Intense Uptake Of Fdg In A HPV Wart, Mimicing Urinary Contamination On FDG Pet Imaging

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Citation

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Abstract

A 72-year-old lady with history of carcinoma cervix stage II, post treatment status showed a lymph node mass with necrosis in the pelvis on CT scan. Whole body FDG PET scan done for restaging showed intense uptake in the CT described left pelvic mass and also a solitary focal concentration of FDG in the pubic region in the overlying skin at 1 hour post injection; which was thought to be due to urinary contamination. This did not disappear despite repeated cleansing of the area by the patient. On detailed physical examination, there was a wart of approximately 3 centimeters diameter arising from the left labia majora with a pedicle, non-tender with no apparent evidence of superficial infection. This case of accumulation of FDG in warts should potentially be an addition to the growing list of false positives encountered on an F-18 FDG PET scan.

INTRODUCTION

There are wide spread reports of FDG uptake in a number of benign, physiological, inflammatory and infectious lesions contributing to a significant number of false positives and resulting non specificity on PET scans in the clinical setting of malignancy. ([1,2,3,4,5,6,7,8]). The reason for this uptake of FDG has been attributed to the hyperglycotic state of inflammatory cells in infection, which has been well established . The inflammatory mediators released at these sites provoke respiratory bursts in these cells, which in turn enhances the glucose metabolism.([9,10])

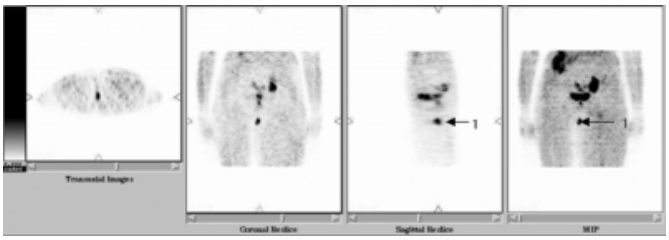
We would like to present a 72-year-old lady, an old case of carcinoma cervix with pelvic lymph node recurrence and FDG PET scan showed uptake in a benign, labial wart. The position of the wart in this particular case, also contributed to the confounding uptake as it is a common area for urinary contamination and due care is to be exercised while reporting. However we would like to emphasize that such an uptake could be clearly differentiated if simultaneous anatomic imaging like in PET CT, was used instead of a dedicated PET scanner.

CASE REPORT

A 72-year-old lady, diagnosed to have carcinoma cervix stage II, had undergone chemotherapy and local radiotherapy in 2001 and was on irregular follow up. Now she presents with complaints of left lower limb edema and mild pain. The CT scan of the abdomen and pelvis showed a lymph node mass with necrosis along the left external iliac vein abutting the left obturator muscle, encasing the left lower ureters and causing left kidney hydronephrosis and hydroureter. The initial whole body PET at 1-hour post injection showed intense uptake in the CT described left pelvic mass and also a solitary focal concentration of FDG in the pubic region in the overlying skin which was thought to be due to urinary contamination.

Figure 1

Figure 1



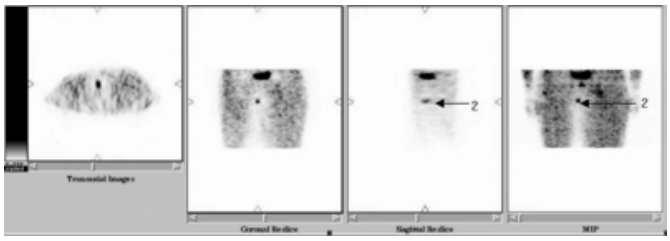
F18 FDG PET images in a 72-year lady, done 1 hour post intravenous injection of 421 MBq of F18 FDG showed a focus of intense FDG concentration in the region of the vulva (arrow 1) in addition to the uptake at the inguinal mass. The vulval uptake was superficially on the skin and thought to be urinary contamination. The initial SUV maximum was 4.2.

This did not disappear despite repeated cleansing of the area by the patient. On detailed physical examination, there was a

wart of approximately 3 centimeters diameter arising from the left labia majora with a pedicle, non-tender with no apparent evidence of superficial infection.

Figure 2

Figure 2



On detailed physical examination, there was a 3-centimeter diameter wart arising from the left labia majora, with a stalk. It was a long-standing wart, non-tender with no apparent evidence of infection. As the wart was mobile, a view was repeated by taping the wart anteriorly and the repeat PET scan showed corroborative motion of the avid focus of FDG anteriorly (arrow 2). The SUV maximum at this delayed time point decreased to 2.3.

DISCUSSION

F18 FDG PET imaging has been used extensively in the field of oncology, with good results in diagnosis, staging and residual disease evaluation. The only cause for concern is its non-specificity, as F18 –FDG, which is a radio- labeled glucose analogue is taken up not only by malignant cells, but by all cells expressing the GLUT transport proteins. These cells could be benign tumor cells, physiological structures, and inflammatory or infectious lesions. Multiple reports of these non specific FDG uptakes in cases of infections relating to the brain, pancreas, bone, muscle, lungs and thyroid are currently available.([1,2,3,4,5,6,7,8]).

The reason for this uptake of FDG has been attributed to the hyperglycotic state of inflammatory cells in infection, which has been well established. Pathological and microautoradiographic studies have conclusively proven that inflammatory cells with increased metabolic activity to be the site of FDG accumulation in various infections. ([9,10]).Granulocytes, macrophages and mono nuclear cells , which are the common cells present at any site of infection undergo phagocytosis enabled respiratory bursts, under the stimulation of locally released inflammatory mediators. This respiratory burst in turn requires increased glucose flux and consequent increased glycolysis enabled ATP generation.([11,12]). This above-mentioned propensity for F-18 FDG to be taken up nonspecifically, has to be borne in mind and due care is to be exercised while reporting on the PET scans. Here we present a case of carcinoma cervix, with uptake of FDG in an infectious Human Papilloma virus wart. This case of accumulation of FDG in warts should potentially be an addition to the list of false positives encountered on an F-18 FDG PET scan. Moreover the position of the wart superficially, at a site common for urinary contamination, emphasizes the importance of diligent clinical examination. Knowledge of the normal distribution, physiologic uptakes and non-malignant benign pathologies as causes of increased FDG uptake is necessary for interpretation of PET images. This is the reason why FDG PET is used with high sensitivity for screening at the expense of low specificity. However we would like to emphasize that such an uptake could be clearly differentiated if simultaneous anatomic imaging like in PET CT, was used instead of a dedicated PET scanner.

CORRESPONDENCE TO

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