

Genital Lymphoma Presenting as Pyrexia of Unknown Origin

Shrikant Solav, MD, DRM,* Ajit Yadav, MD,† and Deepak Salunke, MD†

Abstract: Fever/pyrexia of unknown origin is defined as temperature $>38.5^{\circ}\text{C}$ lasting for >3 weeks, of which at least 2 weeks have been spent in thorough investigations. We present a case of an elderly gentleman who had pyrexia of unknown origin and whose PET scan was useful to localize the site of extranodal lymphoma. An 80-year-old gentleman presented with intermittent fever for past 2 months. He reported loss of appetite and subsequent weight loss. There was no demonstrable abnormality on clinical examination. His blood cytology, blood biochemistry, and conventional radiology were unremarkable. He was referred for a whole-body F-18 FDG PET/CT scan. The study revealed intense metabolic activity within the penis. Clinically, there were no signs of inflammation in the genitals. On a follow-up visit, tenderness was observed during per rectal examination. Another follow-up sonography revealed inflammation in the epididymis. Hence, he underwent biopsy of the testicle and scrotal tissue, which revealed non-Hodgkin lymphoma.

Key Words: pyrexia of unknown origin (PUO), extranodal lymphoma, FDG PET scan

(*Clin Nucl Med* 2010;35: 891–893)

Received for publication March 7, 2010; revision accepted May 19, 2010. From the *Spect Lab, Nuclear Medicine Services, Pune, India; and †Niramaya Hospital, Chinchwad Pune, India. Reprints: Shrikant Solav, MD, DRM, Spect Lab, Nuclear Medicine Services, K 2/1 Erandawana Co-op Society, Kothrud, Pune 411004, India. E-mail: drsolav@gmail.com.

Copyright © 2010 by Lippincott Williams & Wilkins
ISSN: 0363-9762/10/3511-0891

REFERENCES

1. Bunesch VL, Bargallo CX, Vilana PR, et al. Lymphoma of the penis: sonographic findings. *J Ultrasound Med*. 2001;20:929–931.
2. Arena F, Di Stefano C, Peracchia G, et al. Primary lymphoma of the penis: diagnosis and treatment. *Eur Urol*. 2001;39:232–235.
3. Zucca E, Conconi A, Cavalli F. Treatment of extranodal lymphoma. *Best Pract Res Clin Haematol*. 2002;15:533–547.
4. Glass AG, Kamell LH, Menck HR. The national cancer data base report on non-Hodgkins lymphoma. *Cancer*. 1997;80:2311–2320.
5. Tondini C, Ferreri AJ, Siracusano L, et al. Diffuse large cell lymphoma of the testis. *J Clin Oncol*. 1999;17:2854–2858.
6. Kaneko T, Nakagawa Y, Yamada Y. Malignant lymphoma of the penis. *Jap J Clin Urol*. 2004;58:143–146.
7. Chiang KH, Chang PY, Lee SK, et al. MR findings of penile lymphoma. Case report. *Br J Radiol*. 2006;79:526–528.
8. Lam WW, Osmany S. Biliary non-Hodgkin lymphoma detected by F-18 FDG PET/CT. *Clin Nucl Med*. 2009;34:791–792.
9. Meka M, Mirtcheva RT, Fishman D, et al. Type two or localized endobronchial non-Hodgkin lymphoma. *Clin Nucl Med*. 2009;34:656–658.
10. Hayasaka K, Koyama M, Yamashita T. Primary pituitary lymphoma diagnosis by FDG-PET/CT. *Clin Nucl Med*. 2010;35:205.
11. Kalkanis D, Kalkani M, Gomes H, et al. Interesting image. FDG-PET/CT in primary large B-cell lymphoma of the hard palate. *Clin Nucl Med*. 2010;35: 24–25.
12. Batlle JC, Zhuang H, Potenta S, et al. Hodgkin disease in the sinonasal region detected by FDG PET. *Clin Nucl Med*. 2004;29:449.

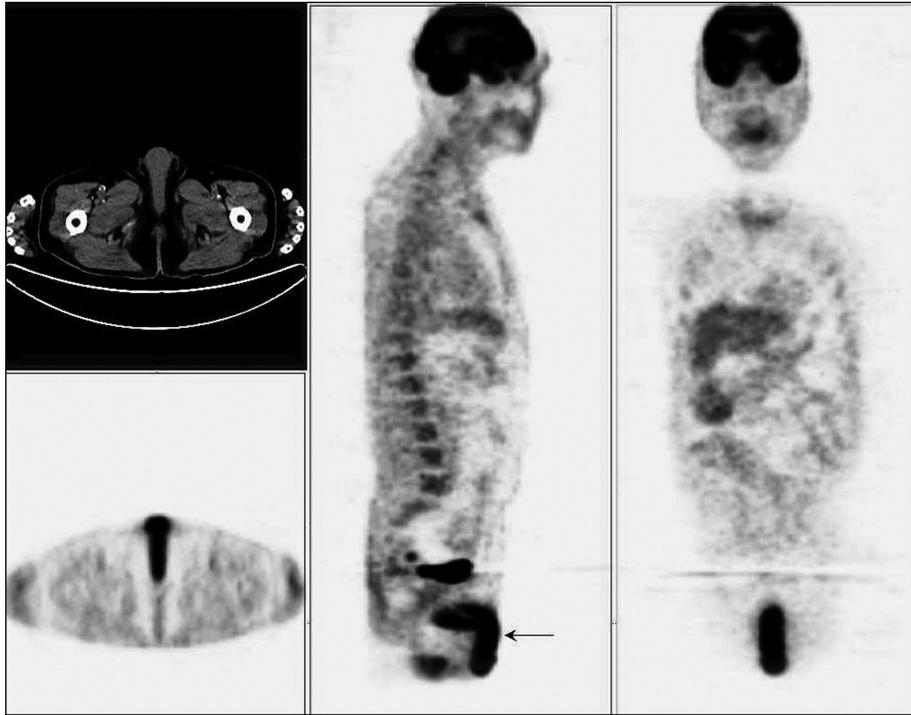


FIGURE 1. An 80-year-old man presented with intermittent fever of past 2 months. He reported loss of appetite and subsequent weight loss. Penile lymphoma may present with ulcer, mass, and diffuse swelling. However, the present case had no demonstrable abnormality on local examination.^{1,2} His blood cytology and blood biochemistry was unremarkable. The liver functions and renal functions were within normal limits. Ultrasonography of abdomen was normal. Chest radiograph and CT of the abdomen and pelvis were normal. He was referred for a whole-body F-18 FDG PET/CT scan. The study revealed intense metabolic activity within the penis (arrow). However, the corresponding CT scan did not reveal any abnormality within the penis. Clinically, there were no signs of inflammation in the genitals. On a follow-up visit, tenderness was observed during per rectal examination. Another follow-up sonography revealed inflammation in the epididymis. Hence, he underwent biopsy of the testicle and scrotal tissue. The causes of pyrexia of unknown origin (PUO) can be divided into infectious, malignancy, autoimmune, and others. Tuberculosis, abdominal, pelvic, dental abscesses, infective endocarditis, and prostatitis are some of the common infectious causes of PUO. Lymphoma, chronic leukemia, renal cell carcinoma, hepatoma, and colon carcinomas are some of the malignant conditions for PUO. Rheumatic fever, rheumatoid arthritis, systemic lupus erythematosus, and temporal arteritis are some of the causes of autoimmune disorders, which are accounting for PUO. Certain drugs, sarcoidosis, and deep vein thrombosis are some other causes of PUO. After thorough clinical examination, blood culture, serology, the imaging tests including chest radiograph, ultrasonography, CT, and MRI of relevant regions, and transesophageal echocardiography were performed for evidence of infective endocarditis. The nuclear medicine procedures included Technetium 99m-Methylene diphosphonate skeletal scintigraphy, Gallium-67 citrate for occult infection, sarcoidosis, and malignancy, Tc-99m-WBC scan for abdominal or pelvic infections. Positron emission tomography using Fluorine-18-Fluorodeoxyglucose may be performed to look for occult infection or neoplasm as in the present case.

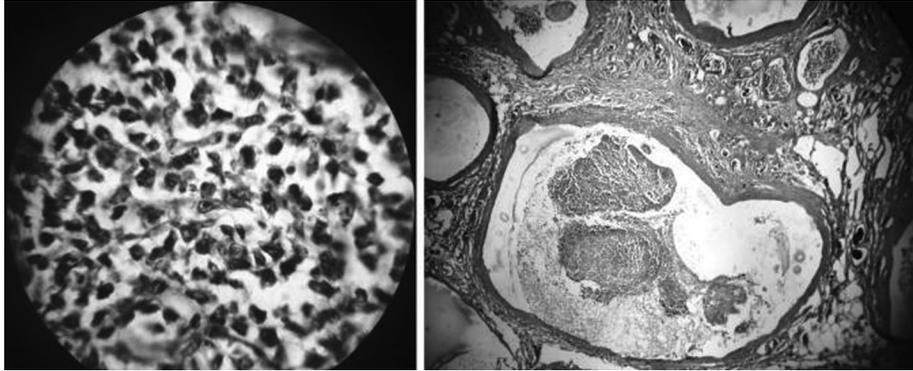


FIGURE 2. Histology of the right spermatic cord revealed features of Lymphoma. Vascular invasion of the tumor cells was seen in the left spermatic cord. Extranodal lymphoma may involve organs such as the stomach, gastrointestinal tract, liver, pancreas, thyroid, nervous system, or skeleton.³ Extranodal lymphoma may originate in a non-nodal tissue (primary extranodal lymphoma) or originate in a nodal site and invade the adjacent extranodal organ, or originate in a nodal site and hematogenously spread to an extranodal site (secondary extranodal lymphoma).⁴ In the present case, there was no nodal disease. Lymphoma of the male genital may involve the testis, spermatic cord, or penis. Testicular lymphoma may accounts for 5% of all the testicular tumors and 1% of all lymphomas. However, penile lymphoma is extremely rare.⁵ In the present case, the origin of disease was most probably in the penile tissue, with subsequent invasion of the adjacent structures as demonstrated histologically. Although penile biopsy has been performed in the past to document lymphoma involvement, this was considered risky in view of the patient's age and immense vascularity of the organ.^{6,7} In addition to the genitourinary system, primary extranodal lymphoma has been reported at other rare sites such as the biliary tree,⁸ endobronchial tissue,⁹ pituitary gland,¹⁰ head and neck such as the hard palate, and sinonasal region.^{11,12}