CASE REPORT

Gastroparesis as the initial presentation of pulmonary adenocarcinoma

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SUMMARY

Malignancy-associated gastroparesis is an under-reported entity and its diagnosis as a cause of cachexia or gastrointestinal symptoms is often missed in clinical practice. This case report highlights an unusual association of pulmonary adenocarcinoma with gastroparesis at presentation. Malignancy-associated gastroparesis should be added to the differential diagnosis in patients presenting with delayed gastric emptying of unknown aetiology and should prompt further radiological investigations. Early detection and treatment of underlying gastroparesis in patients with cancer is necessary to improve the quality of life and to avoid premature clinical deterioration due to intolerance to oral treatment.

BACKGROUND

Malignancy-associated gastroparesis is an under-recognised phenomenon, not widely known in clinical practice; its association with lung adenocarcinoma has not been reported in the past. Misdiagnosis as cancer-associated cachexia may result in improper assessment and prognostication of the cancer, resulting in early deterioration from an otherwise easily treatable condition.

CASE PRESENTATION

An 87-year-old man presented with loss of appetite for 2 weeks, associated with constipation, excessive belching and weight loss of about 12 pounds. He also reported of shortness of breath on exertion. He was not on any outpatient medications that could delay gastric emptying or contribute to the symptoms.

On examination, the patient was afebrile with stable vital signs. Abdominal exam revealed abdominal distension with no peritoneal signs.

INVESTIGATIONS, TREATMENT AND OUTCOME

The patient's serum electrolytes and thyroid-stimulating hormone were within normal limits. There was no evidence of obstructing lesions or mass in the stomach, small or large intestines on contrast CT scan, which was confirmed on a subsequent upper gastrointestinal (GI) series with small bowel follow through.

The patient was started on bowel rest and nasogastric tube decompression, with no relief of symptoms. Given the absence of anatomic obstructing lesions, the possibility of gastroparesis was raised. The gastric emptying study showed delayed gastric emptying, with 85% retention at the end of 4 h, confirming the clinical diagnosis of gastroparesis

(figure 1). Prokinetic therapy with oral metoclopramide was started and the patient noted considerable resolution of symptoms thereafter.

Incidentally, a chest X-ray, followed by CT thorax was performed for the work up of shortness of breath, which revealed a new right-sided solitary pulmonary nodule about 1.5 cm in diameter associated with loculated pleural effusion (figure 2). Cytological analysis of the pleural fluid showed malignant cells consistent with adenocarcinoma, which were negative for markers for bladder or prostate cancer but positive for thyroid transcription factor-1 (TTF-1), thus suggesting a primary lesion in the lung. Serological autoimmune paraneoplastic markers, antineuronal nuclear antibody type-1 (ANNA-1 or Anti-Hu) and anti-Ri (ANNA-2) tests were negative.

DISCUSSION

Gastroparesis is defined as delayed gastric emptying in the absence of a mechanical cause.¹ Idiopathic gastroparesis is the most common form, followed by diabetes or post-surgical forms due to vagal nerve injury. The first reported case of malignancy-associated gastroparesis was in 1983;² this was associated with upper GI tumours. A few case reports and series followed but none were extrapolated to a large scale quality research study to determine the epidemiology, pathophysiology or treatment of this clinically significant phenomenon. Delayed gastric emptying has been noted in more than half the patients with pancreatic cancer³ and is most commonly seen in small cell lung cancer.⁴ To the best of our knowledge, gastroparesis in association with pulmonary adenocarcinoma has not been described in the literature before. Malignancy-associated gastroparesis should be added to the differential diagnosis in patients presenting with delayed gastric emptying of

Figure 1 Gastric emptying study showing delayed gastric emptying after 1 and 4 h.

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Figure 2 (A) Chest X-ray showing a suspicious nodular lesion in the periphery; (B) CT of the thorax showing right pleural effusion with loculations in the anterior wall.

unknown aetiology and should prompt further radiological investigations.⁴

Gastroparesis can present as nausea, vomiting, early satiety, bloating, weight loss and progressive intolerance to oral intake.⁵ The symptoms could easily be confused with cancer associated cachexia, radiation gastropathy, direct tumour infiltration or chemotherapy-induced GI intolerance. Misdiagnosis of this condition as a cancer-treatment related complication could potentially delay curative treatment of the cancer.

Early detection of an underlying gastroparesis is necessary to improve the quality of life, avoid premature clinical deterioration due to intolerance to oral treatment and cachexia⁶ (box 1).

Antinuclear neuronal antibody type-1 (ANNA-1) is one of the most common paraneoplastic antibodies testing positive in gastroparesis associated with small cell lung cancer, as well as other cancers.⁶ It was found to be negative in our case, supporting the absence of the neuroendocrine differentiation characteristic of small cell lung cancer. The cytological analysis of the pleural fluid did not show any evidence of small cell differentiation either, however, it was consistent with adenocarcinoma. Assuming that the presenting association between MAG and pulmonary adenocarcinoma was not coincidental, the pathogenesis arose from a yet unknown mechanism. MAG is not a very well understood phenomenon and many questions still remain unanswered.

Conservative management of gastroparesis includes dietary modifications such as a small, frequent, low fibre and low fat diet.³ Prokinetics such as metoclopramide or erythromycin and antiemetics or immunosuppression with steroids may be tried with variable benefit. Treatment of the primary cancer would logically be the best treatment. Treatment should extend to also

include correction of possible worsening comorbidities such as small-bowel or colonic dysmotility, hypothyroidism or autoimmune disease. Other experimental strategies useful in refractory cases include gastric stimulator implantation to stimulate gastric motility and peristalsis.³

In summary, we describe a previously unreported association between gastroparesis and pulmonary adenocarcinoma. The importance of early detection of this entity in order to avoid premature clinical deterioration cannot be emphasised enough.

Learning points

- ▶ The prevalence of malignancy-associated gastroparesis (MAG) may be much higher than previously thought.
- ▶ MAG should be added to the differential diagnosis in patients presenting with delayed gastric emptying of unknown aetiology.
- ▶ Early detection of this entity is necessary to avoid early clinical deterioration.
- ▶ The association between gastroparesis and many other cancers still remains unexplored.

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Competing interests None.

Patient consent Obtained.

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Box 1 Importance of early detection of gastroparesis

- ▶ Prevent premature clinical deterioration
- ▶ Avoid intolerance to oral therapy⁶
- ▶ Avoid early cancer cachexia⁶
- ▶ Reduce inpatient stay and the need for parenteral feeding/treatment
- ▶ Improve the quality of life

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