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Case Report

Incidental Finding of Peritoneal Mesothelioma in Recurrent Diverticulitis with A Large Sigmoid Diverticulum

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Abstract

Mesothelioma is a rare type of tumour arising from the lining of cavities such as the pleura, peritoneum, pericardium or the tunica vaginalis. It is well known that the leading cause for this tumour type is secondary to asbestos exposure. In this case report, we present a 78-year-old male who was admitted to the hospital a presumed recurrent diverticulitis based on a computed tomography (CT) finding of a large sigmoid diverticulum and associated fat stranding. The patient underwent inpatient laparoscopic sigmoid colectomy which revealed peritoneal mesothelioma on histopathology. He was referred to a colorectal unit in a quaternary cancer centre for further management. Our case represents a challenging clinical presentation of peritoneal mesothelioma due to non-specific symptoms and its rarity.

Introduction

Australia has one of the highest incidences of mesothelioma in the world. The peritoneal mesothelioma makes up nearly 7% of cases [1]. Peritoneal mesothelioma is a rare and aggressive tumour arising from the visceral and parietal peritoneum [2] with a poor prognosis (median survival 6-12months) [3]. The clinical presentations are usually non-specific therefore, often leading to delayed diagnosis and treatment [4]. We report an unusual presentation of peritoneal mesothelioma where the patient thought to have a recurrent diverticulitis from a giant sigmoid diverticulum and was initially treated in a non-oncological approach.

Case Report

A 78-year-old man with no significant asbestos exposure, presented with one day history of lower abdominal pain. This was on the background of multiple hospitalisations in a short interval for management of recurrent diverticulitis. The patient did not have any significant medical history and no family medical history of note. The patient has had a colonoscopy recently which showed diverticular disease with no luminal lesion. On examination, the patient's vital signs were stable. His abdomen was soft but had suprapubic and left lower quadrant tenderness. Abdominal and pelvic CT showed a large diverticulum with mild surrounding inflammatory changes (Figures 1,2). This was thought to be a contained perforation in previous imaging but a second opinion from a radiologist obtained and concluded as a large diverticulum causing diverticulitis.

Given multiple presentations in a short period of time and presence of a large diverticulum, the patient underwent for an inpatient, laparoscopic sigmoid colectomy. Intraoperative findings included extensive diverticulosis and moderate amounts of adhesions from previous episode of diverticulitis. The entire small bowel was examined which was unremarkable and there was no peritoneal carcinomatosis. The patient had unremarkable post-operative course and was discharged seven days post operation. The histology showed peritoneal epithelioid mesothelioma of sigmoid colon with diverticular disease and five lymph nodes benign lymph nodes. Tumour marker serology, Carcinoembryonic Antigen (CEA), was negative. This case was discussed in the multidisciplinary team meeting and the patient was subsequently referred to Quaternary Cancer Centre under Colorectal team

for further management. The patient had restaging CT scan of chest, abdomen and pelvis and a Positron Emission Tomography (PET) scan which did not show any metastatic disease. At the quaternary hospital, the patient underwent diagnostic laparoscopy which showed peritoneal cancer index of 13 (Figures 3-6) and intraoperative peritoneal biopsy confirmed epithelioid mesothelioma.

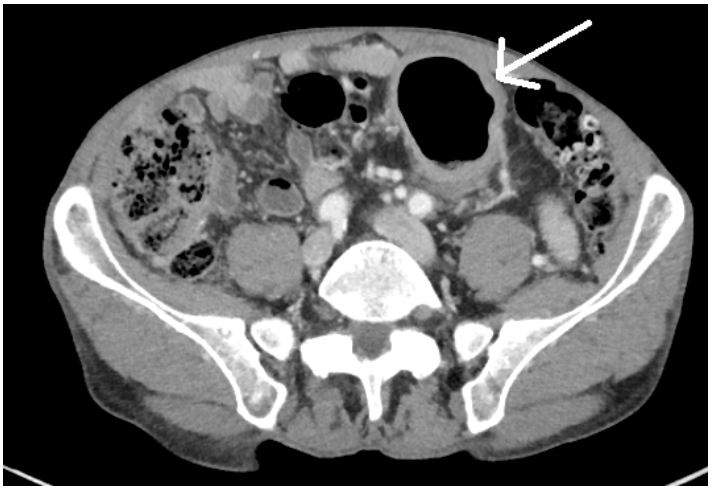

Figure 1: CT demonstrating a large diverticulum (arrow) with surrounding inflammation (axial view).

Figure 2: CT demonstrating a large diverticulum (arrow) with surrounding inflammation (coronal view).

Figure 3: Intraoperative view of nodule on the sigmoid colon.

Figure 4: Intraoperative view of nodules on right iliac fossa.

Figure 5: Intraoperative view of a nodule in pelvis.

Figure 6: Intraoperative view of nodules on diaphragm.

Outcome and Follow Up

The patient recovered well from diagnostic laparoscopy and biopsy. He was followed up with the surgical unit for further discussion but was reluctant for cytoreductive surgery and hyperthermic intraperitoneal chemotherapy hence is his decision to have palliative chemotherapy gives his age and his wishes to maintain a reasonable quality of life without surgery.

Discussion

Exposure to asbestos is currently the main known cause of peritoneal mesothelioma [5]. Other associated risks of developing peritoneal mesothelioma include ionising radiation exposure, viral infection, chronic pancreatitis and genetic factors [5]. Clinical presentations of peritoneal mesothelioma can very be vague. Common presenting complaints include abdominal pain (35%), abdominal distension (31%), anorexia, significant weight loss and ascites [3]. Some studies also reported fever of unknown origin [6] or bowel obstruction [7]. In other cases, the diagnosis has been incidentally made during laparoscopy [8]. As shown in this case, the initial operation did not reveal clear features of peritoneal mesothelioma and the diagnosis was only confirmed by the histology result. Patients with peritoneal mesotheliomas have very poor prognosis with a median survival of 6-12 months with no treatment. And due to is vague presentation, making an early diagnosis can be quite challenging hence patients present at an advanced stage. Similarly, diagnosing it on abdominal imaging in isolation is very difficult. CT abdomen and pelvis findings can be non-specific or misleading with superimposed inflammation like in this case. Currently tissue biopsy is the gold standard method to diagnose peritoneal mesothelioma using immunohistochemical staining.

Currently the gold standard therapy for peritoneal mesothelioma is Cytoreductive Surgery (CRS) with Hyperthermic Intraperitoneal Chemotherapy (HIPEC) in selected patients [9]. Patients, who are not candidates for CRS-HIPEC, will benefit from systemic chemotherapy [2]. For patients with unrespectable tumours, the combined treatment using chemotherapy, radiotherapy and immunotherapy can also be suggested [9]. The mesothelioma can be categorised into 4 grades [10]. Grade 1, low grade mesothelioma has histological appearance of normal cells but grades 3 and 4 have abnormal cell appearance [10]. There are three main subtypes of malignant mesothelioma which are epithelioid, sarcomatoid and biphasic [11]. The epithelioid histotype is the most common subtype, making up to 75% of malignant peritoneal mesothelioma [12], and is associated with the best prognosis [11,13]. The peritoneal mesothelioma tends to be confined to the abdominal cavity as it less likely spread via haematogenous or lymphatic route. Due to its lack of nodal involvement or metastatic spread, the staging is determined by assessing the Peritoneal Carcinomatosis Index (PCI) [12].

The patients with epithelioid type of peritoneal mesothelioma will benefit the most if they receive CRS-HIPEC [12]. The median survival of these patients has significantly improved, up to 31-92 months, with CRS-HIPEC [13]. A large multicentre review showed a significantly superior survival outcome of CRS-HIPEC with a median overall survival of 53 months when systemic chemotherapy showed 12-27 months of median overall survival [14]. Systemic chemotherapy is an alternative option for those who are not an appropriate candidate for surgical intervention. Different types of chemotherapy have shown different median survival rate which could be up to 26.8 months [12]. However, the use systemic chemotherapy in patients undergoing CRS-HIPEC is still controversial [12]. On further note, one multivariate analysis showed that the neoadjuvant chemotherapy had no benefit in 5-year overall survival when compared to adjuvant or no chemotherapy especially for those who are able to have CRS-HIPEC therapy up-front [15]. The study suggested that chemotherapy is the most effective when there is a low tumour burden. There is more difficulty in making decisions for CRS-HIPEC for the patients with other subtypes such as biphasic or sarcomatoid given they do not have the same survival benefit when compared to the epithelioid subtype. These subtypes have poor prognosis, with reported median survival of less than 12motnths, the risk of significant morbidity and mortality from CRS-HIPEC may outweigh the benefit, therefore, further discussion is required for deciding on CRS-HIPEC versus systemic chemotherapy [12].

Conclusion

This case shows that diagnosing peritoneal mesothelioma is quite challenging. The patient with no risk factors presented with vague symptoms with an imaging representing diverticulitis with a

large diverticulum. His preoperative investigations were negative for peritoneal mesothelioma which added to the challenge. Nevertheless clinicians should always consider other differential diagnosis so ultimately patients can have an appropriate treatment without a significant delay.

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