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Seven cases of sigmoid volvulus in Parkinson's disease

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ABSTRACT Non-motor features of Parkinson's disease are receiving greater recognition. Constipation affects up to 50% of patients with Parkinson's disease and sigmoid volvulus remains an under recognised complication with mortality rates up to 50%. The incidence of sigmoid volvulus in the general population is 1.7/100,000/year. The specific incidence in Parkinson's disease is not known; however, this case series suggests that it is noticeably more than in the general population at 100/100,000/year. This paper highlights the importance of early recognition and treatment of constipation to prevent volvulus developing and the various treatments currently available.

KEYWORDS constipation, non-motor, obstruction, Parkinson's disease, volvulus

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INTRODUCTION

Parkinson's disease (PD) is characterised by rigidity, bradykinesia and tremor with subsequent postural instability due to degeneration of the pigmented substantia nigra pars compacta and the locus coeruleus in the midbrain. Non-motor features of PD are being increasingly recognised. Constipation affects up to 50% of patients, even before the onset of motor features.[1] Case reports of sigmoid volvulus in PD date back to 1965,[1–5] but it remains an under recognised complication with mortality rates up to 50%. The incidence of sigmoid volvulus in the general population is 1.7/100,000/year.[6] The specific incidence in PD is not known. This paper outlines seven cases of sigmoid volvulus in patients with PD from our local population over three years.

CASE REPORTS

The seven patients with volvulus were identified by our specialist nurse practitioner. She had noted that bowel obstruction seemed to be common in the PD population under her care and kept track of all episodes of volvulus over a three year period. Table 1 provides a summary of the cases. All were under the care of the local PD service. The notes were reviewed retrospectively and characteristics such as age at first presentation with bowel obstruction, number of years since PD diagnosis at the time of first presenting with obstruction, current medication for PD, gender, and history of constipation were recorded. The Hoehn and Yahr stage was not recorded in clinic letters but was derived, by two of the authors of this paper, from a description of motor symptoms on neurological examination at the PD clinic prior to the episode of volvulus. If the patients had an episode of recurrence of sigmoid volvulus this was also recorded.

DISCUSSION

The case series consisted of six males and one female with an age range from 72–83 (mean 78) years. Disease duration ranged from 2–17 (mean 7) years and the Hoehn and Yahr stage ranged from 1–3. Six of the patients had a documented history of constipation. All were on levodopa and a DOPA decarboxylase inhibitor. Two patients were also taking dopamine agonists and one of these patients was also on a catechol-O-methyltransferase (COMT) inhibitor. None of the patients were taking anticholinergic medications. Neither disease duration nor Hoehn and Yahr stage related to development of volvulus in this case series; this is in keeping with a previous paper.[3]

Many factors contribute to a patient with PD developing intestinal obstruction.[1,7] Slow intestinal transit, deficient abdominal and diaphragmatic muscular tone, inadequate fluid intake, decreased mobility and autonomic disturbance all contribute to gastrointestinal features. Constipation may result from α-synuclein deposits in the dorsal vagus nucleus and myenteric plexus before involving the substantia nigra, which might explain why gastrointestinal symptoms may occur before the onset

TABLE 1 Patient characteristics

Case	Age	Sex	Duration of disease	Hoehn Yahr stage	PD medication	History of constipation	Clinical picture	Management	Recurrence
1	82	M	2y	2	Co-beneldopa 25/100 mg tds	Y	Abdominal pain, complete constipation 2/52	Rigid sigmoidoscopy and decompression	N
2	74	M	3y	1	Co-careldopa 37.5/150 mg tds; co-careldopa 25/100 mg MR nocte	N	Abdominal pain, vomiting	Unsuccessful decompression-> Sigmoid colectomy	Y: 5 mth later, NG tube, palliative
3	72	M	15y	3	Ropinirole 5 mg od, entacapone 200 mg, co-careldopa 50/200 mg tds	Y	Unknown, treated in USA	Colectomy	N
4	74	M	5y	2	Co-beneldopa 37.5/150 mg tds, co-beneldopa 12.5/50 mg dispersible od	Y	Abdominal pain, constipation	Flexible sigmoidoscopy and decompression	Y: 2 mth and 3 mth later, both spontaneously resolved
5	81	M	5y	3	Co-Beneldopa 12.5/50 mg bd, 25/100 mg tds	Y with prev pseudo-obstruction	Abdominal pain, distension, constipation	Endoscopic decompression	Y: 3 mth later, endoscopic decompression-ischaemia - proceeded to sigmoid colectomy - palliative
6	79	M	3y	2	Co-careldopa 12.5/50 mg tds	Y	Abdominal pain and constipation	Flexible sigmoidoscopy and decompression	Y: 4 mth later, sigmoid colectomy and 6 y later, flexible sigmoidoscopy and decompression
7	83	F	17y	2	Rotigotine 8 mg patch, co-beneldopa 25/100 mg 6 time a day, co-beneldopa MR 125 mg qds, ropinirole MR 10 mg od, co-beneldopa 25/100 mg dispersible PRN	Y	Abdominal pain and constipation	Unsuccessful rigid sigmoidoscopy, flexible sigmoidoscopy and decompression	Y: 3 mth later, flexible sigmoidoscopy decompression and 5 mth later, decompression flexible-sigmoidoscopy

PD, Parkinson's disease; tds, three times a day; nocte, at night; od, once a day; bd, twice a day; qds, four times a day; PRN, as required.

of motor features.[8–10] Autonomic dysfunction leads to asynchronous contraction of the rectum and anal sphincter with progressive colonic dilatation. Some medications used in PD possess anticholinergic properties which aggravate intestinal dysfunction. The resulting chronic constipation leads to a dilated and elongated colon which can loop around a fixed axis at the narrow base of attachment of the mesosigmoid causing volvulus.

The incidence of volvulus in PD is unknown. This case series suggests that it is noticeably higher than in the general population. Our local PD population is 2,000 and there have been 12 episodes of sigmoid volvulus over a three year period; six new cases and six episodes of recurrence in seven different patients. The six new episodes in three years would equate to an incidence of 100/100,000/year. This is in comparison with a previously documented incidence in the general population of 1.7/100,000/year. This highlights that volvulus is much

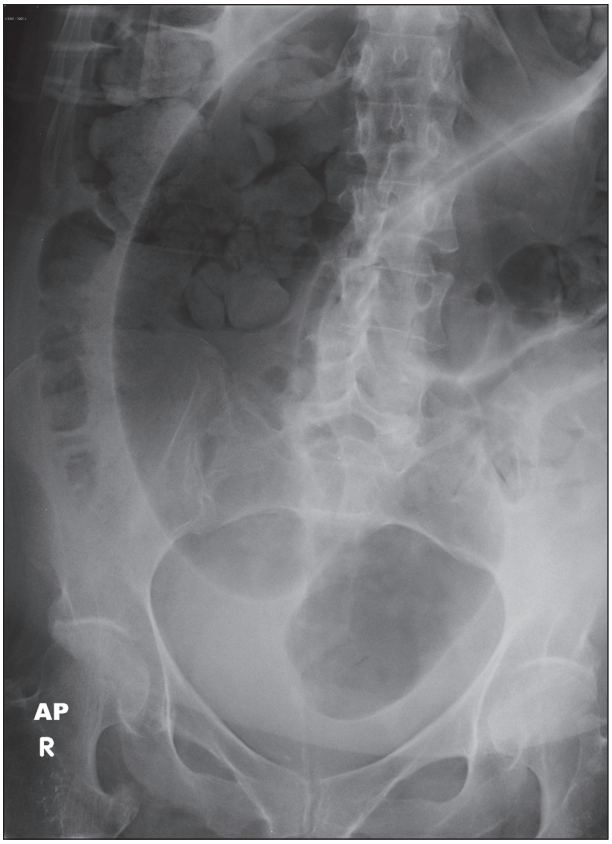

FIGURE 1 Coffee bean sign. Image courtesy of Dr Simon Jackson, Consultant radiologist, Western General Hospital, Edinburgh

more common in patients with PD and the importance of recognising and treating constipation early to avoid such complications. It also highlights the need for early abdominal imaging if a patient with PD presents with symptoms suggestive of volvulus; including abdominal pain and distension with absence of bowel movements or the passage of flatus. Examination would reveal a distended, tympanic abdomen. Abdominal radiograph would show a large distended loop of bowel and classically the coffee bean sign (Figure 1). A CT abdomen would confirm the obstruction and may show a whirl sign with twisting of the mesentery and mesenteric vessels.

If sigmoid volvulus has developed, patients can frequently be managed conservatively with intestinal decompression and enemas. Endoscopic detorsion has a recurrence rate of up to 60%.[1] If the volvulus is recurrent then endoscopic intervention carries a higher mortality rate, up to 20%.[1] In our case series 5/7 patients had a recurrence. Unfortunately two of the five did not survive the hospital admission with recurrence. Percutaneous endoscopic colostomy (a tube being placed percutaneously in the distal colon under endoscopic vision) could be considered if surgical intervention is warranted but not possible due to patient frailty. Sigmoid colectomy, if required, carries a mortality rate of up to 10%. Endoscopic detorsion prior to colectomy may decrease mortality[11] as it allows time for cardiopulmonary optimisation. This would allow the procedure to be carried out semi-electively rather than as an emergency. Prevention is best for these patients; therefore actively enquiring about the presence of constipation and commencing treatment from the time of diagnosis with PD is key to patient management. If patients with PD do present with abdominal pain and a distended tympanic abdomen then a potential diagnosis of volvulus should be high on the list of differential diagnoses and timely investigations and surgical review should be sought.

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