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## Case Report

# Scar sarcoidosis: A rare entity found by <sup>18</sup>F-FDG-PET/CT

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### ABSTRACT

<sup>18</sup>F-labeled fluoro-2-positron deoxyglucose emission tomography/computed tomography has been widely used in malignancy assessment, however, is not tumor-specific and may be taken up by non-malignant conditions such as sarcoidosis. Sarcoidosis is a systemic inflammatory disorder and scar sarcoidosis is a rare manifestation of the disease. A 60-year-old man with a past medical history of synchronous colon adenocarcinoma and clear cell renal cell carcinoma with clinical suspicion of tumor recurrence. <sup>18</sup>F-labeled fluoro-2-positron deoxyglucose emission tomography/computed tomography scan demonstrated lesions with increased fluorodeoxyglucose uptake in mediastinal and left supraclavicular lymph nodes, along with hypermetabolic cutaneous foci that corresponded with previous surgical scars. Skin biopsy was suggestive of sarcoidosis.

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## Introduction

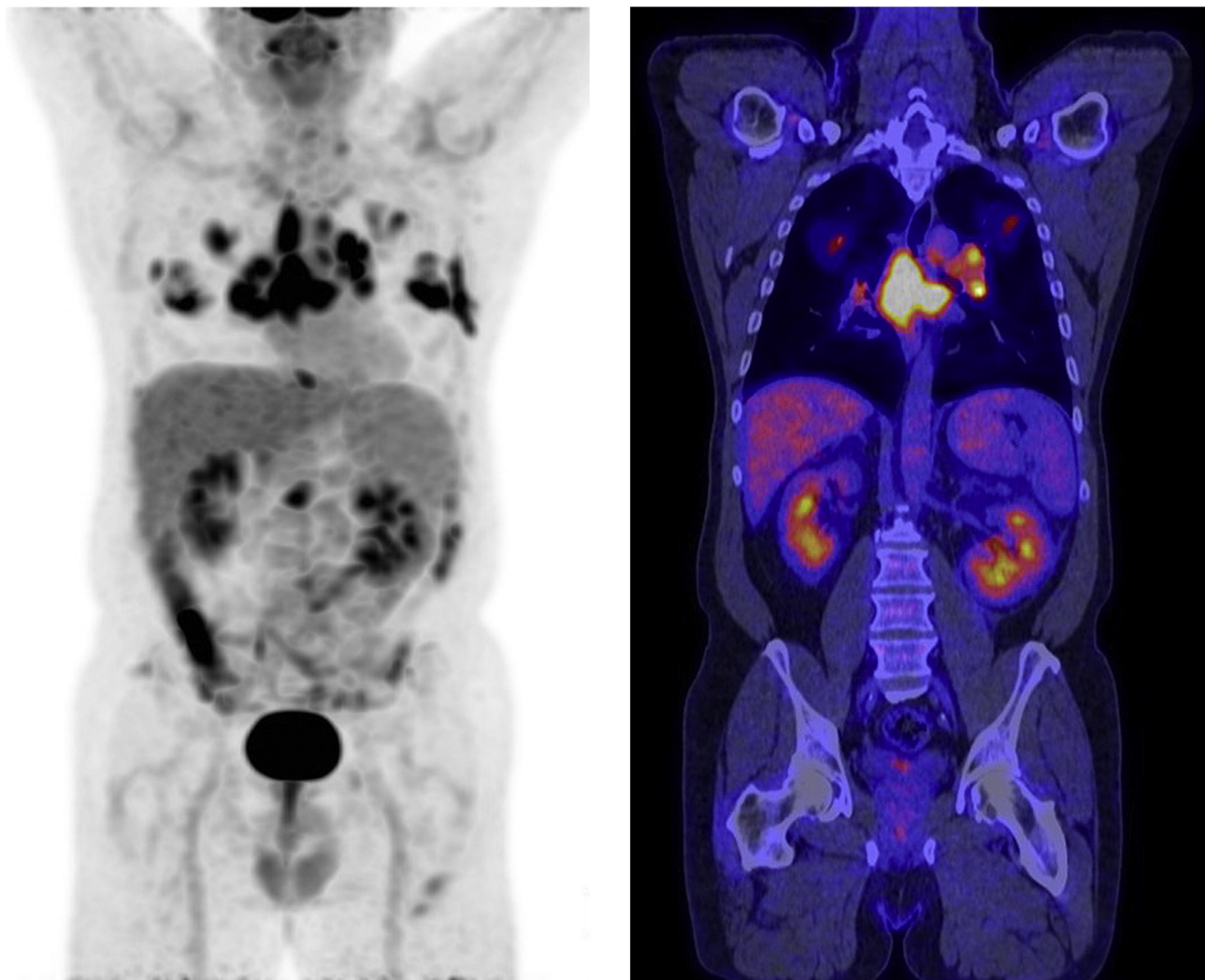
<sup>18</sup>F-fluorodeoxyglucose positron emission tomography/computed tomography (FDG-PET/CT) is a hybrid imaging technique that has been widely used in the assessment of malignancy. However, the uptake of the radiotracer acts as a biomarker of glycolytic metabolism, nonspecific for oncological processes. FDG-PET/CT can also have an important role in the detection and monitoring of inflammatory

and infectious diseases such as sarcoidosis. The histologic hallmark of sarcoidosis is the formation of noncaseating granulomas in one or more organ systems leading to a broad variety of symptoms, usually pulmonary ones, as the lungs and mediastinal lymph nodes are predominantly affected. The sarcoid lesions have been shown to display avid fluorodeoxyglucose (FDG) uptake in countless report, but the role of FDG-PET/CT has yet to be formally established in the diagnostic workup and monitoring of sarcoidosis [1–4].

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**Fig. 1 – 18F-FDG-PET/CT showed multiple lesions with increased FDG uptake (mediastinal, left supraclavicular and hilar lymphadenopathies). Additionally, lung opacities with increased FDG uptake are seen.**

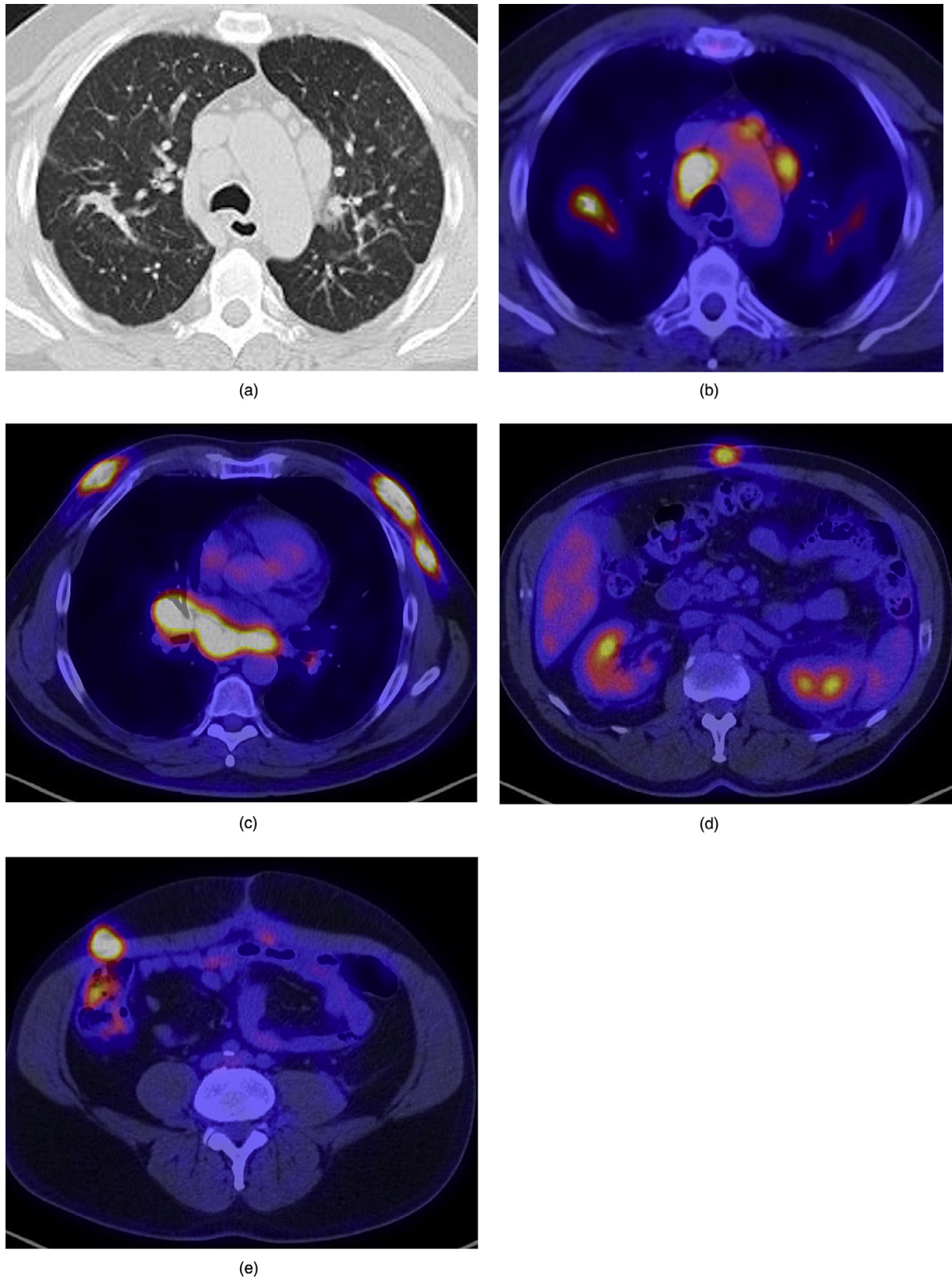
## Case

A 60-year-old man with a past medical history of renal cell carcinoma and synchronous colonic adenocarcinoma, treated with left nephrectomy and left hemicolectomy, respectively, presented with cough and dyspnea. He was referred to our center with the clinical suspicion of tumor recurrence. 18F-FDG-PET/CT showed multiple lesions with increased FDG uptake in lung parenchymal lesions as well as mediastinal, left supraclavicular, and hilar lymphadenopathies (Figs. 1 and 2A, B). Additionally, increased FDG uptake and skin thickening in the abdominal midline, breasts, and right iliac fossa was found (Figs. 2C and E). Physical examination and clinical records revealed all hypermetabolic cutaneous foci corresponded to previous surgical scars. Skin biopsy of the appendectomy scar showed non-caseating epithelioid granulomas suggestive of sarcoidosis (Fig. 3). Thoracoscopy-guided mediastinal lymph node biopsy showed similar granulomatous reaction. In later tomographic controls, some of the mediastinal adenopathies decreased in size and others disappeared.

## Discussion

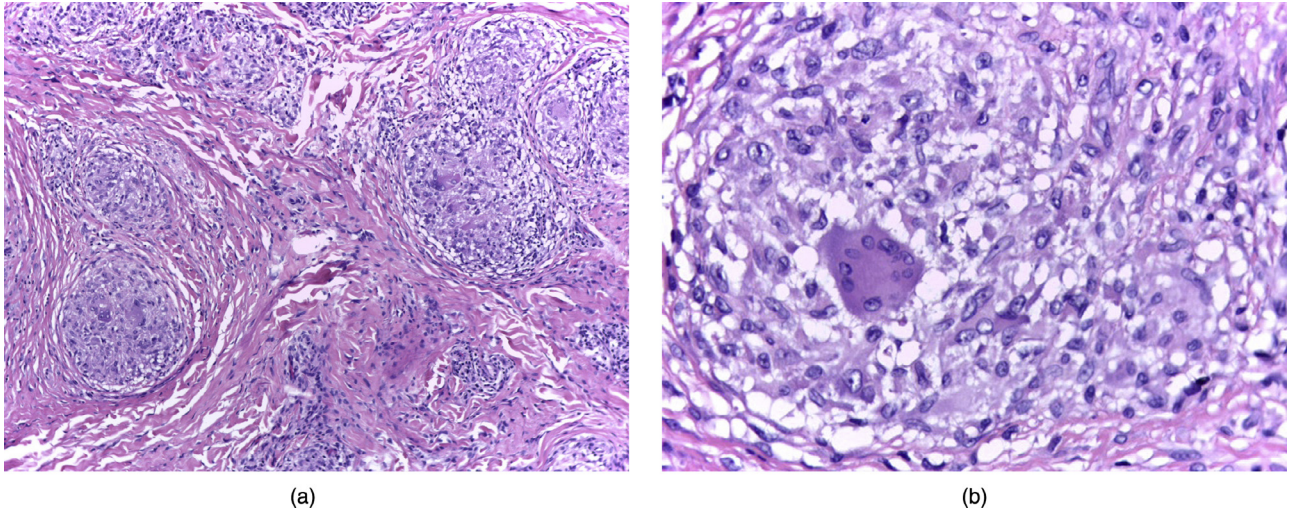
Sarcoidosis is a systemic inflammatory disorder more commonly observed in women and African descents [4]. The age of presentation has a bimodal distribution, with peak incidence between 20-39 and 65-69 years [5]. It can affect almost any organ system, but has a predilection for the chest (lungs and lung hilum), skin, and eyes [2].

Scar sarcoidosis is defined as the granulomatous infiltration of scarred tissue. Sarcoidosis has a predilection for sites of previous scars or trauma, including tattoos, piercings, acne, and herpes zoster lesions, and it can be present in up to 9% of patients with cutaneous sarcoidosis [6]. Clinically, it can mimic hypertrophic scars or keloids, presenting nodularity and red to violaceous discoloration [7,8]. 18F-FDG-PET/CT is highly sensitive in detecting sarcoid lesions, especially extrathoracic involvement of the heart, bone and brain [9]. It is useful in selecting an optimal site for biopsy, staging, follow-up, and may also be a predictor of prognosis [3].



**Fig. 2 – 18F-FDG-PET/CT showed mediastinal lymphadenopathy and irregular lungs opacities with increased FDG uptake (A and B). Increased FDG uptake and skin thickening in the abdominal midline, breasts and right iliac fossa. All hypermetabolic cutaneous foci correspond to previous surgical scars: Bilateral gynecomastia (C), Median laparotomy (D), and Rocky-Davis incision for appendectomy (E).**





**Fig. 3 – Skin biopsy. Hematoxylin-eosin stain 10× (A) and 40× (B). Noncaseating granulomas within the dermis, with histiocytes and multinucleated giant cells. This finding suggested scar sarcoidosis.**

## Conclusion

18F-FDG PET/CT plays an important role in the detection, determination of involvement, follow-up, and guidance of biopsies in diseases of inflammatory and infectious origin. Considering the high avidity of FDG in active sarcoidosis, 18F-FDG PET/CT seems to be a promising modality.

This case confirms the usefulness of 18F-FDG-PET/CT in sarcoidosis, especially for the diagnosis of potentially rare extrapulmonary involvement such as scar sarcoidosis.

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