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**Case report of a spilled gallstone mistaken for a peritoneal metastasis of a cancer of the cervix by [18F]FDG PET/CT**

Gallstone mimicking metastasis from cervix cancer

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## **Abstract**

### **BACKGROUND**

Spilled gallstones from previous cholecystectomy is not an uncommon situation. It may further mimic neoplastic disease and can be misled by [18F]FDG PET/CT.

### **CASE SUMMARY**

A 63 year-old patient was diagnosed with a cancer of the cervix. Pretreatment [18F]FDG PET/CT revealed a peritoneal lesion suspicious for metastasis. Surgical exploration and histologic examination revealed the lesion to be a spilled gallstone from a previous cholecystectomy.

### **CONCLUSION**

[18F]FDG PET/CT carries pitfalls since benign conditions such as intraperitoneal gallstones may be confused as malignant lesions. This case highlights the importance to be aware of the possible implications of dropped gallstones for the future, minimize its occurrence, and make all efforts to properly evaluate cancer staging, particularly for the cervix cancer.

**Key Words:** Cervix cancer; Dropped gallstones; PET/CT; Metastasis; Case report

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**Core Tip:** Proper staging with imaging and [18F]FDG PET/CT is primordial for the management of cervical cancer. [18F]FDG PET/CT however carries pitfalls since benign conditions may be confused as malignant lesions. Spilled gallstones from previous cholecystectomy may be misdiagnosed as neoplastic disease with [18F]FDG PET/CT.

## INTRODUCTION

Fluorine 18 Fluorodeoxyglucose (FDG) position emission tomography with computed tomography ([18F]FDG PET-CT) is nowadays a ubiquitous tool in the differentiation of benign from malignant tumors, in the staging of cancers, and in the follow-up of patients who have undergone surgery, radiation therapy, or chemotherapy [1,2]. It allows for the detection of metastases or recurrences of cancer which typically exhibit increased glucose metabolism [1]. However, pitfalls may occur with increased FDG uptake in some benign conditions [1,3].

We present a patient who has been diagnosed with a cervical cancer. A [18F]FDG PET/CT for staging showed a suspicious lesion for peritoneal metastasis was discovered. After surgery and pathologic examination, the lesion was diagnosed as a dropped gallstone from a previous cholecystectomy.

## **CASE PRESENTATION**

### ***Chief complaints***

The patient suffered from a post-menopausal bleeding.

**1**

### ***History of present illness***

A 63-year-old caucasian female was referred with a history of post-menopausal bleeding. Vaginal bleeding was irregular with small quantity but increased with physical activities. She was not sexually active at the time. She had no fatigue or loss of weight. She did not report any abdominal or pelvic pain.

### ***History of past illness***

She had a laparoscopic cholecystectomy without known complications Three years before. The gallbladder was fibrotic and sheared during dissection. There was no awareness of gallstones left unretrieved. She has no medical problem.

**1**

### ***Personal and family history***

No other relevant person or family history.

### ***Physical examination***

The patient looked in good shape. There was no abdominal pain. No abdominal mass was palpated. On gynecological examination, the exocervix appeared normal but necrotic tissue could be seen at the endocervix.

#### *Laboratory examinations*

Hemoglobin level was normal. There was no increase of tumour markers. Endocervical curettage and endometrial biopsy were performed. The biopsy revealed clear cell carcinoma.

#### *Imaging examinations*

A magnetic resonance imaging of the pelvis was performed which showed a 4.4x3.7x2.8cm lesion in the cervix with extension to the lower third of the endometrium (figure 1). The parametrium, vagina and adnexa were negative for cancer but a 9mm lymph node was seen in the right iliac region. A CT scan of the thorax, abdomen and pelvis showed a suspicious intraperitoneal lesion besides and in front the transverse colon (figure 2: left). No suspicious adenopathy was identified. [18F]FDG PET/CT revealed a hypermetabolic (SUV=6) area 1x4cm in size embedded in the peri-colic fat of the transverse colon in addition to a hypermetabolic cervical lesion (figure 3: left).

The patient underwent a diagnostic laparoscopy to investigate this unusual site of possible metastasis. At the same time, sentinel node biopsy was carried out. At surgery, a dark colored nodule was found close to but not adherent to the mid transverse colon (figure 4). It was dissected completely without any bleeding and the surgery was completed with bilateral sentinel lymph node biopsy. A frozen section analysis was done which showed a hard calculus without signs of malignancy. The final pathology showed a 8-mm diameter calculus surrounded by acute and chronic inflammation with abscess formation and granuloma as well as negative sentinel nodes.

## **FINAL DIAGNOSIS**

Clear cell carcinoma of the cervix, stage IB3. Dropped intraperitoneal gallstone with surrounding inflammation. Absence of peritoneal metastases.

## **TREATMENT**

Combined chemotherapy and radiotherapy were prescribed.

## **OUTCOME AND FOLLOW-UP**

CT scan and [18FFDG PET/CT were performed 4 mo post treatment and showed no residual activity in the previous hypermetabolic site (figure 2: right and figure 3: right). There was discrete activity in the uterus which was confirmed to be benign by magnetic resonance imaging. The patient currently has no evidence of disease at 20 mo after treatment. The case is summarized in Table 1.

## **DISCUSSION**

<sup>2</sup> Cervical cancer accounts for 1.3% of all new female cancers and 1.1% of all female cancer deaths in Canada <sup>3</sup> [4]. Cervical cancer staging is based on tumor size, vaginal or parametrial involvement, bladder/rectum extension, and distant metastases [2]. [18F]FDG PET/CT is used for the evaluation of patients with cervical cancer <sup>3</sup> [2,3]. Proper staging is mandatory in the planning of treatment of cancer of the cervix [2] and [18F]FDG PET/CT is nowadays used routinely in developed countries [2,5]. Sensitivity and specificity are respectively 53%-73% and 90%-97% for the detection of lymph node in cervical cancer [5].

Accidental gallstone spillage is often encountered during laparoscopic cholecystectomy [6]. Incidence of gallbladder perforation is 18.3%, gallstone spillage 7.3%, and unretrieved peritoneal gallstones 2.4% [7]. There is however no recent evaluation of the incidence of gallbladder perforation and spilled gallstones [8]. Despite better awareness of possible problems with dropped gallstones, incidence has probably not changed.

More than 90% of lost gallstones remain asymptomatic [9] with an estimate of 8.5% leading to a complication [10]. Such complications may occur such as localized infection or abscess, which are the most frequent [9-12], as well as inflammation, fibrosis, erosion or fistulisation [6,9]. The occurrence of complication has been reported up to fifteen [9,13] and even twenty years [14] after cholecystectomy.

Dropped gallstones can even mimic malignancies, lymph nodes, metastatic implants or carcinomatosis [1,6,9,12,15], so diagnosis is particularly challenging in the absence of histological confirmation [11]. False positive [18]FDG PET/CT occurs in many conditions as a result of granulomatous disease or inflammation, foreign body reaction, and surgical changes [3]. In the present case, the lesion captured FDG, because of the inflammation surrounding the stone, not the stone itself [16,17]. CT scan also demonstrated a suspicious mass. In the presence of a cervical cancer, even without regional nodes, the occurrence of such a mass in the peritoneal cavity is, until proven otherwise, a metastatic lesion. Only removal and analysis of the mass could solve the diagnostic challenge and eliminate a peritoneal implant. Even at surgical exploration, the lesion appeared suspicious of neoplastic disease (figure 4).

Some images of this case have been reported [18]. However, unlike what was showed, this report demonstrates the disappearance of the lesion on subsequent imaging studies (figures 2 and 3) further proving that it has been removed. Moreover, the negative yet essential pathologic analysis definitively ascertains its benign nature. Consequently, the cancer was finally downstaged from stage IV to Stage IB3. In this patient with cervical cancer, optimal staging was mandatory as it drastically modified potential prognosis and management.

This case demonstrates that [18F]FDG PET/CT carries potential pitfalls since benign conditions may be confused as malignant lesions [1,3], as for intraperitoneal dropped gallstones from a previous cholecystectomy [1,6,15] which is not a so rare situation [7]. Even in case of known and documented dropped gallstones, diagnosis remains markedly challenging, and biopsy or even surgical exploration may become necessary for proper staging and management.

### **CONCLUSION**

Staging is essential in order to properly manage cervical cancers and adequately evaluate prognosis. [18F]FDG PET/CT is the mainstay in the evaluation of patients with cervical cancer. However, it carries some pitfalls as in cases of previous dropped gallstones which could mimic neoplastic or metastatic disease.



## Footnotes

**Informed consent statement:** Inform consent is provided

**Conflict-of-interest statement:** Others have published images of the case [ref: 18]. The present report highlights different aspects of the case particularly downstaging the cancer and provides images afterwards. The authors otherwise declare no conflict of interest.

**CARE Checklist (2016) statement:** Care checklist is provided

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