

FDG PET/CT Features of Hemostatic Absorbable Gelatin (Gelfoam)

Goel R. Sumina, M.D., Kent P. Friedman, M.D., and Ponzo Fabio, M.D.

We present the PET/CT findings of hemostatic absorbable gelatin (Gelfoam) in a 41-year-old woman who had hysterectomy and bilateral oophorectomy. CT showed a very low attenuation lesion (-232 HU) in the surgical bed, but PET showed no significant activity.

Introduction

There are several published case studies describing the PET/CT appearance of retained cotton surgical sponges (gossipyboma). To our knowledge, this is the first known report of the PET/CT appearance of hemostatic absorbable gelatin (Gelfoam).

Case Report

A 41-year-old woman with metastatic cervical cancer to the ovaries, status post hysterectomy and bilateral oophorectomy, underwent a follow-up PET/CT scan with oral contrast. The CT portion of the scan (Fig. 1, A)

showed a thick-walled very low density lesion in the left pelvis just above the sigmoid colon, not communicating with bowel, measuring 4.7 x 2.8 cm, -232 Hounsfield units. The differential diagnosis based on CT included abscess, perforation or gossipyboma. The corresponding PET axial image (Fig. 1, B) did not show any significant activity at this location. The scan findings and clinical history generated a diagnostic dilemma. Perforation was considered unlikely as the patient was clinically well. Abscess was unlikely clinically and also given that the PET images were negative. Gossipyboma was considered unlikely as the literature uniformly reports that they demonstrate a peripheral rim of intense FDG uptake [1-5]. Upon further inquiry from the referring physician it was noted that absorbable gelatin was placed in the pelvis for hemostasis during oophorectomy.

Discussion

There are well-known benign processes in the abdomen which are FDG avid such as infection, inflammation, hematoma, physiological variants and benign neoplasms [6-9]. Medical and surgical interventions are also known to give rise to false-positive FDG uptake related to catheters, tubes and stomas [10]. A retained sponge with associated fluid, low density material and peripheral enhancement with IV contrast is known as

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Abbreviations: CT, computed tomography; FDG, fluorodeoxyglucose; PET, positron emission tomography

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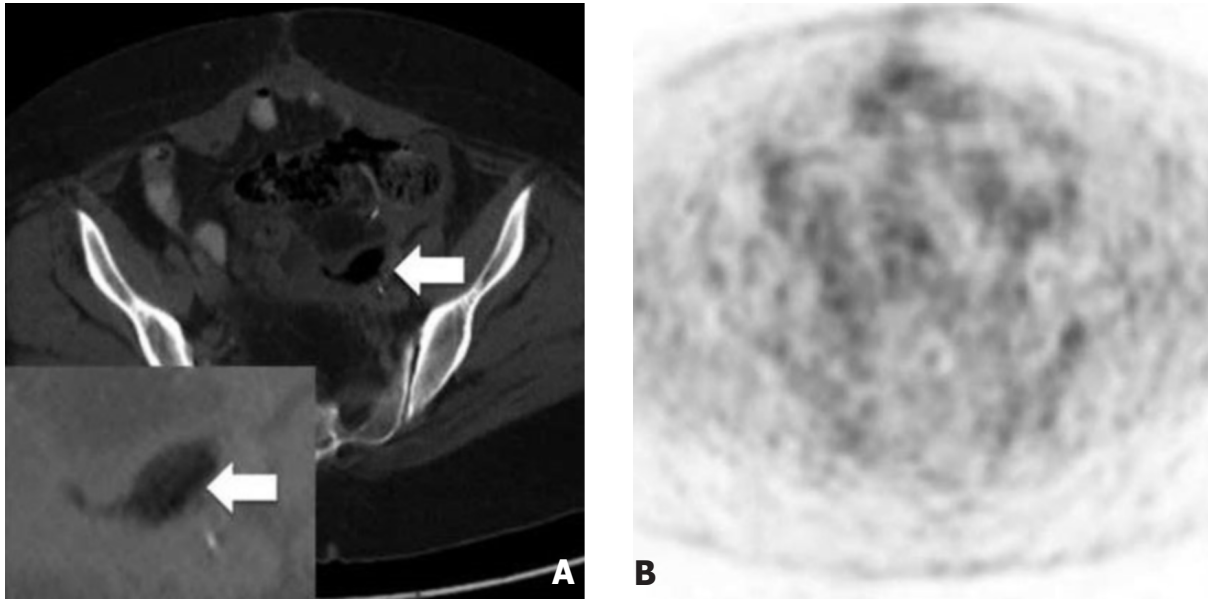


Figure 1. Hemostatic absorbable gelatin (Gelfoam) in a 41-year-old woman who had hysterectomy and bilateral oophorectomy. **A**, CT shows a very low attenuation lesion (-232 HU) in the surgical bed. Inset shows detail with adjusted window/level settings. **B**, PET shows no significant activity.

a gossypiboma [11, 12], an entity which has repeatedly been described as FDG avid. The fact that this patient's lesion was negative on PET argued against gossypiboma and favored an alternative diagnosis. One possible explanation for the lack of FDG uptake within the absorbable gelatin is that it may be less immunogenic compared to cotton sponges. Studies have demonstrated no significant inflammatory response to Gelfoam in canine and rat models [13]. However, absorbable gelatin has been reported to potentiate bacterial growth and granulomatous reaction in some humans [14, 15], and therefore it is possible that an alternative presentation of gel foam on PET/CT could be one in which there is increased FDG uptake. In summary, this is the first known report of the PET/CT appearance of absorbable gelatin used for intraoperative hemostasis. Although FDG negative in this case, the possibility of increased uptake is hypothesized. Gelfoam should be included in the differential diagnosis of a circumscribed very low density lesion on PET/CT, regardless of the level of FDG uptake.

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