Report and Review of Literature

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Abstract

Bilateral testicular germ cell tumors are rare and constitute only 2-3%. Among these, only 5-24% occur synchronously, and rests are metachronous. Very few cases of synchronous tumors with different histopathology like seminoma with controlateral mixed germ-cell tumor were reported till date. Here, we report a case of 38-year-old male who presented with bilateral testicular swellings. There were raised tumor markers with bilateral testicular lesions on scrotal USG. Bilateral orchidectomy was performed. Histopathology report revealed a right testicular seminoma and left testicular immature teratoma. He received 3 cycles of chemotherapy with BEP regimens.

Keywords: Bilateral orchidectomy, Synchronous, Testicular tumor

INTRODUCTION

Testicular tumors constitute 1% of all malignancies. It is the most common solid malignancy affecting males between the ages of 15 and 35 years. Seminoma is the most common germ-cell tumor.[1] Others are choriocarcinoma, yolk sac tumor, teratoma and embryonal carcinoma. Only about 2 to 3 percent of testicular tumors occur bilaterally.[2] Because there are no lymphatic or vascular connections between the testes, it is thought that synchronous tumors develop independently as two separate primary tumors.[3] Synchronous primary germ cell tumors of the testes with different histopathology are extremely rare.[4] We presented a case of synchronous bilateral primary germ cell tumor with left side immature teratoma and right side seminoma.

CASE REPORT

A 30-year male patient with history of hydrocele in left testis, was operated for it in 2011. He developed bilateral testicular swelling in November 2013. Clinical examination revealed bilateral nodular testicular swelling with no inguinal lymphadenopathy. Serum LDH, AFP and beta-HCG were 371.26 U/L, 14 miu/ml and 38.25 ng/ml respectively. USG scrotum showed bilateral testis enlarged, right testis measured 6 x 4.8 x 4.2 cm size heterogeneous with few scattered hypoechoic areas and left testis measured 5.3 x 5.2 x 6.8 cm size with few cystic areas within it. He underwent left orchidectomy and right high inguinal orchiectomy in January 2014. In histopathology, gross specimen showed left testis enlarged with cut section revealed a mass with multiple cystic solid areas and normal testicular tissue at lower pole (Figure 1). There was presence of right testicular mass with smooth outer surface and homogeneous greyish white areas on cut section (Figure 2). Microsection revealed left testis with immature teratoma (PT1NXM0) (Figure 3) and right testis with pure seminoma (PT1NXM0) (Figure 4) without involvement of tunica vaginalis or spermatic cord. Post operative serum markers LDH, AFP and beta-HCG were 227.5 IU/L, 2.34 ng/ml and 0.9 miu/ml respectively (within normal limit). Contrast enhanced CT scan of abdomen and chest rulled out distant metastasis. Pulmonary function test and cardiology showed normal. Patient received 3 cycles of chemotherapy with

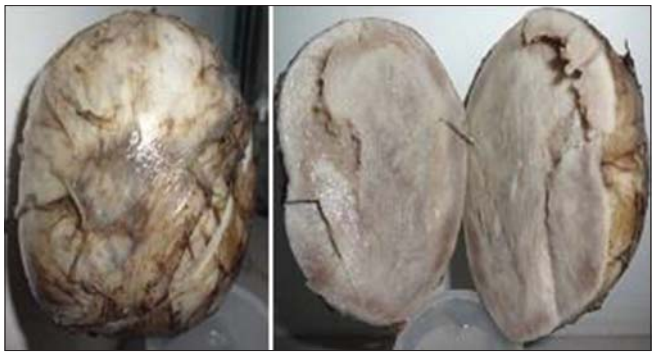

Figure 1: Left testis measured 8 x 5 x 3 cm and cord measured 7 cm long with cut section showed a mass of size 4.8 cm in diameter with multiple cystic solid areas, cyst containing gelatinous and thin fluid, normal testicular tissue at lower pole measuring 3 x 2 x 2.5 cm

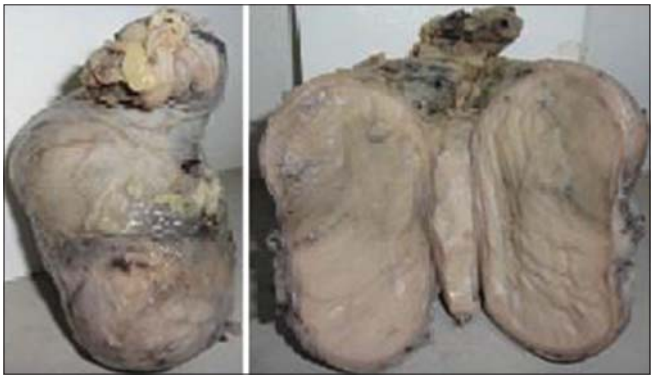

Figure 2: Right testicular mass measured 9.5 x 7 x 5 cm and spermatic cord 6cm in long with outer surface is smooth and cut section showed homogeneous greyish white areas

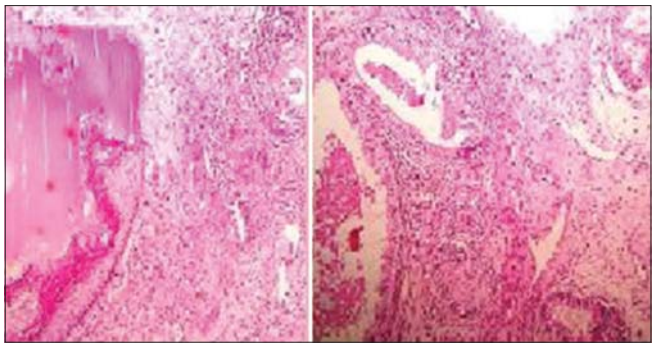

Figure 3: Microsection (H & E 100X) showed presence of Keratinised squamous cell component, and Glandular component along with presence of goblet cells and immature neural tube componment, conforming diagnosis of immature teratoma

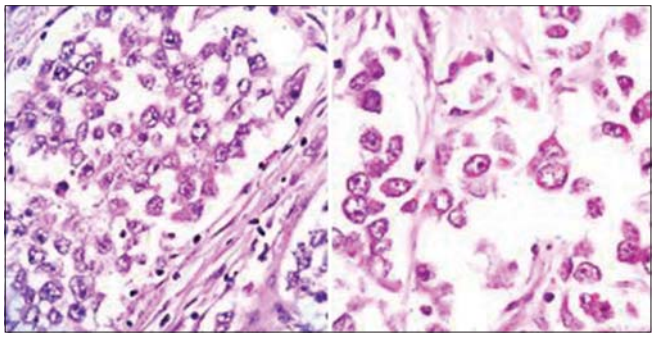

Figure 4: Microsection (H&E 400X) showed presence of tumor cells in clusters separated by fibrous septa, infiltrated with lymphocytes and individual tumor cells are round to oval with moderate amount of eosinophilic cytoplasm, round nucleus and prominent nucleolus with many mitotic figures, conforming diagnosis of pure seminoma

BEP regimen last in March 2014 due to bilaterality of the tumor and presence of immature teratoma in one side. Patient tolerated well to chemotherapy.

DISCUSSION

Germ-cell tumor can occur in testis, retroperitoneum, mediastinum and pineal gland. LDH, alpha-fetoprotein and beta-HCG are the useful tumor markers.[5] Common metastasis seen in testicular malignancy is to retroperitoneal and mediastinal lymph nodes. Choriocarcinoma metastasizes hematogenously. Synchronous and metachronous testicular tumors account for 1% to 5% of all testicular cancer.[6-8] Among bilateral testicular tumors, only 5 to 24% occur synchronously and the remaining 7 to 83% are metachronous.[7] Most common synchronous testicular tumors are seminomas, followed by embryonal carcinomas, teratocarcinomas, and choriocarcinomas.[9] Most synchronous bilateral testicular tumors have an identical histologic diagnosis. In 2009, Suresh and associates reported the ninth case of synchronous bilateral germ-cell tumors with different histology like seminoma with controlateral mixed germ-cell tumor according to their review of the literature.[10] In our case, USG of scrotum revealed bilateral synchronous testicular mass. Post-bilateral orchiectomy histopathology report revealed right side pure seminoma and left side immature teratoma. The presence of bilateral synchronous testicular germ cell tumors with different histology like seminoma in one side and immature teratoma in other side was not reported in the literature till date.

Several potential risk factors for developing a second testicular tumor are atrophy of the second testis, young age, infertility, a family history of testicular cancer, atypical naevi, Down's syndrome, and testicular maldescent.

Seminoma is composed of relatively uniform cells with the resemblance of primitive germ cells and with clear cytoplasm, well defined borders, and nuclei with one or more prominent nucleoli.[11]

There is a lot of heterogeneity in the reported series regarding the management of synchronous BGCT. Bilateral orchiectomy is still considered the standard of

care for local treatment and definitive pathologic diagnosis. Because bilateral orchiectomy is associated with severe endocrinologic and psychologic distress, chemotherapy and testis preserving surgery are being considered for patients with early stages of cancer.[3] Conservative surgery for testicular cancer may represent the "gold standard" treatment, provided that they meet the inclusion criteria of Weissbach protocol, currently adopted in the European Association of Urology.[12] Post orchidectomy management of these patients has been dictated by the higher stage of the tumor in either of the testis and the pathology with the higher malignant potential. In general, treatment options for stage I seminoma are surveillance, prophylactic para-arotic lymphnode irradiation, or one to two cycles of adjuvant chemotherapy. But bilateral seminomas or different histology should not be kept on surveillance; rather they should be treated with radiotherapy or chemotherapy. Follow-up is lifelong, and includes chest radiographs, ultrasound of abdomen and pelvis, and measurement of the tumor markers AFP, beta- HCG and LDH.

Overall, synchronous tumors were associated with more advanced disease and presented less favourable survival rates than metachronous tumors. Improved survival of patients with testicular carcinoma has led to an increased incidence of controlateral testicular tumor.

Our case was treated with bilateral orchiectomy followed by 3 cycles of chemotherapy with BEP regimen.

CONCLUSION

Synchronous bilateral testicular germ-cell tumors with different histology are very rare. Seminoma is the most common histologic type. The presence of seminoma in one side testis and immature teratoma in other side testis is not reported in the literature till date. Because of the rarity, the standard guideline of treatment is not known. Principles of management are the same as those for primary germ cell tumor of the testis. The clinical stage and histological type determine prognosis. Bilateral radical orchidectomy is the standard practice for patients with synchronous bilateral seminoma. Testis sparing surgical techniques should be done to prevent infertility and psychological effects of castration. Pre-orchidectomy sperm banking should be discussed with patients as well as made available for those patients who have not completed having their family.

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How to cite this article: Sahoo TK, Dhal I, Majumdar SD, Parida DK. Synchronous Bilateral Testicular Germ Cell Tumor with Different Histology: A Case Report and Review of Literature. Int J Sci Stud 2014;2(4):94-96.

Source of Support: Nil, **Conflict of Interest:** None declared.