Primary Hepatic Actinomycosis Mimicking Hepatic Malignancy with Metastatic Lymph Nodes by F-18 FDG PET/CT

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Actinomycosis is a rare infection caused by gram-positive, anaerobic bacteria. It commonly manifests as a cervicofacial disease, but is also encountered as thoracic and abdominopelvic forms [1]. Hepatic involvement is usually secondary to abdominal actinomycosis infection. Primary hepatic actinomycosis accounts for 5 % of all cases of actinomycosis [2] and can be considered when there is no sign of primary involvement of the abdominal area or elsewhere in the body [3]. Symptom onset is typically subacute and the disease follows a chronic and indolent course. Usual clinical findings include fever, right upper quadrant pain, and weight loss [4]. Actinomycosis may appear as a solid enhancing mass on CT images [3–5], and hepatic actinomy-

cosis may mimic a primary or metastatic tumor clinically or radiologically [3, 6]. These lesions are called inflammatory pseudotumors and cannot be differentiated from malignant tumors by radiological examination alone [3]. Definitive diagnosis is based on the demonstration of sulfur granules in a biopsy specimen or of aspirated pus and Gram-stained smears of anaerobic cultures [3, 5]. A 27-year-old man was admitted with a 3-day history of fever and weight loss (14 kg/2 months) (Fig. 1). Laboratory tests showed mild anemia; hemoglobin 119 g/L, elevated white blood cell count of 23,060/mm³ (83.1 %), AST 33 U/L, ALT 45 U/L, and γ -GT 155 U/L. CA 19–9 was 3.4 μ mL and CEA was 1.0 ng/mL.

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Fig. 1 Fluorine-18 fluorodeoxyglucose (F-18 FDG) positron emission tomography (PET)/CT findings revealed intense F-18 FDG uptake over the left lobe of liver (SUVmax 20.4), corresponding to an enhancing soft-tissue mass visualized on CT (Fig 1a–d-). Diffuse homogenous F-18 FDG uptake was observed in bone marrow, which may have reflected bone marrow activation associated with inflammatory activity (Fig 1a). Increased F-18 FDG uptake was also evident in subhepatic, portocaval, and peripancreatic lymph nodes (Fig 1e–g, arrows). Primary hepatic cancer with metastatic lymph nodes was suggested. Subsequent biopsy confirmed actinomycosis with no indication of malignancy. Penicillin-G

was administered intravenously for 2 weeks, followed by oral amoxicillin/clavulanate. Two months after treatment, CT showed the liver lesion had decreased considerably in size. This case highlights a pitfall in the evaluation of hypermetabolic hepatic mass by F-18 FDG PET/CT, because the general F-18 FDG PET/CT finding of actinomycosis is intense hypermetabolism as in malignancy [7]. Although findings are nonspecific, actinomycosis should be included in the differential diagnosis when liver lesions are discovered in a background of long-standing fever and abdominal pain

Conflict of interest Eun Jung Kong declares that there is no conflict of interest.

Ethical Statement All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation and with the Helsinki Declaration of 1975, as revised in 2000. The study design and exemption of informed consent were approved by the Institutional Review Board of Yeungnam University Hospital.

References

1. Smego Jr RA, Foglia G. Actinomycosis. *Clin Infect Dis Off Publ Infect Dis Soc Am*. 1998;26:1255–61.
2. Sharma M, Briski LE, Khatib R. Hepatic actinomycosis: an overview of salient features and outcome of therapy. *Scand J Infect Dis*. 2002;34:386–91.
3. Tamsel S, Demirpolat G, Killi R, Elmas N. [Primary hepatic actinomycosis: a case of inflammatory pseudotumor (case report)]. *Tani Girsim Radyol*. 2004;10:154–7.
4. Ha HK, Lee HJ, Kim H, Ro HJ, Park YH, Cha SJ, et al. Abdominal actinomycosis: CT findings in 10 patients. *AJR Am J Roentgenol*. 1993;161:791–4.
5. Lakshmana Kumar YC, Javherani R, Malini A, Prasad SR. Primary hepatic actinomycosis. *Trans R Soc Trop Med Hyg*. 2005;99:868–70.
6. Wayne MG, Narang R, Chauhdry A, Steele J. Hepatic actinomycosis mimicking an isolated tumor recurrence. *World J Surg Oncol*. 2011;9:70.
7. Lim KT, Moon SJ, Kwon JS, Son YW, Choi HY, Choi YY, et al. Urachal actinomycosis mimicking a urachal tumor. *Korean J Urol*. 2010;51:438–40.