

## case report

# Metastatic malignant pleural mesothelioma masquerading as a case of acute abdomen secondary to small bowel perforation

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Metastatic pleural mesothelioma is a rare disease. The present study aimed to report a rare presentation of metastatic malignant mesothelioma (MM). The patient was an elderly man who presented with small bowel (jejunal) perforation secondary to metastatic pleural mesothelioma deposits. This was a rare presentation of a rare disease and the first reported case in the published studies in which MM masqueraded as bowel perforation prior to the primary diagnosis.

**SIMILAR CASES PUBLISHED:** 1

A 65-year-old male patient presented to the emergency department because of lower abdominal pain of 1-week duration. The pain became generalized in the last few hours prior to the hospital visit and was associated with fever and vomiting. The patient was a heavy smoker for 40 years. On admission, the patient temperature was 38.2°C, and his abdomen was distended and tender. The chest examination revealed decreased air entry on the right side. Laboratory investigations showed leukocytosis and hemoglobin of 10.2 g/L. The chest x-ray revealed air under the diaphragm and a peripheral mass in the right upper lobe of the lung measuring 5×7 cm<sup>2</sup> (**Figure 1A and 1B**).

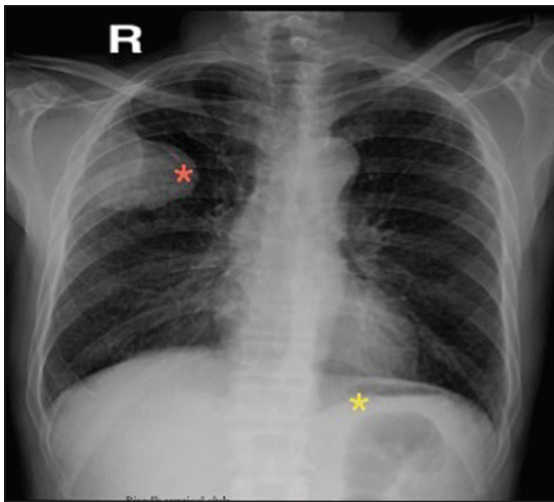
The patient was resuscitated with intravenous fluids and started on intravenous 4.5 g Tazocin. A nasogastric tube and Foley catheter were inserted and 2 units of packed red blood cells cross-matched. The patient underwent exploratory laparotomy, and was found to have 4 masses arising from the antimesenteric border of the jejunum around 20 cm from the deudenojejunal (DJ) junction, 10–15 cm apart, with another perforated mass 50 cm from the DJ junction. The patient underwent resection of 60 cm of the small bowel with primary side-to-side anastomosis. The patient had an uneventful recovery and was discharged home 4 days post-operation.

The histopathological analysis of the resected bow-

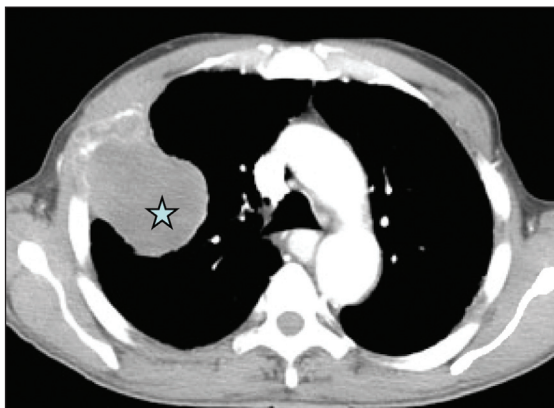
el revealed multiple bowel wall nodules arising from a highly malignant epithelioid neoplasm (**Figure 2A and 2B**). Immunohistochemistry revealed that the tumor cells were positive for calretinin and podoplanin (D2-40). Also, focal positive staining for both thrombomodulin and CK5/6 was observed.

## DISCUSSION

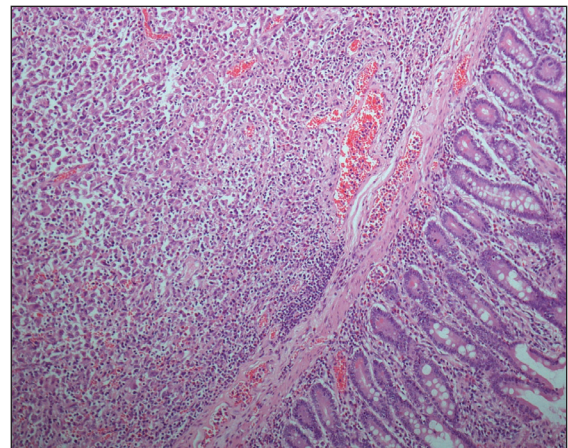
Symptomatic small bowel metastatic tumors are rare.<sup>1-3</sup> De Castro et al reviewed 20 patients who presented with metastasis to the small bowel. The most common primary cancers with metastases to small bowel were cervix, kidney, and skin, and almost all of these presented with intestinal obstruction.<sup>2</sup> Small bowel metastases were distributed in jejunum (55%), ileum (32%), and duodenum (8%); 5% of patients had synchronous jejunal and ileal metastases. Metastases to the small bowel presented as perforation (59%) and obstruction (29%); 10% of patients had hemorrhage. Perforated small bowel metastases of lung cancer had a greater tendency to undergo necrosis compared with other malignant tumors and a greater tendency to perforate before they grew to a size when they could cause obstruction.<sup>3-6</sup> Mosier et al reported 21 patients in which the jejunum was the most common site of metastases (79%) from primary lung cancer and 57% of those presented with perforation.<sup>5</sup>



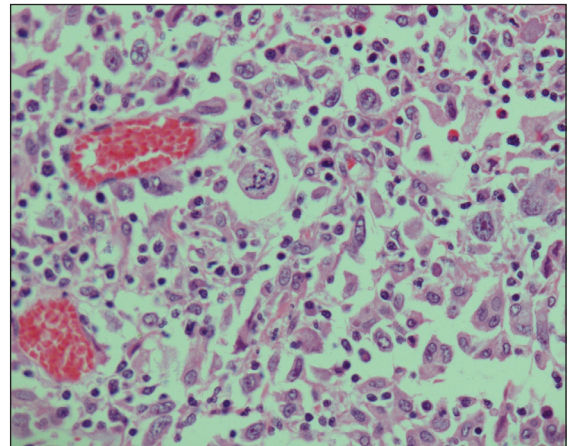
**Figure 1A.** Chest x ray showing weakly enhancing pleural based mass (star shaped) on the right side suggestive of mesothelioma.



**Figure 1B.** CT chest reveals a smooth rounded mass measuring 4.8x8 cm arising from the right chest wall.



**Figure 2A.** Section of small bowel showing inflamed small intestinal mucosa with an underlying tumor nodule consisting of malignant mesothelial cells (H&E stain  $\times 100$ ).



**Figure 2B.** A high power view of the neoplasm, shows pleomorphic and bizarre epithelioid cells proliferation with many abnormal mitoses (H&E stain  $\times 400$ ).

Mesothelioma is a rare neoplasm associated with asbestos exposure. The repeated irritation by the asbestos fibers on the partial mesothelial cells leads to either benign scarring or malignant lesions (MM). It arises from mesothelial cells and rarely metastases. Distant metastases involve the omentum, stomach, intestine, mesentery, adrenal gland, vertebral column, ovary, kidney, liver, pancreas, and spleen.<sup>7</sup>

Grossly metastatic mesothelial lesions usually show a pinkish white cut surface without necrosis or hemorrhage. Histological classifications of mesothelioma include epithelioid, sarcomatoid, mixed (biphasic), transitional, desmoplastic, and localized fibrous tumor of the pleura, with the epithelial type seen in the majority of cases. The biphasic type contains regions with epithe-

lial and sarcomatous patterns.<sup>6-8</sup> Lung invasion is common, and the tumor can metastasize to lymph nodes of the hilum and mediastinum. Epithelial malignant mesotheliomas are tumors similar to the original normal cells. They follow a tubulopapillary or trabecular pattern of growth. The flattened or cuboidal cells usually contain monotonous nuclei lining the papilla or tubules. The submesothelial tumor infiltration is important in differentiating MM from benign mesothelial hyperplasia.

Metastatic mesothelioma stains positively for Wilms tumor 1, calretinin, and podoplanin (D2-40) and negatively for carcinoembryonic antigen, Leu-M1, Ber-EP4, and periodic acid-Schiff. Soluble mesothelin-related protein is also highly positive in mesothelioma. MM to small bowel can reveal grossly necrotic small-bowel

masses sometimes with evidence of perforation and associated lymphadenopathy. In breast cancer, metastases produce a scirrhous appearance from the narrowing caused by the highly cellular submucosal deposits.<sup>7,8</sup> Small bowel metastases are usually found in the late

stages of cancer. Surgery is associated with higher morbidity and mortality due to advanced disease, age, and associated comorbidity. The mean postoperative survival is 3 weeks, and limited surgical resection of the perforated bowel is advised.<sup>7</sup>

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