Pseudo-obstruction of the large bowel[1]

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Summary: Thirty patients with acute pseudo-obstruction of the large bowel are presented, and the aetiology and diagnosis of this recognized clinical entity are described. Emergency barium enema examination is recommended in patients with symptoms and signs of large bowel obstruction. When no mechanical blockage is found a diagnosis of pseudo-obstruction can be made. The management of pseudo-obstruction is conservative, with nasogastic suction, intravenous fluids and the treatment of any associated condition such as cardiac failure and inflammatory conditions. The indications for surgery in pseudo-obstruction are discussed.

Introduction

Acute pseudo-obstruction of the large bowel is a term used to describe a condition which presents with classical symptoms and signs and radiological findings of acute large bowel obstruction, but at laparotomy or on further investigation no mechanical cause for the obstruction is found. Most surgeons can recall patients who have presented in this way, and are fully aware of its existence as a definite clinical syndrome which can be fatal. The condition may occur spontaneously but is usually associated with some pathology elsewhere in the body. The aetiology and mechanism of acute pseudo-obstruction is speculative and this presents problems to the surgeon both in diagnosis and management.

Probably the first clinical description of the syndrome was reported by Sir Heneage Ogilvie (1948) in a paper entitled 'Large intestinal colic due to sympathetic deprivation. A new clinical syndrome'. He reported 2 patients with clinical features of obstruction of the distal colon by carcinoma, where laparotomy was eventually undertaken in spite of normal findings in a barium enema. In each case there was no mechanical obstruction and the colon was distended but otherwise normal. Laparotomy disclosed unsuspected malignant disease involving the region of the crura of the diaphragm and the coeliac axis and semilunar ganglion. This clinical entity became known as 'Ogilvie's syndrome of false colonic obstruction' and was the title of a paper written by MacFarlane & Kay (1949). They reported 3 patients with classical large bowel obstruction, where the colon was distended as far as the splenic flexure in 2 and the pelvic colon in 1 case. At laparotomy, no mechanical obstruction of the colon was found. One of the patients suffered a coronary thrombosis prior to the obstructive episode, but the other 2 had nothing significant in their medical histories. One patient died after a decompressive transverse colostomy had been carried out.

Dudley *et al.* (1958), in a paper entitled 'Intestinal pseudo-obstruction', reported 13 patients at Edinburgh Royal Infirmary who had undergone a negative laparotomy for intestinal obstruction. Morton *et al.* (1960) described 4 similar cases where the caecum perforated in 2 patients. In the same year Byrne (1960), in reviewing 197 patients with acute large bowel obstruction, found 9 where there was no true mechanical obstruction due to organic disease, but a paralytic ileus caused by kinking or twisting at a natural flexion point. He attributed the cause of the paralytic ileus to pneumonia in 4, ulcerative colitis, gangrenous cholecystitis, acute bacterial endocarditis, fractured hip, and administration of Thorazine.

Stephens (1962) in Aberdeen described 4 classical cases of acute pseudo-obstruction and stated that patients were usually elderly, and that the condition was associated with renal or cardiac failure, pneumonia or an acute infection of an abdominal organ. Bardsley (1974)

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reported 12 episodes of pseudo-obstruction occurring in 11 patients and concluded that at least one of the classical features of large bowel obstruction is always absent, and that this fact should always make one suspect pseudo-obstruction.

Patients and results

During the last 25 years the author has had personal experience of 30 cases of pseudo-obstruction under his care and has been aware of many other patients in the same hospital with this condition. There were 17 males and 13 females in the series and their ages varied between 47 and 83 years, the mean age being 64. All the patients had colicky abdominal pain, abdominal distension and tenderness, and X-ray appearances of distended large bowel with fluid levels. Approximately 50% of the group had vomited. The plain vertical X-ray of the abdomen showed a 'cut-off' of gas in the colon near the splenic flexure or rectosigmoid region in 20 patients, suggesting mechanical obstruction at this level, and in 4 there was evidence of gas all the way to the lower rectum. In 6 patients the radiological findings were inconclusive as the quality of films was poor, having been taken in an emergency situation in elderly and obese patients. Free gas was seen under the diaphragm in 2 patients where perforation of the caecum had occurred (Figure 1).

A laparotomy was carried out in 17 patients, 8 of whom died shortly after operation. Barium enema examinations were not performed on these 17 patients as there were urgent indications for laparotomy. After a correct diagnosis had been made by barium enema, 5 patients were decompressed by caecostomy only, and the remaining 8 treated conservatively. All survived except one who was suffering from myelomatosis.

Discussion

The cause and mechanism of acute pseudo-obstruction has not been satisfactorily explained, but many observations have been recorded. In the majority of cases there is some associated pathology elsewhere in the body, and this was seen in this series (Table 1) although in 7 patients the pseudo-obstruction was idiopathic.

The site of pseudo-obstruction is usually close to a point where the mobile colon becomes fixed, either near the splenic flexure or rectosigmoid junction. Distension of the caecum, ascending and transverse colon could cause kinking at the point of fixation and lead to a mechanical valvular obstruction, and this hypothesis was expounded by Byrne in 1960. However, in some cases of pseudo-obstruction the change in bowel calibre is not always abrupt, and the distended lumen of the colon may taper down to its normal size over a considerable length. This was illustrated in this series in 4 patients where the colon was distended as far as the rectum.

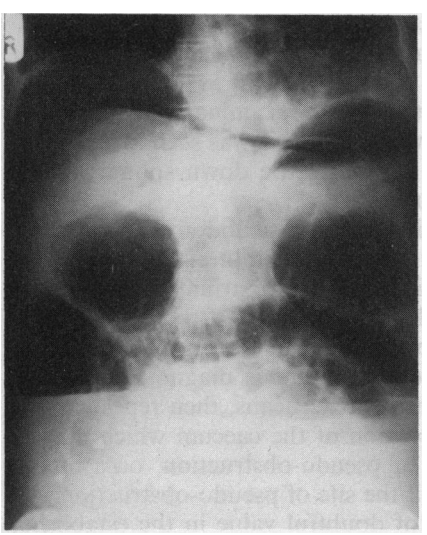

Figure 1. Erect abdominal film showing small and large bowel fluid levels in a patient with pseudo-obstruction following bilateral hernia repair. Gas is seen under the diaphragm as the caecum had perforated. At operation a spasm constriction in the transverse colon was found

Table 1. Associated pathology in 30 patients with acute pseudo-obstruction of the colon

Cardiac failure	6	Myelomatosis	1
Acute cholecystitis	5	Cerebral thrombosis	1
Chronic renal disease	5	Hernia repair	1
Chronic pyonephrosis	1	Hip arthroplasty	1
Lobar pneumonia	2	No associated condition	7

Abnormalities of colonic motility have been suggested as a cause of pseudo-obstruction, resulting from alterations in blood flow as a result of distension or anoxia (Dudley *et al.* 1958), and renal failure. Stephens (1962) emphasized the importance of renal failure in 3 of his 4 patients, and in Bardsley's (1974) series the blood urea was significantly raised in half the patients. The exact nature of the mechanism involved is not known, but it may be due to a neuromuscular dysfunction associated with hypokalaemia, or complex electrolyte disturbance due to renal, hepatic, or metabolic disease. Karani *et al.* (1979) reported acute pseudo-obstruction in 2 patients with proven alcoholic disease, one of whom had a metabolic acidosis, and suggested that disturbance of the acid-base equilibrium may inhibit gut motility, leading to colonic distension.

Another theory of causation of pseudo-obstruction is a sympathetic reflex inhibition. Neely & Catchpole (1967) stated that the myogenic contractility of the gut is unimpaired in a paralytic ileus, and the distension is due to sympathetic reflex inhibition. In any major illness there is increased sympathetic activity, and this could cause dilatation of the proximal colon and a pseudo-obstruction. As Bardsley (1974) pointed out, most patients have an associated pathological condition and the only factor in common is that the patients are 'ill'. This does not explain the causation and mechanism of pseudo-obstruction where no associated pathology is found. There is no satisfactory explanation of the cause of acute pseudo-obstruction, and the likelihood is that there is a combination of these factors leading to the development of the condition.

The first rule in the management of a dilated colon is to consider the possibility of pseudo-obstruction, especially in an elderly patient who presents with clinical symptoms and signs of large bowel obstruction, and suffers from an associated pathology such as cardiac failure or renal disease. It is the practice of the author to arrange an emergency barium enema examination, without routine preparation, on all patients with large bowel obstruction. This procedure is carried out not only to exclude pseudo-obstruction, but also to determine the site of obstruction if due to carcinoma, and in planning decompressive procedures or primary resection.

If no true mechanical obstruction is demonstrated and the barium runs freely round the colon to the caecum, then treatment should be conservative with nasogastric suction, intravenous fluids and treatment of any associated condition such as cardiac failure, pneumonia, or other inflammatory condition. A barium enema examination is not only diagnostic (Figure 2) but may often have a therapeutic value, and this was seen in 3 patients in this series. The majority of patients treated in this manner settle down spontaneously, although it is possible for acute pseudo-obstruction to recur.

The indications for operation include doubt in the diagnosis, gross abdominal distension which may cause respiratory distress, the possibility of caecal rupture, and failure of conservative measures. If there is any doubt in the diagnosis, and barium does not pass round to the caecum, then immediate laparotomy should be performed. If there are signs of peritonitis with guarding and rigidity on the right side of the abdomen, then the caecum has probably ruptured, and the presence of gas under the diaphragm is diagnostic. When a patient who is grossly distended is being treated by conservative means, then repeat X-rays of the abdomen are advisable to avoid missing a perforation of the caecum which may be silent. If decompression is indicated in a proven case of pseudo-obstruction, occasionally this can be carried out through a rectal tube, especially if the site of pseudo-obstruction is in the rectosigmoid or rectum. This method, however, is of doubtful value in the established

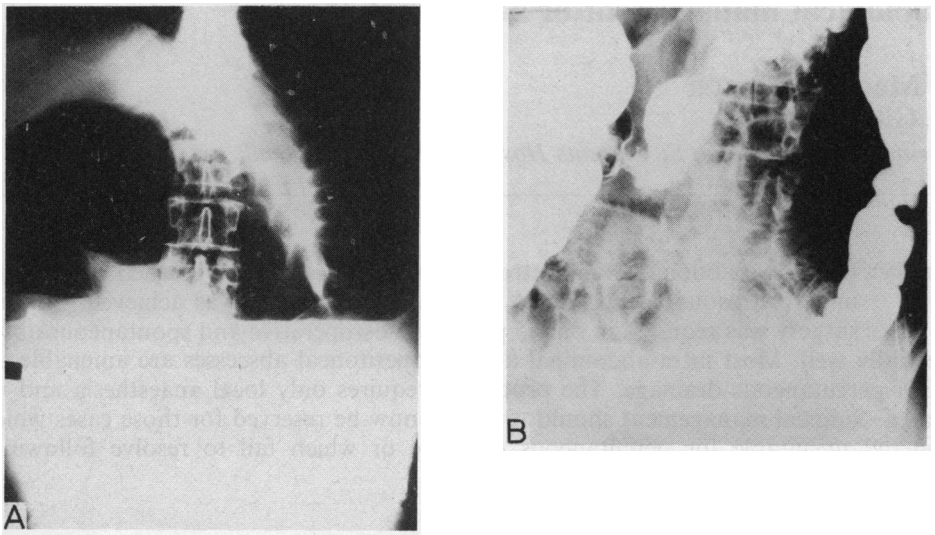

Figure 2. A: Plain abdominal X-ray showing large bowel fluid levels due to pseudo-obstruction in a patient with congestive heart failure. B: Barium enema in the same patient showing no mechanical obstruction in the colon, and the condition settled with conservative treatment

case of pseudo-obstruction. If operative decompression is indicated, then laparotomy should be avoided at all costs, as these patients are very ill, usually elderly and suffering from other diseases. The mortality rate after laparotomy and transverse colostomy was nearly 50% in this series (8 out of 17).

For some unknown reason, transverse colostomy is not always effective in the relief of acute pseudo-obstruction, and caecostomy is probably the best method of decompression without a laparotomy. This should be carried out through a gridiron incision in the right iliac fossa and a large Malecot or de Pezzer catheter inserted into the caecum. This procedure was carried out in 5 patients in this series who were decompressed fairly quickly and survived. Another advantage of a caecostomy is that a second operation is not necessary to close the stoma, whereas a loop transverse colostomy requires further surgery.

Conclusion

Acute pseudo-obstruction of the large bowel is now a recognized clinical syndrome which can be fatal, despite the fact that there is no true mechanical obstruction present.

The diagnosis should always be considered especially in elderly patients who present with clinical symptoms and signs of large bowel obstruction. The syndrome is usually associated with some other pathological condition in the body, but may be idiopathic.

Diagnosis is by an emergency barium enema, and the condition should be managed by conservative measures. If surgical decompression becomes necessary, then a caecostomy without laparotomy is suggested as the best method of treatment.

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