Intra-luminal intestinal metastasis from malignant pleural mesothelioma

Raffaele Longo, Bruno Ribeiro Baptista, Marco Campitiello, Francesca Plastino, Nada Eid, Marie Caroline d’Huart, Laurence Klein, Eric Kull, Laurent Hennequin, and Philippe Quétin

1. Division of Medical Oncology, “CHR Metz-Thionville”, 1 Allée du Château, 57085 Ars-Laquenexy, France
2. Division of Gastroenterology, “CHR Metz-Thionville”, 1 Allée du Château, 57085 Ars-Laquenexy, France
3. Division of Pathology, “CHR Metz-Thionville”, 1 Allée du Château, 57085 Ars-Laquenexy, France
4. Division of Radiology, “CHR Metz-Thionville”, 1 Allée du Château, 57085 Ars-Laquenexy, France
5. Division of Radiotherapy, “CHR Metz-Thionville”, 1 Allée du Château, 57085 Ars-Laquenexy, France

CASE STUDY


Corresponding Author:
Raffaele Longo
Division of Medical Oncology
CHR Metz-Thionville, 1 Allée du Château 57085
Ars-Laquenexy, France
Email: r.longo@chr-metz-thionville.fr

ABSTRACT

Malignant pleural mesothelioma (MPM) is a locally invasive tumour that rarely metastasises. Gastro-intestinal (GI) metastases from MPM are extremely uncommon. We present a case of a 73-year-old patient hospitalized for abdominal pain. Since a faecal occult blood test was positive, he underwent a colonoscopy identifying an intestinal adenocarcinoma. CT-scan showed a clinically asymptomatic right pleural tumour lesion histologically consistent with a MPM. A revision of the intestinal histology confirmed a metastasis from the MPM. The diagnosis of GI-MPM metastasis is challenging as it can be clinically and radiologically misdiagnosed. It should be considered in any patient with MPM history.

Key Words
Mesothelioma, metastasis, pleural, tumour, chemotherapy

Implications for Practice:
1. What is known about this subject?
GI-MPM metastases are extremely rare with only a few cases reported in the literature.

2. What new information is offered in this case study?
GI-MPM metastases show aspecific symptoms and they can be clinically and radiologically misdiagnosed.

3. What are the implications for research, policy, or practice?
GI-MPM metastases should be considered in any patient with MPM history and confirmed by histology and immunohistochemistry.

Background
Malignant mesothelioma (MM) is a rare tumour, with a reported incidence rate of 0.9 per cent. It is quickly related to the asbestos exposure. It is more prevalent in elderly patients, males, and Caucasians, and arises from the pleura in most cases and occasionally from the peritoneum. Rarely, it can be associated with distant metastases, particularly, to the lung, brain, and other extrathoracic sites. Gastro-intestinal (GI) metastases from MM are extremely uncommon with only a few cases published to date. They are frequently misdiagnosed as they are very difficult to distinguish from other primary benign and/or malignant intestinal lesions based only on clinical and radiological features. Histology and immunohistochemistry are necessary for an accurate pathologic diagnosis. Treatment of MM-GI metastasis is extremely complex and depends on multiple factors, such as clinical patient’s conditions and comorbidities, the presence of other concomitant metastases and/or a gastro-intestinal emergency, such as obstruction and perforation, and the interval from primary tumour diagnosis. Systemic therapy is usually required for most of these patients.
Surgery should be indicated only for symptoms palliation or in a case of an isolated, metachronous metastasis with a long interval from primary tumour diagnosis. The particularity of this case relies on the rarity of MM-GI metastasis and to its atypical clinical presentation with specific abdominal pain and a positive faecal occult blood test (FOBT). The patient was then submitted to a colonoscopy that identified a tumour lesion, initially misdiagnosed as a colon adenocarcinoma. Moreover, the primary malignant pleural lesion was completely asymptomatic.

Case details
A 73-year-old male was hospitalized in January 2017 for abdominal pain associated to constipation, asthenia, and a weight loss of 6kg in the last two months. He had been exposed to asbestos for over 25 years as worker in the siderurgic industry. He presented hypertension and dyslipidaemia as comorbidities.

Because of a positive FOBT, ten days before he underwent a colonoscopy, which found a polyp in the transverse colon (Figure 1A). Histology was consistent with an intestinal adenocarcinoma. Any additional immunohistochemical study was initially performed.

On admission, physical examination revealed an abdominal distension with marked diffuse tenderness and a right pleural effusion. Laboratory findings showed a microcytic, hypochromic anaemia with haemoglobin level at 11.5g/dL.

Whole body CT scan documented a right pleural tumour lesion of 11.6×8.6cm of diameter with a rib osteolysis (Figure 1B), a bilateral lung embolism, and multiple, liver and peritoneal metastases with ascites.

The percutaneous CT-needle biopsy of the pleural lesion documented an epithelial malignant pleural mesothelioma (MPM).

At Immunohistochemistry, tumour cells were positive for cytokeratin 5/6, cytokeratin 7 and calretinin and negative for TTF-1 and CEA.

A histology revision (Figure 1C) and an immunohistochemical analysis (Figure 1D) of the intestinal lesion were also performed confirming the final diagnosis of an intra-luminal, colonic metastasis from the MPM.

The patient received a standard systemic chemotherapy with a cisplatin/pemetrexed-combined regimen. After six cycles of treatment, CT scan showed a liver tumour progression. Second-line chemotherapy by gemcitabine was started and it is still ongoing.

Discussion
MPM is a locally invasive and aggressive tumour with a poor prognosis. Histologically, MPM is classified in three different subtypes, including epithelioid (60 per cent), biphasic (30 per cent), and sarcomatoid type (10 per cent).

Haematological metastases, particularly to G1 organs, are very uncommon with only a few cases reported in the literature to date. On autopsy, abdominal involvement is more frequent and it has been described in one-third of the cases. A multiple intestinal pattern is often observed. In most cases, metastases are metachronous with an interval from primary tumour diagnosis ranging from 3 months to 6 years. Five cases presented late metastases (2–6 years).

Clinically, intra-luminal GI-PM metastases usually present with atypical abdominal pain, progressive bloody stool and sometimes as a severe emergency, such as intestinal obstruction, perforation and intussusception. Rarely, they are clinically asymptomatic.

Considering these aspecific symptoms and the low sensitivity and specificity of radiological imaging techniques, including computed tomography (CT) scan, magnetic resonance imaging (MRI), and fluorodeoxyglucose-positron emission tomography (FDG-PET) CT scan, diagnosis of intra-luminal GI-PM metastasis is challenging. Endoscopic techniques, such as gastroscopy, colonoscopy, and more recently, video capsule endoscopy and double-balloon enteroscopy are extremely useful for detecting GI tumour lesions. However, considering the aspecific clinical and radiological features of GI-PM metastases, histology and immunohistochemistry are necessary for an accurate diagnosis tailoring to an appropriate treatment.

Prognosis of GI-PM metastases is poor with an overall survival <1 year and only 1 patient still alive 4 years after the diagnosis of metastatic disease.

Management of GI-PM metastases is extremely complex and depends on multiple factors, such as clinical patient’s conditions and comorbidities, the presence of other concomitant metastases and/or a gastro-intestinal emergency, the interval from primary tumour diagnosis, and the primary tumour response to anti-cancer treatment. Systemic chemotherapy represents the standard treatment, surgery being indicated only for symptoms palliation.
Conclusion

In our case, the patient presented a synchronous, intraluminal metastasis of the colon from a MPM in a context of a multiple, liver and peritoneal tumour involvement. GI-MPM metastases are rare and they can be clinically and radiologically misdiagnosed. They should be considered in any patient with MPM history and confirmed by histology and immunohistochemistry. Their treatment is complex and it should be carefully tailored considering different, clinical and tumour factors.

The particularity of this case relies on the rarity of GI-MPM metastases with only a few cases reported in the literature to date and on the atypical clinical patient’s history, characterized by a microcytic, hypochromic anaemia related to a chronic GI bleeding, confirmed by a positive FOBT, leading to the diagnosis of an intraluminal tumour of the colon. The patient was then hospitalized for aspecific abdominal pain. Whole body CT-scan showed a locally asymptomatic tumour pleural lesion and multiple, liver and peritoneal metastases. Histology of the pleural lesion was consisted with a diagnosis of a MPM. A revision of the intestinal histology confirmed the final diagnosis of an intraluminal MPM metastasis of the colon.

References


ACKNOWLEDGEMENTS

We would like to thank Mrs. Nadia Ouamara for the English revision and M. Yves Soulages for the acquisition of histology images.

PEER REVIEW

Not commissioned. Externally peer reviewed.

CONFLICTS OF INTEREST

The authors declare that they have no competing interests.

FUNDING

None

PATIENT CONSENT

The authors, Longo R, Baptista BR, Campitiello M, Plastino F, Eid N, d’Huart MC, Klein L, Kull E, Hennequin L, Quétin P, declare that:
1. They have obtained written, informed consent for the publication of the details relating to the patient(s) in this report.
2. All possible steps have been taken to safeguard the identity of the patient(s).
3. This submission is compliant with the requirements of local research ethics committees.

Figure 1A
Colonoscopy found a polyp tumour lesion of the transverse colon initially misdiagnosed as a primary adenocarcinoma (blue arrow).

Figure 1B
Thoracic CT-scan showed a right pleural tumour lesion of 11.6×8.6cm of diameter with a rib osteolysis (blue arrow).

Figure 1C
Histology documented a tumour infiltration by atypical cells with enlarged, hyperchromatic and angular nuclei surrounded by a scanty cytoplasm forming fairly fine spans and focally glandular structures (blue arrow). This pattern was identical to pleural histology confirming the diagnosis of a MPM metastasis of the colon.

Figure 1D
At the immunohistochemical staining, tumour cells were positive for calretin (blue arrows) according with diagnosis of a colonic MPM metastasis.