# Paraneoplastic Gastrointestinal Dysmotility: When to Consider and How to Diagnose

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**KEYWORDS**

• Paraneoplastic • Gastrointestinal • Motility disorder
• Cancer • Onconeural antibody

Gastrointestinal (GI) symptoms occur commonly in patients with cancer and may reflect dysfunction throughout the gut (**Box 1**). Many potential causes exist for these symptoms including GI dysmotility.[1] Although symptoms referable to disturbances in GI motor function are frequently encountered in patients with neoplasms, they are notoriously nonspecific and discrete disorders based on well-defined myoneural pathology are distinctly uncommon. Paraneoplastic neurologic syndromes are a heterogeneous group of rare disorders (**Box 2**) related to an underlying malignancy but caused by mechanisms other than metastases, metabolic and nutritional deficits, infections, ischemia, or side effects of cancer treatment.[2] A variety of antibodies directed against antigens expressed by both the tumor and the nervous system (ie, onconeural antibodies) has been reported in association with paraneoplastic syndromes helping to define different subtypes and, potentially, leading to an earlier diagnosis.[3] Recently, diagnostic criteria have been proposed to define a neurologic syndrome as paraneoplastic (**Box 3**).[4]

Although rare, there is a well-recognized association between malignant tumors and paraneoplastic GI dysmotility. While often affecting the entirety of the GI tract, paraneoplastic GI dysmotility may also affect isolated segments resulting in discrete syndromes (**Box 4**). In this review, paraneoplastic GI dysmotility will be discussed with an emphasis on when this entity should be considered in the differential diagnosis of GI dysmotility and how to confidently make the diagnosis.

The author has nothing to disclose.
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Gastroenterol Clin N Am 40 (2011) 777–786
doi:10.1016/j.gtc.2011.09.004 **gastro.theclinics.com**
0889-8553/11/$ – see front matter 

**Box 1**
**Gastrointestinal symptoms occurring in cancer patients**

- Dysphagia
- Anorexia
- Early satiety
- Nausea
- Emesis
- Abdominal pain
- Constipation
- Diarrhea
- Fecal incontinence
- Weight loss

## ETIOLOGY AND ANTIBODIES ASSOCIATED WITH PARANEOPLASTIC GI DYSMOTILITY

The etiology of paraneoplastic GI dysmotility appears to be immune-mediated – autoimmune, specifically. This is exemplified by the demonstration of onconeural antibodies (**Table 1**) selectively binding to enteric neurons in the myenteric plexus.[5–7] An autoimmune etiology of paraneoplastic GI dysmotility is also supported by the common presence of both concomitant paraneoplastic neurological syndromes that are also of suspected autoimmune origin and other autoantibodies (eg, parietal cell and thyroglobulin antibodies), rheumatoid factor, and circulating immune complexes in these patients.[8,9] An abnormality of external neural control by the autonomic nervous system has also been suggested.[10]

Paraneoplastic syndromes are characterized by an immune response to tumor antigens that are also present in nontumor cells. Apoptosis of tumor cells may expose

**Box 2**
**Paraneoplastic neurologic syndromes**

- Lambert-Eaton syndrome
- Limbic encephalitis
- Subacute cerebellar ataxia
- Sensory neuropathy
- Opsomyoclonus
- Encephalomyelitis
- Retinopathy
- Stiff-person syndrome
- Dermatomyositis
- Gastrointestinal dysmotility