

Intra-luminal intestinal metastasis from malignant pleural mesothelioma

Raffaele Longo¹, Bruno Ribeiro Baptista¹, Marco Campitiello¹, Francesca Plastino¹, Nada Eid¹, Marie Caroline d'Huart², Laurence Klein³, Eric Kull², Laurent Hennequin⁴, and Philippe Quélin⁵

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

Please cite this paper as: Longo R, Baptista BR, Campitiello M, Plastino F, Eid N, d'Huart MC, Klein L, Kull E, Hennequin L, Quélin P. Intra-luminal intestinal metastasis from malignant pleural mesothelioma. AMJ 2017;10(7):595–598. <https://doi.org/10.21767/AMJ.2017.3032>

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.¹ It is quickly related to the asbestos exposure.¹ It is more prevalent in elderly patients, males, and Caucasians, and arises from the pleura in most cases and occasionally from the peritoneum.¹ Rarely, it can be associated with distant metastases, particularly, to the lung, brain, and other extrathoracic sites.¹ Gastro-intestinal (GI) metastases from MM are extremely uncommon with only a few cases published to date.²⁻¹⁶ 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.²⁻¹⁶ Histology and immunohistochemistry are necessary for an accurate pathologic diagnosis.²⁻¹⁶ 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.²⁻¹⁶ 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.²⁻¹⁶ 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 a 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 calretin 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.¹ Histologically, MPM is classified in three different subtypes, including epithelioid (60 per cent), biphasic (30 per cent), and sarcomatoid type (10 per cent).¹

Haematological metastases, particularly to GI organs, are very uncommon with only a few cases reported in the literature to date.²⁻¹⁶ On autopsy, abdominal involvement is more frequent and it has been described in one-third of the cases.² A multiple intestinal pattern is often observed.² 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).¹⁻¹⁶

Clinically, intra-luminal GI-MPM 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.⁴⁻¹⁶

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-MPM metastasis is challenging.⁴⁻¹⁶ Endoscopic techniques, such as gastroscopy, colonoscopy, and more recently, video capsule endoscopy and double-balloon enteroscopy are extremely useful for detecting GI tumour lesions.⁴⁻¹⁶ However, considering the aspecific clinical and radiological features of GI-MPM metastases, histology and immunohistochemistry are necessary for an accurate diagnosis tailoring to an appropriate treatment.²⁻¹⁶

Prognosis of GI-MPM metastases is poor with an overall survival <1 year and only 1 patient still alive 4 years after the diagnosis of metastatic disease.²⁻¹⁶

Management of GI-MPM 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.²⁻¹⁶

Systemic chemotherapy represents the standard treatment, surgery being indicated only for symptoms palliation.²⁻¹⁶

Conclusion

In our case, the patient presented a synchronous, intra-luminal 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.²⁻¹⁶ 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 intra-luminal 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 intra-luminal MPM metastasis of the colon.

References

1. Bibby AC, Tsim S, Kanellakis N, et al. Malignant pleural mesothelioma: an update on investigation, diagnosis and treatment. *Eur Respir Rev.* 2016;25:472-486.
2. Ohishi N, Oka T, Fukuhara T, et al. Extensive pulmonary metastases in malignant pleural mesothelioma. *Chest.* 1996;110:296-298.
3. Lin YT, Wu BS, Yang SF, et al. Isolated pancreatic metastasis of a malignant pleural mesothelioma. *Kaohsiung J Med Sci.* 2009;25:395-400.
4. Hayashi H, Notohara K, Yoshioka H, et al. Localized malignant pleural mesothelioma showing a thoracic mass and metastasizing to the stomach. *Intern Med.* 2010;49:671-675.
5. Agaimy A, Wünsch PH. Epithelioid and sarcomatoid malignant pleural mesothelioma in endoscopic gastric biopsies: a diagnostic pitfall. *Pathol Res Pract.* 2006;202:617-622.
6. Huang C, Kun-Bow T, Chuan-S W, et al. Duodenal metastasis of malignant pleural mesothelioma. *J Formos Med Assoc.* 2008;107:961-964.
7. Wengrower D, Sweedan W, Gips M, et al. Malignant peritoneal mesothelioma: mucosal duodenal involvement and endoscopic diagnosis. *Gastrointest Endosc.* 2000;52:270-272.
8. Martínez Caselles A, Baños Madrid R, Egea Valenzuela J,

et al. Gastrointestinal bleeding secondary to duodenal metastases of malignant pleural mesothelioma. *Rev Esp Enferm Dig.* 2010;102:602-603.

9. Terashita S, Hirano K, Hirai T, et al. A case of malignant pleural mesothelioma with gastrointestinal metastases which were diagnosed by endoscopic biopsy (in Japanese). *Nihon Kokyuki Gakkai Zasshi.* 2009;47:133-138.
10. Kakugawa Y, Watanabe S, Kobayashi N, et al. Diagnosis of small-bowel metastasis of malignant pleural mesothelioma. *Endoscopy.* 2007;39:229-230.
11. Gourtsoyannis N, Bays D, Missas S, et al. Solitary malignant mesothelioma of the small intestine: radiological appearances. *Abdom Imaging.* 1996;21:258-260.
12. Liu H, Cheng YJ, Chen HP, et al. Multiple bowel intussusceptions from metastatic localized malignant pleural mesothelioma: a case report. *World J Gastroenterol.* 2010;16:3984-3986.
13. Robertson NJ, Smith ME, Sherwood AJ, et al. A woman who bled after a decade of dyspnea. *Gut.* 1999;45:3984-4310.
14. Masangkay AV, Susin M, Baker R, et al. Metastatic malignant mesothelioma presenting as colonic polyps. *Hum Pathol.* 1997;28:993-995.
15. Sibio S, Sammartino P, Accarpio F, et al. Metastasis of pleural mesothelioma presenting as bleeding colonic polyp. *Ann Thorac Surg.* 2011;92:1898-1901.
16. Bassam A, Natali AS, Hamed AD, et al. Malignant pleural mesothelioma presenting as rectal polyp: A case report and review of the literature. *Gastrointest Cancer Res.* 2012;5:174-176.

ACKNOWLEDGEMENTS

We would like to thank Mrs. Nadia Ouamara for the English revision and M. Yves Soulatges 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, Quélin 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.

