ACUTE COLONIC PSEUDO-OBSTRUCTION AFTER TOTAL HIP REPLACEMENT

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Acute colonic pseudo-obstruction is a poorly recognised and potentially fatal complication of hip surgery.

Between 1991 and 1994 six patients were observed who required laparotomy after failure of medical management. In three the indication was signs of peritonism, while in the other three exploration was required to exclude segmental ischaemia and to decompress the bowel. In all, there was no evidence of mechanical obstruction.

Patients having total hip replacement are at risk of developing pseudo-obstruction due to their age, comorbidity, high doses of analgesics and the nature of the operation. If postoperative ileus persists for more than 48 hours acute colonic pseudo-obstruction should be suspected and confirmed by plain radiography. Prompt recognition and treatment with early referral to a colorectal unit are indicated. Laparotomy appears to carry less risk than that for patients with idiopathic pseudo-obstruction, but should be performed only if colonic ischaemia is suspected.

PATIENTS AND METHODS

We obtained the records of all patients who had an elective primary total hip replacement at the Nuffield Orthopaedic Centre, Oxford from January 1991 to December 1994 and who required transfer to a nearby colorectal unit in the early postoperative period. These records were cross-referenced with those of patients who had a laparotomy during the same period, and the patients were reviewed. Their age, past medical history, type of anaesthesia, intraoperative position, details of postoperative analgesia, management of pseudo-obstruction and findings at laparotomy were recorded. Patients with pseudo-obstruction who were referred and who did not progress to laparotomy were not included.

RESULTS

In the four-year period the total number of primary total hip replacements performed was 2230 and six patients had a laparotomy for pseudo-obstruction. Details are shown in Table I. All six had the symptoms, signs and radiological appearance of acute obstruction of the large bowel. Their average age was 74 years. Four had cardiovascular disease. All had been operated on under general anaesthesia and three had additional regional epidural anaesthesia. All had required morphine analgesia for at least three days postoperatively.

The length of time before conservative treatment was begun varied from two to six days postoperatively. One patient failed to tolerate the nasogastric tube. In two mechanical obstruction was excluded by barium enema.
One patient was treated with 0.5 mg of neostigmine on the sixth postoperative day and this resulted in the passage of a small amount of flatus, but the pseudo-obstruction persisted. Three patients had colonoscopy which failed to decompress the bowel adequately. Laparotomy was performed between the 6th and the 20th days after operation. In all cases there was no mechanical obstruction. In three the indication for laparotomy was peritonism of the right iliac fossa suggestive of caecal ischaemia or perforation. This was confirmed in two cases. Both patients had had colonoscopy the previous day. In the third a grossly dilated colon and a perforated gallbladder were found. The symptoms of gallbladder perforation had been masked by the pseudo-obstruction. The other three patients had laparotomy to decompress the colon and to exclude segmental ischaemia. One required a second laparotomy ten days after the first for persistent pseudo-obstruction. One patient died from bronchopneumonia after decompressive laparotomy. The others all made a full recovery.

DISCUSSION

Pseudo-obstruction usually occurs in the elderly and is associated with a wide range of medical conditions. It is characterised by abdominal distension, colicky lower abdominal pain, and absolute constipation. The pathophysiology is unknown but is probably multifactorial involving nervous, mechanical and pharmacological manipulation of the large bowel in an elderly or debilitated patient. Morphine is widely used for postoperative analgesia, but it depresses gut motility and may contribute to the delay in resolution of bowel activity. Hubbard and Richardson recognised the importance of the discontinuation of opiate analgesia and suggested that pseudo-obstruction in orthopaedic patients was partly due to poor mobility in patients with postoperative ileus. Both the autonomic and somatic nervous systems have been implicated in the aetiology. Stimulation of the pelvis or peritoneum may cause reflex inhibition of the parasympathetic nerve supply to the colon via the sacral nerves and in animal models stimulation of peripheral nerves has been shown to slow gut motility. Early diagnosis and instigation of conservative management are the mainstays of treatment. Delay results in considerable morbidity. Conservative management consists of nasogastric decompression, nothing by mouth, avoidance of the use of anticholinergic drugs, cessation of morphine analgesia, and careful monitoring of fluid and electrolytes and respiratory and nutritional status. Plain abdominal radiography is the most useful investigation and

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### Table I.

<table>
<thead>
<tr>
<th>Case</th>
<th>Age (yr)</th>
<th>Gender</th>
<th>Past medical history</th>
<th>Operative position</th>
<th>Anaes*</th>
<th>Days with NG† tube</th>
<th>Barium enema</th>
<th>Colonoscopy at day</th>
<th>Laparotomy‡</th>
<th>Indication for laparotomy</th>
<th>Proc§</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>80</td>
<td>M</td>
<td>Hyper-tension</td>
<td>Supine</td>
<td>G</td>
<td>Yes</td>
<td>Yes day 10</td>
<td>16</td>
<td>Refractory obstruction</td>
<td>Decompressed</td>
<td>Resolved</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>70</td>
<td>F</td>
<td>None</td>
<td>Supine</td>
<td>G</td>
<td>No</td>
<td>No</td>
<td>10+20</td>
<td>Refractory obstruction</td>
<td>Decompressed</td>
<td>Resolved</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>85</td>
<td>M</td>
<td>Cardiac failure</td>
<td>Left lateral</td>
<td>G</td>
<td>No</td>
<td>No</td>
<td>10</td>
<td>Refractory obstruction</td>
<td>Decompressed</td>
<td>Resolved Pneumonia RIP</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>83</td>
<td>M</td>
<td>Hyper-tension</td>
<td>Supine</td>
<td>G</td>
<td>No</td>
<td>Yes day 16</td>
<td>17</td>
<td>Peritonism</td>
<td>Decompressed</td>
<td>Hemicol</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>68</td>
<td>M</td>
<td>Angina</td>
<td>Left lateral</td>
<td>G</td>
<td>No</td>
<td>Yes day 5</td>
<td>6</td>
<td>Peritonism</td>
<td>Hemicol</td>
<td>Resolved</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>61</td>
<td>F</td>
<td>None</td>
<td>Right lateral</td>
<td>G</td>
<td>Yes</td>
<td>Yes day 16</td>
<td>17</td>
<td>Peritonism</td>
<td>Hemicol</td>
<td>Resolved</td>
<td></td>
</tr>
</tbody>
</table>

* G = general  
† nasogastric  
‡ laparotomy  
§ Decomp = decompressed; Cholecyst = cholecystectomy; Hemicol = hemicolecotomy
the finding of gas throughout a dilated colon indicates pseudo-obstruction. A barium or Gastrografin enema should be performed to exclude mechanical obstruction and confirm the diagnosis.\(^4\)

Prokinetic agents may be used to decompress the bowel. Hutchinson and Griffiths\(^{10}\) treated 11 patients with the parasympathomimetic drug neostigmine. Eight had rapid and permanent resolution of their symptoms with few side-effects. Cisapride has also been shown to be effective in some cases of pseudo-obstruction.\(^3,10\) Colonoscopy is important in both the investigation and treatment of the condition,\(^3\) but it should be performed by an experienced colonoscopist since there is a risk of perforation.\(^6\) Once the caecum becomes massively dilated surgical decompression is needed to prevent perforation. Formal caecostomy is recommended by some,\(^5\) and laparotomy is indicated if segmental ischaemia or perforation is suspected.\(^3,5\) Laparotomy is associated with a mortality rate of 40% to 50%.

In this group of patients colonoscopy failed to resolve the pseudo-obstruction in one and possibly caused deterioration in two. Laparotomy successfully decompressed the colon in all six patients, but one required a second laparotomy. One patient died after operation.

We suggest that pseudo-obstruction is a serious and poorly recognised complication of total hip replacement of multifactorial aetiology. Patients who have a total hip replacement are at risk of developing the condition because of their age, comorbidity, high morphine requirement, poor mobility, and possibly the pelvic stimulation associated with the operation. We recommend maximal improvement of the cardiovascular status before operation, careful monitoring of bowel activity and judicious use of morphine in the postoperative period. Treatment must be started early and referral to a colorectal unit is essential. Laparotomy for pseudo-obstruction after total hip replacement appears to carry less risk than that quoted for idiopathic pseudo-obstruction. This may be due to self-selection as these patients had already withstood the stress of a major operation. The timing of surgical intervention is important and laparotomy should only be performed if ischaemia or perforation is suspected.

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.

REFERENCES