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Ogilvie Syndrome Associated to Parkinson's Disease

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Abstract

Ogilvie's syndrome is an acute dilatation of a part or all of the colon and rectum without mechanical obstruction. The diagnosis is based on computed tomography (CT) that excludes organic or functional colonic obstruction and ensures the detection of signs of severity. Rapid diagnosis leads to conservative measures and the resolution of obstruction. Delays in diagnosis can lead to complications imposing a surgical treatment and increased mortality rate. We report the case of a 52 years old woman with Parkinson's disease, who presented Ogilvie's syndrome. The initial assessment did not show signs of severity, so medical treatment was introduced but without improvement; for this reason, the surgical procedure was indicated as a cecostomy. There are several theories that explain the pathophysiology of Ogilvie's syndrome; the most likely is the dysfunction of innervation of the colon which is due to Parkinson's disease in our case. The diagnosis is based on computed tomography. The treatment is pharmacologic, conservative or surgical depending on the severity of the disease and its evolution.

Keywords

Ogilvie's Syndrome, Parkinson's Disease, Computed Tomography

1. Introduction

Ogilvie's syndrome or acute colonic pseudo-obstruction (ACPO) is defined as an important dilation of the colon in the absence of mechanical or functional obstruction. The diagnosis is based on clinical presentation and imaging.

The treatment modality is depending on the severity of the syndrome.

In this article, we report a case of Ogilvie's syndrome in a 52 years old patient with Parkinson's disease and we discuss the impact of imaging in the manage-

ment of Ogilvie's syndrome and improving its prognosis, besides the link between the Ogilvie's syndrome and Parkinson's disease.

2. Observation

A 52 years old woman followed for Parkinson's disease, with poor therapeutic compliance as a discontinuation of the treatment of Parkinson's disease for several months, the patient presented to the emergency for an insidious onset of abdominal pain and bloating with not passing gas since four days.

Clinical examination found a distended abdomen that was supple.

Routine blood laboratory tests were normal.

The patient was addressed to our department for an abdominal contrast-enhanced CT-scan.

That showed an important dilatation of all of the colon and rectum without sharp transition or mechanical obstruction (Figure 1) and without signs of gravity (Figure 2).

No dilation of the small bowel.

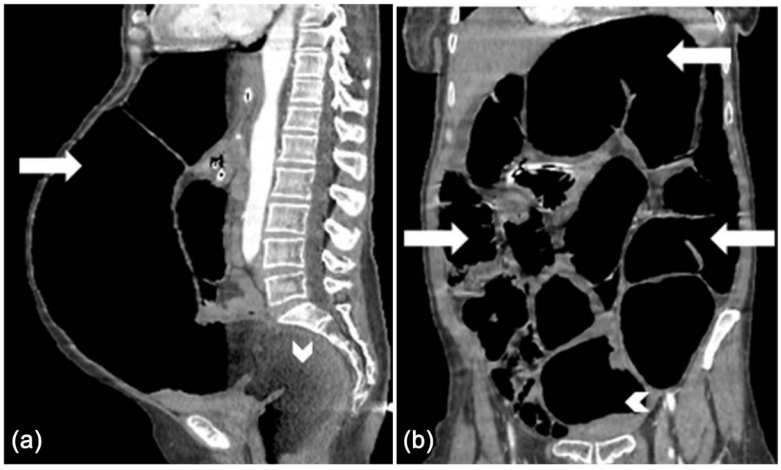

Figure 1. Abdominal CT in coronal and sagittal sections, showing the dilatation of all of the colon (arrows) and rectum (arrowhead), without sharp transition or mechanical obstruction.

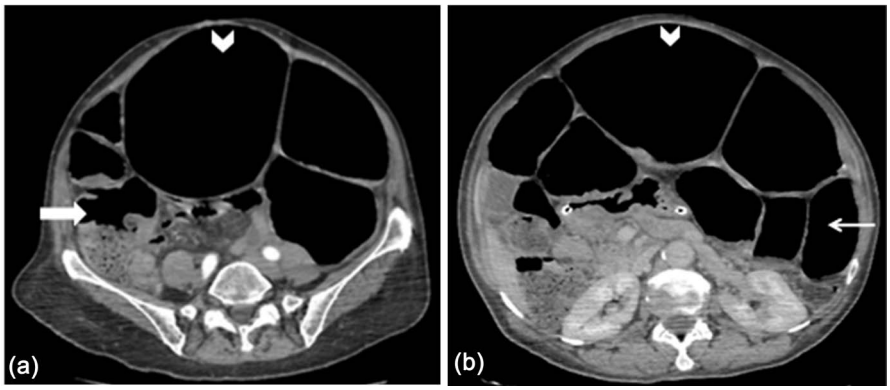

Figure 2. Abdominal CT in axials sections, showing an important dilatation of the ascending colon (thick arrow), transverse colon (arrowhead) and descending colon (thin arrows). The colonic wall is thin without any abnormality of enhancement. Absence of ascites.

Considering the absence of signs of gravity in CT-scan, conservative measures are required as medical treatment and endoscopic proceedings, but the non-improvement of our patient lead to surgical treatment. A cecostomy was realized, with a good evolution of the patient afterward.

3. Discussion

Ogilvie's syndrome describes an acute colonic pseudo-obstruction responsible for dilatation of part or all of the colon and rectum without intrinsic or extrinsic mechanical obstruction, on a previously healthy colon [1].

Its pathophysiology is still not clearly understood. An imbalance between sympathetic and parasympathetic tone remains the most likely etiology. In 1948, Heneage Ogilvie proposed that ACPO was due to a disorder of the autonomic innervation of the colon [2]. Other authors have posited a vascular theory based on decreased splanchnic perfusion [3] [4].

Prostaglandin E, neurotropic medications, metabolic disorders or infection are incriminated on other theories [5] [6].

There are two cases of Ogilvie's syndrome associated to Parkinson disease reported in the literature to our knowledge, that reported by Marinella in 1997 [7] and by Y. Motiaa *et al.* in 2017 [8] but our case is distinguished by the absence of L-Dopa intake during the 6 months preceding the onset of the syndrome, unlike the cases reported where the L-Dopa was the main cause of Ogilvie's syndrome.

In our patient, the syndrome is most likely due to discontinuation of the treatment of Parkinson's disease for several months. Parkinson's disease is a multicentric neurodegenerative process that affects several neuronal structures outside the substantia nigra (the essential affected site), among which is the enteric nervous system [9] [10].

The detection of hallmark of Parkinson's disease principally Lewy bodies in the enteric nervous system and dorsal motor nucleus of the vagus in Parkinson's disease patients, suggesting that the disease could spread from brain to gastrointestinal tract (Braak's hypothesis) [11] or rather start from the digestive system and move toward the brain [12] [13].

The affection of the enteric nervous system caused by Parkinson's disease is responsible to a gastrointestinal dysmotility, which can lead to megacolon or intestinal obstruction including the acute colonic pseudo-obstruction (Ogilvie's syndrome).

Barium enema has been a time-honored imaging modality to diagnose mechanical obstruction. It may sometimes lead to the resolution of obstruction. Contrast enema is contra-indicated if colonic perforation is suspected, and is less frequently employed nowadays because of the excellent diagnostic yield of computed tomography [14].

Computed tomography is the best imaging tool, it has sensitivity (96%), specificity (98%) for distinguishing obstruction from pseudo-obstruction with no risk of peritoneal contrast extravasation, it cans pose the diagnosis with finding an accurate depiction of luminal distention; with a transitional zone at

splenic flexure, also it identify criteria of gravity (signs of intestinal suffering), obstructing lesions; primary colonic pathology (e.g. colitis, volvulus) or/and extra-colonic pathology that might cause colonic dilation (e.g. peritoneal carcinomatosis, pancreatitis), and if present, CT detects inflammation of mucosa (adjacent fat stranding, submucosal edema) and ischemic changes (splenic flexure is common site for ischemic colitis) [15] [16].

The main complication is the perforation, cecal diameter upper to 12 cm (on plain supine radiographs) is considered worrisome for perforation. However, many patients with chronic constipation or ileus have greater luminal distention without perforation; we consider a diameter of the colon up to 6 cm on CT as a significant dilatation [16].

Several differential diagnoses of Ogilvie's syndrome can be discussed:

- Cecal or sigmoid volvulus: we find a twisted mesentery and obstruction of lumen evident on contrast CT.
- Colon carcinoma: CT shows short segment wall thickening and luminal narrowing at the tumor and the colon often distended proximal to the tumor, a regional mesenteric lymph node and liver metastases are often present at diagnosis.
- Diverticulitis: the inflammation of diverticula leads to functional stenosis with dilation of the colon upstream.
- Ischemic colitis: parietal thickening in a vascular territory.
- Toxic megacolon: the dilation interest most of the time the transverse colon, with loss of haustra and an irregular appearance of colonic mucosa due to edema causing "Thumbprinting" [16] [17].

Several possible therapeutic approaches can be considered: conservative treatment, pharmacologic treatment, colonoscopic exsufflation, and surgery.

Conservative treatment should be instituted as soon as the diagnosis of ACPO is considered, as long as there is no question of perforation. Management is well codified by the guidelines of the American Society for Gastrointestinal Endoscopy (SAGES) [3] [18].

Pharmacologic treatment with neostigmine and colonic exsufflation head the list of interventional options. Cases reported in literature treated by this concervative measures has a success rates that varies between 36% and 96% [6] [16] [19], and a risk of colonic perforation that less than 2.5%.

Surgical intervention should only be a last recourse after the failure of endoscopic procedures or when colonic perforation or ischemia makes surgery unavoidable. The mortality of patients who undergo surgery varies from 30% - 50% versus 14% - 30% for non-operated patients [20].

Considering the non-improvement of our patient under medical and endoscopic treatment, surgery was required as a cecostomy, with a favorable outcome.

4. Conclusions

Ogilvie's syndrome is a marked dilation of the colon without mechanical obstruc-

tion whose pathophysiology remains controversial; it can be due to a disorder of the autonomic innervation of the colon like the case in our patient who has the Parkinson's disease with discontinuation of the treatment for several months.

A delay in diagnosis and/or treatment significantly increases morbidity and mortality.

The diagnosis is based on computed tomography that also detects signs of gravity and guides therapeutic management.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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