

Primary Germ Cell Tumor of Testes with Extensive Lymph Nodal and Splenic Metastases Masquerading Lymphoma on ¹⁸F-FDG PET/CT

Abstract

Germ cell tumors (GCT) account for the 95% of the malignancies associated with testes. They are the most common solid malignancies affecting the males in the age group of 15–35 years. It is known to be bilateral in 3% of cases. We herein present FDG PET-CT findings of a case with biopsy proven GCT with multiple lymph nodal and splenic metastases mimicking lymphomatous neoplasm.

Keywords: Germ cell tumor, FDG PET-CT, lymphomatous neoplasm, splenic metastases,

A 40-year-old male presented with chief complaints of back pain, intermittent fever, dyspnea, pain abdomen, flank pain, and swelling of neck for 3 months. On physical examination, there were painful palpable cervical lymph nodes and splenomegaly. For further evaluation, the patient was referred for FDG PET-CT. ¹⁸F-FDG PET/CT revealed multiple hypermetabolic lymph nodes involving both sides of diaphragm with multiple hypermetabolic hypodense lesions involving spleen [Figure 1a-Figure 1d]. Along with that, heterogenous FDG uptake and calcification noted in enlarged left testis [Figure 1e, Figure 1f]. Based on the FDG PET-CT findings, provisional diagnosis of lymphoproliferative disorder with secondary testicular involvement was made [Figure 1g MIP image]. So for further confirmation, biopsy from the left supraclavicular lymph node was performed, which revealed

predominantly fibrocollagenous tissue with chronic inflammatory infiltrate. Tumor cells showed hyperchromatic nuclei with prominent nucleoli and moderate amount of clear cytoplasm [Figure 2a]. Tumor cells are immunopositive for SALL4 [Figure 2b] and CD117 [Figure 2c], whereas negative for pancytokeratin [Figure 2d], CD20 [Figure 2e] and CD3 [Figure 2f], which suggested seminomatous germ cell tumor.

The testes have shown to demonstrate normal physiological ¹⁸F-FDG uptake, which is moderate in intensity and symmetrical in pattern, and the level of uptake declines with advancing age.^[1] There are currently no standard interpretative criteria to evaluate ¹⁸F-FDG testicular uptake. The interpretation generally relies on visual analysis, and the presence of focal or asymmetrical uptake on PET would be regarded as

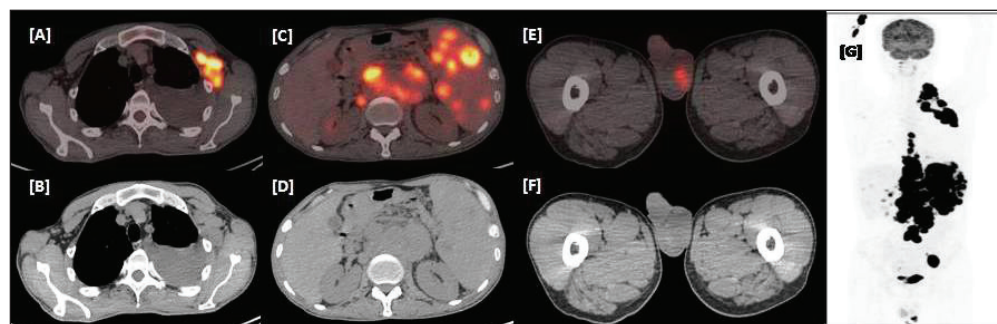


Figure 1: (a-d) ¹⁸F-FDG PET/CT revealed multiple hypermetabolic lymph nodes involving both sides of diaphragm with multiple hypermetabolic hypodense lesions involving spleen. (e, f) Along with that heterogenous FDG uptake and calcification noted in enlarged left testis.

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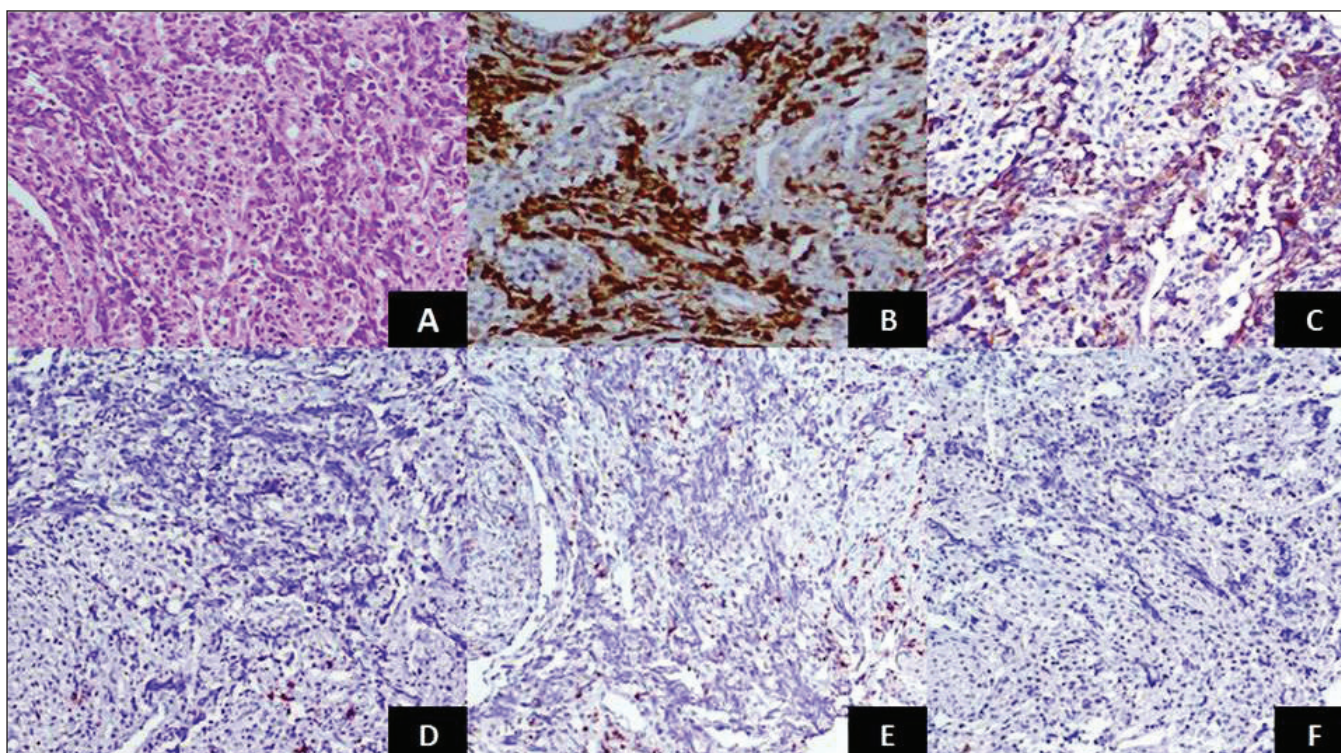


Figure 2: Microphotograph shows atypical cells with scant cytoplasm and hyper chromatic nuclei and mild nuclear pleomorphism. Few lymphoid cells are present in the background. [H and E $\times 200$] Immunohistochemistry shows positive for (b) SAL4 [$\times 200$], (c) CD117 [$\times 200$], whereas it negative for (d) Cytokeratin [$\times 200$], (e) CD20, and (f) CD3 [$\times 200$]

pathological. Secondary involvement of the testes as an extranodal site is rare and occurs in 1% of all NHL and more common in males >60 years.^[2,3] Furthermore, there is a paucity of literature, limited to several case reports, evaluating the pattern, prevalence, and clinical significance of abnormal testicular 18F-FDG uptake on PET in patients with lymphoma.^[4-6] So for further confirmation, histopathological evaluation was suggested which was consistent with metastatic seminoma. Seminoma is a malignant germ cell tumor of the testis or, more rarely, of extragonadal locations which originates in the germinal epithelium of the seminiferous tubules. About half of germ cell tumors of the testis are seminomas. Metastatic seminoma is the paradigm of a curable cancer and the cure rate has now attained 95%, with extrapulmonary visceral metastases being the main identified prognostic factor.^[7,8] So, we hereby discussed FDG PET-CT findings of seminoma involving left testis with extensive lymph nodal, splenic, and liver metastasis masquerading lymphoma. This case further illustrates the fact that heterogeneous uptake in testes should be interpreted with caution and should be confirmed with histopathological diagnosis.

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Nil

Conflicts of interest

There are no conflicts of interest

References

1. Kosuda S, Fisher S, Kison PV, Wahl RL, Grossman HB. Uptake of 2-deoxy-2-[18F] fluoro-D-glucose in the normal testis: retrospective PET study and animal experiment. *Ann Nucl Med* 1997;11:195-9.
2. Moller MB, d'Amore F, Christensen BE. Testicular lymphoma: a population-based study of incidence, clinicopathological correlations and prognosis. The Danish Lymphoma Study Group, LYFO. *Eur J Cancer* 1994;30:1760-4.
3. Verma N, Lazarchick J, Gudena V, Turner J, Chaudhary UB. Testicular lymphoma: an update for clinicians. *Am J Med Sci* 2008;336:336-41.
4. Kuo PH, Cooper DL, Cheng DW. Recurrence of lymphoma presenting as asymmetrically increased testicular activity on FDG-PET/CT. *Semin Nucl Med* 2006;36:105-7.
5. Scalcione LR, Katz DS, Santoro MS, Mahboob S, Badler RL, Yung EY. Primary testicular lymphoma involving the spermatic cord and gonadal vein. *Clin Nucl Med* 2009;34:222-3.
6. Sidhu P, Lin P, Son H, Rosenfeld D, Lin M. Testicular fluorine-18 fludeoxyglucose uptake on positron emission tomography CT in patients with lymphoma: clinical significance and management impact. *Br J Radiol* 2014;87- Epub 2014 Oct 21.
7. Nallu A, Mannuel HD, Hussain A. Testicular germ cell tumors: biology and clinical update. *Curr Opin Oncol* 2013;25:266-72.
8. Daneshmand S, Albers P, Fosså SD, Heidenreich A, Kollmannsberger C, Krege S, *et al.* Contemporary management of postchemotherapy testis cancer. *Eur Urol* 2012;62:867-76.