Solitary Subcutaneous Tissue Metastasis as Recurrence in a Case of Primary Angiosarcoma of Breast: Findings on ^{18}F-Fluorodeoxyglucose Positron Emission Tomography-Computed Tomography

Abstract

Primary angiosarcomas of the breast are rare tumors, with a fatal outcome. We present a rare case of an operated primary angiosarcoma of the right breast in a 20-year-old female who showed disease recurrence in the right posterior arm subcutaneous tissue on ^{18}F-fluorodeoxyglucose positron emission tomography-computed tomography after 1 year of surgery without any other visceral metastasis.

Keywords: *Angiosarcoma, breast, fluorodeoxyglucose, positron emission tomography/computed tomography, subcutaneous*

Sarthak Tripathy, Sameer Rastogi[1], Sneha Prakash, Sreedharan Thankarajan Arun Raj, Sambit Sagar, Shamim Ahmed Shamim

Department of Nuclear Medicine and PET-CT, and [1]Medical Oncology, All India Institute of Medical Sciences, New Delhi, India

A 20-year-old female underwent radical mastectomy with axillary lymph node dissection for a lump in the right breast. Histopathology of the surgical specimen revealed primary angiosarcoma of the breast. She developed a swelling in the right posterior arm after 1 year of surgery. Follow-up was done with ^{18}F-fluorodeoxyglucose positron emission tomography-computed tomography (^{18}F FDG PET-CT) in view of high suspicion of metastasis and to locate any other distant site of metastasis. "PETCT scan findings revealed a mass lesion with variegated contour in the subcutaneous tissue of the right posterior arm, infiltrating the underlying triceps muscle and showing increased FDG uptake [Figure 1a-g]. No other FDG avid focal lesion was seen elsewhere in the body to suggest any distant visceral or skeletal metastasis. Biopsy from the mass revealed metastasis from the primary angiosarcoma of the breast, which showed perineural invasion and was positive for CD31 and CD34 on immunohistochemistry.

Primary angiosarcoma of the breast is a rare, but aggressive malignancy of endovascular origin, comprising only 0.04% of all the malignancies involving breast, and affects the parenchyma of nonirradiated breast fields.[1-3] In contrast, secondary angiosarcoma arises in the dermal and subcutaneous layers of the skin of radiated fields after a period of 7–10 years after radiotherapy and may not necessarily involve the parenchyma.[4] Breast angiosarcoma showed a propensity for hematogenous metastasis, and the reported sites involved include lung, skin, liver, bone, central nervous system, spleen, ovary, and heart.[5,6] It frequently affects young women aged 20–50 years without any previous history of a malignancy.[7] Breast angiosarcomas are highly FDG avid tumors, and standardized uptake volume (SUV_{max}) is an important prognostic parameter in ^{18}F FDG PET-CT studies and higher SUV_{max} values correlates directly with a poorer prognosis. Furthermore, there is a significant difference in the values of SUVmax of primary and secondary angiosarcomas.[8] The authors through this case want to highlight the role of ^{18}F FDG PET-CT in restaging of such rare tumors, while demonstrating a rare site of metastasis without any other distant visceral and skeletal metastasis.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be

How to cite this article: Tripathy S, Rastogi S, Prakash S, Arun Raj ST, Sagar S, Shamim SA. Solitary subcutaneous tissue metastasis as recurrence in a case of primary angiosarcoma of breast: Findings on ^{18}F-fluorodeoxyglucose positron emission tomography-computed tomography. Indian J Nucl Med 2021;36:210-1.

Address for correspondence:
Dr. Shamim Ahmed Shamim, Department of Nuclear Medicine and PET-CT, All India Institute of Medical Sciences, New Delhi - 110 029, India. E-mail: sashamim2002@yahoo.co.in

Received: 27-04-2020
Revised: 01-05-2020
Accepted: 19-05-2020
Published: 21-06-2021

Access this article online

Website: www.ijnm.in

DOI: 10.4103/ijnm.IJNM_84_20

Quick Response Code:

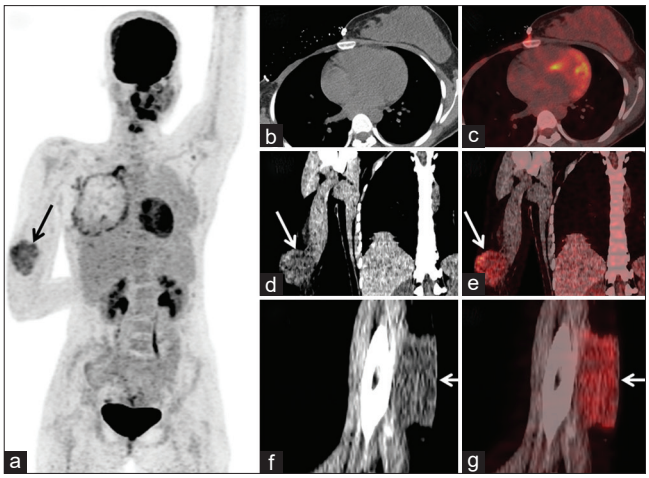

Figure 1: (a) Maximum intensity projection image of positron emission tomography- computed tomography scan showing a large photopenic area with a rim of radiotracer uptake in the chest region on the right side corresponding to an operated right breast on computed tomography (b) and fused positron emission tomography-computed tomography (c) images with the hot rim denoting increased tracer uptake around the surgical margins. Also noted in (a) is an enlarged area of tracer uptake in the right distal arm (d). Coronal computed tomography showing mass lesion in the posterior right arm showing increased fluorodeoxyglucose uptake on fused positron emission tomography-computed tomography image (e and f). Sagittal computed tomography showing mass lesion in the posterior right arm showing increased fluorodeoxyglucose uptake on fused positron emission tomography-computed tomography image (g)

reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Lagrange JL, Ramaioli A, Chateau MC, Marchal C, Resbeut M, Richaud P, *et al*. Sarcoma after radiation therapy: Retrospective multiinstitutional study of 80 histologically confirmed cases. Radiation Therapist and Pathologist Groups of the Fédération Nationale des Centres de Lutte Contre le Cancer. Radiology 2000;216:197-205.
2. Huang J, Mackillop WJ. Increased risk of soft tissue sarcoma after radiotherapy in women with breast carcinoma. Cancer 2001;92:172-80.
3. Lim RF, Goei R. Best cases from the AFIP: Angiosarcoma of the breast. Radiographics 2007;27 Suppl 1:S125-30.
4. Arora TK, Terracina KP, Soong J, Idowu MO, Takabe K. Primary and secondary angiosarcoma of the breast. Gland Surg 2014;3:28-34.
5. Ohta M, Tokuda Y, Kuge S, Okumura A, Tanaka M, Kubota M, *et al*. A case of angiosarcoma of the breast. Jpn J Clin Oncol 1997;27:91-4.
6. Marchant LK, Orel SG, Perez-Jaffe LA, Reynolds C, Schnall MD. Bilateral angiosarcoma of the breast on MR imaging. AJR Am J Roentgenol 1997;169:1009-10.
7. Sher T, Hennessy BT, Valero V, Broglio K, Woodward WA, Trent J, *et al*. Primary angiosarcomas of the breast. Cancer 2007;110:173-8.
8. Cassou-Mounat T, Champion L, Bozec L, Laurence V, Huchet V, Luporsi M, *et al*. Primary and secondary breast angiosarcoma: FDG PET/CT Series. Clin Nucl Med 2019;44:e33-5.