The surgical treatment of gastroduodenal Crohn’s disease

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Summary
Crohn’s disease can affect any part of the gastrointestinal tract. Gastroduodenal involvement is uncommon and was not recognised until 1949 (1). Since then approximately 200 cases have been described in several series in the world literature. This paper describes the clinical presentation and surgical management of ten patients treated in the Birmingham General Hospital between 1970 and 1984.

Patients
There were 5 males and 5 females whose ages ranged from 21 to 51 at the time of operation. The distribution of disease was duodenal in 7 and gastroduodenal in 3. There were no cases of isolated gastric involvement and all had evidence of Crohn’s disease elsewhere in the gastrointestinal tract, presenting either before or at the same time as gastroduodenal involvement.

Clinical features and diagnosis
The 3 patients with gastroduodenal involvement presented with epigastric pain. Two had received a course of cimetidine without relief. Two complained of weight loss, one with diarrhoea. Both of these patients were newly diagnosed cases and had evidence of jejunal and ileal disease on barium follow through. The third patient, who was shown to have Crohn’s disease of the small and large bowel, presented with recurrent upper gastrointestinal bleeding and epigastric pain.

Upper abdominal pain was present in 6 of the 7 patients with duodenal disease. One patient received a course of cimetidine which relieved the pain but not the other symptoms of nausea and vomiting. Six patients complained of nausea and vomiting, 2 of these also complained of upper abdominal distension. Two patients experienced weight loss and 2 had diarrhoea. One patient was asymptomatic but was found to be anaemic at routine review 5 years following resection of ileocaecal Crohn’s disease. Investigations revealed duodenal Crohn’s disease but no treatment was required for 5 years when she developed nausea and vomiting due to duodenal stenosis.

Preoperative diagnosis was made by barium meal, endoscopy or both. Barium meal was performed in 9 of the 10 cases. In 7 cases the appearances were considered diagnostic of Crohn’s disease with one or more duodenal strictures. In 2 cases the appearances were non-diagnostic. One showed only deformity of the duodenal cap and the diagnosis was made by endoscopy appearances. In the other case an initial barium meal showed lesser curve irregularity but after a 2 month course of cimetidine repeat examination demonstrated areas of rigidity and stricture affecting the stomach and duodenum.

Seven of the 10 patients underwent upper gastrointestinal endoscopy. In one, the appearances were considered diagnostic of Crohn’s disease and barium meal was not performed. In another the appearances were considered diagnostic despite an equivocal barium meal. In one patient who had involvement of the third part of the duodenum the endoscopy examination was normal. The remaining 4 patients had endoscopic evidence of irregularity and narrowing of the duodenum confirming the radiological appearances.

Endoscopic biopsy was performed in 6 cases. In one of these a granuloma was observed. In the remainder the histological features showed non-specific gastritis or duodenitis only.

Treatment
Five patients had undergone at least one operation for Crohn’s disease some years earlier. At the same time as the operation for duodenal disease three patients had a small bowel resection and 2 had small strictureplasies (2). Three patients were receiving treatment with steroids (two with prednisolone, and one with ACTH).
The indications for operation in the 3 patients who also had gastric involvement were persistent abdominal pain in one, recurrent gastrointestinal bleeding in one and, in the other, abdominal pain with vomiting. The patient with persistent pain had evidence of duodenal stenosis and a gastroenterostomy was performed with a proximal gastric vagotomy. The patient with gastrointestinal bleeding had severe disease of the antrum with minimal duodenal disease and had a truncal vagotomy and antrectomy. The third patient, with pain and vomiting, had a tight pyloric stricture treated by pyloroplasty.

In the 7 patients with duodenal involvement the indications for operation were pain, vomiting or both. One patient had had a duodenojunostomy 26 years before and had developed further stenosis proximal to this which was treated by pyloroplasty and duodenal strictureplasty. Two patients had obstruction bypassed by a Roux-en-Y duode-nojunostomy and two by gastroenterostomy, one of which was accompanied by vagotomy.

**Results**

All the patients have been followed up from 8 months to 29 years after their first operation for duodenal disease. Seven have remained well with no recurrence of gastro-duodenal problems. Two are receiving steroids for active disease in the small bowel. None are currently on H2 receptor blockers.

Three patients have required re-operation. The first of these had a duodenojunostomy 26 years before a second operation for further strictures (Patient 1, Table I). She then developed further pyloric stenosis and required a second pyloroplasty. The second patient (Patient 1, Table I) developed upper abdominal pain and vomiting 5 years after proximal gastric vagotomy and gastrojejunostomy. This was due to a high jejunal stricture and was treated by strictureplasty. This patient has subsequently developed recurrent episodes of melaena and is still undergoing investigation. The third patient (Patient 4, Table I) developed a stomal ulcer following gastrojejunostomy without vagotomy. Treatment was by closure of the gastroenterostomy and duodenal strictureplasty (3).

There was no operative mortality but one patient died 2 years later from a myocardial infarction.

**Discussion**

Pain, vomiting and weight loss are the usual symptoms of gastro-duodenal Crohn’s disease while upper gastrointestinal bleeding is a well recognised, though relatively rare, presentation (4). The epigastric pain may be mistaken for that of peptic ulceration but failure to respond to H2 blockers in a patient with known Crohn’s disease and duodenal abnormality should lead the clinician to suspect duodenal Crohn’s disease. Vomiting usually indicates obstruction.

**TABLE I. Gastroduodenal Crohn’s**

<table>
<thead>
<tr>
<th>No.</th>
<th>Sex</th>
<th>Age at Symptoms</th>
<th>Operation</th>
<th>Current Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 M</td>
<td>24</td>
<td>Persistent pain (ii) Abdominal pain vomiting</td>
<td>Proximal gastric vagotomy + gastrojejunostomy (1977)</td>
<td>Recurrent melaena</td>
</tr>
<tr>
<td>3 F</td>
<td>26</td>
<td>Abdominal pain Weight loss</td>
<td>Pyloroplasty (1983)</td>
<td>Symptom free</td>
</tr>
</tbody>
</table>

**TABLE II. Duodenal Crohn’s**

<table>
<thead>
<tr>
<th>No.</th>
<th>Sex</th>
<th>Age at Symptoms</th>
<th>Operation</th>
<th>Current Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 F</td>
<td>21</td>
<td>iii Abdominal pain vomiting, distension</td>
<td>Duodenojunostomy (1976)</td>
<td>Symptom free</td>
</tr>
<tr>
<td>3 F</td>
<td>46</td>
<td>Vomiting</td>
<td>Vagotomy and gastrojejunostomy (1974)</td>
<td>Symptom free</td>
</tr>
<tr>
<td>4 M</td>
<td>17</td>
<td>i Abdominal pain vomiting ii Abdominal pain vomiting</td>
<td>Gastrojejunostomy (July 1983) Closure of GJ and duodenal strictureplasty (November 1983)</td>
<td>Symptom free Steroids for small bowel disease</td>
</tr>
<tr>
<td>5 M</td>
<td>48</td>
<td>Abdominal pain vomiting, weight loss</td>
<td>Duodenojunostomy (January 1984)</td>
<td>Symptom free</td>
</tr>
<tr>
<td>6 M</td>
<td>27</td>
<td>Abdominal pain</td>
<td>Duodenal strictureplasty (March 1984)</td>
<td>Symptom free</td>
</tr>
<tr>
<td>7 M</td>
<td>35</td>
<td>Abdominal pain vomiting, weight loss</td>
<td>Duodenal strictureplasty</td>
<td>Symptom free Steroids for small bowel disease</td>
</tr>
</tbody>
</table>
The diagnosis usually depends on demonstrating strictures, deep fissures, mucosal oedema and a cobblestone mucosa by barium meal (5), endoscopy (6) or both. Endoscopic biopsy should be performed although this was only done in six of our cases. We find that the endoscopic biopsy specimens are usually too small and superficial to make a confident diagnosis of Crohn's disease. Our experience is similar to that of other authors (4, 6). However, Rutgeerts et al. (7), were able to make a positive diagnosis on 68%, of endoscopic biopsies. Biopsy is important to exclude gastric carcinoma or lymphoma, which may have similar radiographic appearances to gastric Crohn's disease.

As with Crohn's disease in the rest of the gastrointestinal tract, initial treatment is conservative and surgery is reserved for complications. Duodenal obstruction is the principal indication for surgery, the others being persistent pain and upper gastrointestinal bleeding. When the stomach is the main site of disease resection in the form of partial or total gastrectomy has been advised. Duodenal resection is dangerous and is not advised.

For symptomatic duodenal disease, bypass procedures either by gastrojejunostomy or Roux-en-Y duodenoscopy are usually advised and have been reported favourably (4, 8, 9, 10). Burgers et al. (8) and Wise et al. (9) make a plea for gastrojejunostomy while Nugent et al. (4) and Fielding et al. (10) feel that the type of bypass is not important. Pyloric strictures can be relieved adequately by a pyloroplasty and recently the operation of duodenal strictureplasty (2) has been used for distal duodenal strictures. We have now treated 4 patients by strictureplasty either as a primary or a revision procedure. It could become the operation of choice as a blind loop is not created and thus the problems of blind loop syndromes and stomal ulceration should be avoided. The results in our 4 patients are encouraging but the follow-up is short.

After bypass or strictureplasty, further strictures may develop proximally or distally; this occurred in 2 of our patients, both of whom required re-operation. A third patient required re-operation because of stomal ulceration in the jejunum following gastrojejunostomy. This complication raises the question of whether or not a vagotomy should accompany a gastrojejunostomy for duodenal stenosis in Crohn's disease. Kyle (11) feels that vagotomy is unecessary as gastric acidity is low in Crohn's disease and truncal vagotomy may aggravate diarrhoea. However, Ross et al. (12) recently reported the long term results of gastrojejunostomy alone in 5 patients, 4 of whom developed either stomal or duodenal ulceration. Also 2 or 3 patients who had a vagotomy and gastrojejunostomy developed obstruction of the gastrojejunostomy.

Obstruction has been the principal indication for operation in this series of 10 patients with gastric or duodenal Crohn's disease. Bypass procedures are satisfactory but gastrojejunostomy carries a risk of stomal ulceration. In some patients strictureplasty or duodenoscopy may be the operations of choice.

References

Notes on books


This book reviews all aspects of cell proliferation in health and disease. It is extensively referenced and is directed specifically towards a medical readership rather than to a basic scientific readership.


The Proceedings of the International Symposium on Immunogenetics held in Tokyo in August 1983. 28 papers are published originating from laboratories in the United States, the United Kingdom and Japan.


A companion volume to Part A of this series reporting the Proceedings of the First International Symposium on tumours of the Urinary Bladder held in Paris in July 1983. 43 papers are reported.

**The Knee** by Philippe Segal and Marcel Jacob. 144 pages, illustrated. Wolfe, London. £15.00.

This book is translated from the French and is intended essentially for those involved in sports injuries. The illustrations are line diagrams. There are no references.