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Brief Communication

Intestinal Pseudo-Obstruction Complicating Multiple Sclerosis

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Abstract

Three patients with intestinal pseudo-obstruction secondary to multiple sclerosis are reported. This is a serious complication with significant morbidity and mortality, which is infrequently recognized in clinical practice and rarely reported in the medical literature.

Keywords

bowel obstruction; gastroparesis; intestinal pseudo-obstruction; multiple sclerosis

Intestinal pseudo-obstruction is a rarely reported, but serious complication of multiple sclerosis that may lead to significant morbidity and mortality. It is likely to be due to interruption of neural pathways in the brainstem and spinal cord by primary demyelination and axonal loss.

Case 1: A 49-year-old man had a history of multiple sclerosis of the primary progressive type for 18 years. His disease had caused severe disability with persistent diplopia, atonic bladder, requiring intermittent self-catheterization, and limitation of walking distance to 10 m with the aid of a walking frame. His comorbidities included obesity, hypercholesterolaemia, obstructive sleep apnoea (requiring continuous positive airways pressure support at night), and type 2 diabetes mellitus diagnosed 1 year previously. His current medications were: atorvastatin 20 mg daily, celecoxib 200 mg daily, amitriptyline 50 mg daily, baclofen 25 mg t.d.s and omeprazole 20 mg b.d. Three and a half years previously, he had developed severe abdominal pain and distension and was diagnosed with large bowel obstruction. At laparotomy, no mechanical obstruction was found and a defunctioning colostomy was made. Over the next 3 years, he had two further revisions to the stoma because of parastomal herniation. On the current admission, he underwent total colectomy. The histopathology showed greatly reduced colonic folds with colonic thickness of 2 mm and smooth muscle hypertrophy. There were three polyps ranging from 5 to 15 mm in diameter. There was no malignancy or diverticular disease. The findings were consistent with colonic pseudo-obstruction.

Case 2: A 49-year-old woman had a history of multiple sclerosis for 12 years. This had caused severe disability. At the time of the current admission, she was unable to walk and, owing to gastroparesis and oesophageal dysmotility, was fed through a jejunostomy. She had significant cognitive impairment, had a longstanding indwelling catheter because of urinary incontinence and was incontinent of faeces. She also had depression and had recently ceased mianserin because of vomiting. Her current medications were: ranitidine 150 mg b.d., cisapride 10 mg t.d.s., salbutamol 5 mg nebule q.i.d. and sodium chromoglycate nebules 20 mg daily. She was admitted because of fever, tachycardia, tachypnoea and right basal crackles on chest auscultation. The chest X-ray was consistent with aspiration pneumonia. She was treated with oral antibiotics and improved over 5 days. On the sixth day of admission, she developed a new fever to 39°C and hypotension. She died the following day. Autopsy revealed colonic pseudo-obstruction and megacolon. There was also right lower lobe bronchopneumonia and pulmonary oedema of both lower lobes.

Case 3: A 35-year-old woman had a history of multiple sclerosis for 11 years. She had severe disability attributable to her multiple sclerosis, including severe dysarthria, postural tremor of the upper limbs and urinary incontinence. She was unable to walk or perform any of the activities of daily living. Her multiple sclerosis initially followed a relapsing-remitting course, but over the last 3 years her disease had entered a secondary progressive phase, for which she was commenced on methotrexate 7.5 mg weekly. She had iron deficiency anaemia, although no cause was found for this. Her medications were: penicillin V 500 mg q.i.d., ferrous sulphate 350 mg daily, methotrexate 7.5 mg weekly, folic acid 5 mg weekly, amitriptyline 25 mg nocte, propantheline 15 mg q.i.d. and propranolol 40 mg b.d. She was admitted following an episode of severe vomiting. Clinical findings were consistent with a left lower lobe aspiration pneumonia. She was successfully treated with intravenous antibiotics followed by oral antibiotics and was discharged home. Four months later, the patient died. A coronial autopsy revealed adynamic ileus leading to intestinal pseudo-obstruction and showed the typical lesions of multiple sclerosis.

The diagnosis of multiple sclerosis depends on clinical criteria aided by laboratory investigations, including examination of the cerebrospinal fluid, magnetic resonance imaging of the brain and spinal cord, and electrophysiological testing. Severe multiple sclerosis can result in quadriparesis, cognitive impairment, visual loss, brain stem syndromes, cerebellar dysfunction, bowel, bladder and sexual dysfunction (1).

Multiple sclerosis is often associated with gastrointestinal dysfunction. In one series of 280 patients, 43% described constipation (defined as two or fewer bowel motions per week, a need for digital manipulation of the rectum to pass bowel motions or the use of laxatives at least once per week) and 51% had one or more episodes of faecal incontinence, thus giving an incidence of 68% for any bowel dysfunction (2). This was more likely to be found with coexisting bladder dysfunction. In another study, autonomic symptoms (including symptoms of urinary, sexual, sudomotor, gastrointestinal and cardiovascular dysfunction) were seen in 79% (3). There was a relationship between the presence of gastrointestinal symptoms and more severe multiple sclerosis.

We could find only two previously published case reports of intestinal pseudo-obstruction in multiple sclerosis, and individual patient demographics were not available (4,5). There has also been one report of acute myelitis presenting as intestinal pseudo-obstruction. In this case, the diagnosis of pseudo-obstruction was made after laparotomy and histological examination of resected bowel. The diagnosis of myelitis was based on clinical grounds (progressive paralysis which spontaneously resolved in the absence of a compressive lesion) in the presence of an elevated cerebrospinal fluid white cell count (6). Furthermore, there have been rare reports of gastroparesis associated with multiple sclerosis, characterized by a severe delay in gastric emptying (7-9).

Intestinal pseudo-obstruction represents a functional, not mechanical, obstruction. Clinical manifestations include nausea, vomiting, intermittent or chronic abdominal distension, weight loss, abdominal pain and diarrhoea or constipation. The diagnosis is made by a combination of clinical, radiographic, manometric and pathological findings. Radiographic findings are of dilation of the small or large bowel on plain films, in the absence of a demonstrated luminal obstruction. Manometry can reveal absent peristalsis. Pathological features consist of alteration of neural or muscle cell mass or morphology. Causes include drugs, connective tissue diseases, diabetes mellitus and hypothyroidism (4,10,11). Intestinal pseudo-obstruction can be distinguished from toxic megacolon by the presence of systemic toxicity and histological evidence of severe inflammation of the colonic smooth muscle layer in the latter (12) . Colonic pseudo-obstruction may be associated with similar changes in the oesophagus, stomach or small intestine; hence oesophageal manometry may be a useful adjunct to diagnosis (10).

The gastrointestinal tract is innervated by parasympathetic and sympathetic nerve fibres. The vagal and pelvic nerves (parasympathetic) provide both excitatory and inhibitory stimuli whereas the sympathetic trunks are inhibitory (13). We propose that central nervous system lesions due to multiple sclerosis could produce pseudo-obstruction in a number of ways. First, a medullary lesion involving the dorsal nucleus of the vagus nerve or its intramedullary nerve fibres could result in loss of excitatory stimulation to the myenteric

plexus innervating the gut from the oesophagus through to the transverse colon. A lesion in the sacral spinal cord involving the parasympathetic preganglionic sacral efferents, which innervate the descending colon, sigmoid colon and rectum, may cause similar effects. Second, interruption of visceral afferent pathways within the spinal cord may interrupt reflex pathways or perception of visceral distension. Finally, lesions involving interneurones or descending tracts in the spinal cord or brainstem could lead to disinhibition of sympathetic activity or a decrease in parasympathetic activity, with a resultant reduction in intestinal motility (14). The anticholinergic effects of our patients' medications (amitriptyline, mianserin and propantheline) may also have contributed to the development of pseudo-obstruction.

The clinical course of intestinal pseudo-obstruction is usually chronic or relapsing. Initial medical treatments include prokinetic agents, such as cisapride or metoclopramide, intravenous fluids or antibiotics. Surgery may be used to form a defunctioning stoma or bypass, or for resection of severely affected segments. Unfortunately, the response to therapy is often disappointing (10) .

In conclusion, intestinal pseudo-obstruction is an infrequently recognized complication of multiple sclerosis with significant morbidity and mortality, and with limited treatment options. A high index of clinical suspicion is necessary to diagnose this complication.

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