Colonic perforation due to melanoma metastasis
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Section: Abdominal imaging
Area of Interest: Abdomen Colon Lung
Imaging Technique: CT
Special Focus: Acute Metastases Case Type: Clinical Cases

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Patient: 83 years, male

Clinical History:
Acute abdomen with peritonism in an elderly male patient with known systemic metastasisation, following previous exeresis of T3N1 parasternal cutaneous malignant melanoma with axillary nodal dissection 1 year before.

Imaging Findings:
Two months prior to Emergency admission, CT restaging detected innumerable pulmonary, subcutaneous, nodal, hepatosplenic and adrenal metastases. A 3 cm solid, enhancing mural mass with endoluminal growth situated in the transverse colon, which was not appreciable in a previous CT examination 4 months earlier, was interpreted as a metastatic lesion considering the systemic neoplastic dissemination and its fast growth. Because of the patient’s good performance status, renal, hepatic and cardiopulmonary function, chemotherapy was started including paclitaxel as the main drug. Six weeks later, the patient suddenly developed an acute abdomen with peritonism. Plain radiographs detected bilateral subphrenic air consistent with free perforation. Unenhanced, emergency CT confirmed peritoneal air with predominantly supramesocolic distribution, apparently originating from perforation of the known transverse colon lesion. Exploratory laparotomy confirmed colonic perforation due to transmural extension of colonic melanoma with peritonitis; resection was deemed contraindicated by the worsening systemic conditions and the patient died shortly after surgery.

Discussion:
Haematogenous neoplastic spread to the gastrointestinal (GI) tract is uncommon: malignant melanoma is the most common primary tumour, followed by lung and breast carcinomas. Despite autopsy studies report GI metastasisation in about half of patients dying because of melanoma, ante mortem diagnosis of intestinal metastases is very rare. The small bowel by far represents the most frequently involved GI portion (75% of cases) compared to the stomach and colon [1-3].

Interval time between primary melanoma diagnosis and metastatic colonic disease has been reported to approach 7.5 years, and in one-third of patients intestinal involvement represents the first metastasisation site. Patients may present with abdominal pain, symptomatic masses, overt or occult GI blood loss, whereas sometimes metastatic lesions are occasionally detected during oncological follow-up [1, 2, 4]. Although PET-CT is the most sensitive and specific modality for distant staging of malignant melanoma, bowel metastases are detected at CT as variably-sized single or multiple submucosal nodules or mural masses with a
polypoid or infiltrating appearance, sometimes with central ulceration. Possible complications of bowel involvement include intussusception, mechanical obstruction and perforation [5, 6].

Diagnosis of intestinal melanoma involvement requires careful CT technique and observation, and may have key importance since in selected patients segmental resection can be justified and successfully completed. Surgery is superior to any other available therapy with significant prognostic differences between patients undergoing curative resection versus those undergoing palliative procedures and nonoperative candidates. Often, surgery is performed on an urgent basis due to bleeding or anaemia, pain, obstruction or perforation and usually achieves symptomatic relief [1, 2, 4].

Emergency CT is highly accurate in predicting site of GI perforation by showing distribution (supra- or inframesocolic) location of free air and wall thickening in the involved bowel segment. As in this case, identification of the bowel wall discontinuity is a direct yet inconstant finding indicating perforation site, accurately identified by multiplanar MDCT acquisition [7, 8].

Differential diagnosis of intestinal perforation in oncological patients include rupture or transmural extension of primary tumours or infiltrating metastases, spontaneous or post-treatment tumour necrosis or direct chemotherapeutic effect with taxol derivates and bevacizumab as the most frequently involved drugs. Emergency surgery is warranted unless patient’s prognosis from the underlying malignancy or critical conditions contraindicate laparotomy [9].

**Differential Diagnosis List:** Perforated colonic metastasis of malignant melanoma, Colon carcinoma, Gastrointestinal stromal tumour (GIST), Intestinal lymphoma, Chemoterapy-related perforation

**Final Diagnosis:** Perforated colonic metastasis of malignant melanoma

**References:**


Description: Axial CT images at the bases viewed at lung (a) and soft-tissue (b) window settings show multiple nodular metastases and paracardiac enlarged lymphnodes. Origin:
Description: Coronal CT reformations show subcutaneous metastatic nodules (c), liver, splenic and abdominal nodal metastases (d). Origin:
**Description:** Coronal CT reformations show subcutaneous metastatic nodules (c), liver, splenic and abdominal nodal metastases (d). **Origin:**
Description: Axial (e) and coronal reformatted (f) images detect a 3-cm solid enhancing mural lesion in the transverse colon with endoluminal growth. Liver, splenic and left adrenal metastases are also noted. Origin:
Description: Upright (a,b) and supine (c) plain radiographs detect bilateral subphrenic air consistent with free perforation. Bowel gas predominates in the jejunum and transverse colon with some air-fluid levels. Origin:
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Figure 3

Description: Axial (a,b) and coronal-reformatted (c,d) images viewed at lung window settings confirm predominantly supramesocolic peritoneal free air, apparently originating from the known colonic lesion.

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