CASE REPORTS

Perforation from endoscopic small bowel biopsy

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Abstract

Two patients, having undergone an apparently straightforward endoscopy with small bowel biopsy, developed a perforation. One, who proved to have normal small bowel mucosa, needed laparotomy and suturing of the duodenal perforation. The other, who had coeliac disease, settled with conservative management.

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In 1981¹ we validated endoscopic duodenal biopsy as an alternative to conventional suction biopsy. The several advantages of this technique were readily appreciated and it has become the usual method of obtaining small bowel biopsies. It was concluded that complications such as haemorrhage and perforation were unlikely because of the limited size of biopsies. We report two patients in whom perforation occurred.

Case reports

PATIENT 1

A 32 year old woman was referred by a consultant physician for small bowel biopsy to investigate weight loss. She lacked energy but was otherwise well and coped with looking after two preschool children. The endoscopy was done as a day case using 5 mg midazolam iv by an experienced endoscopist of eight years standing. An Olympus GIF IT10 endoscope was used. The examination proceeded without difficulty. No abnormality was seen and four biopsies were taken from the second part of duodenum using the spiked biopsy forceps. Stereomicroscopic examination showed normal villi and subsequent histology showed no abnormality with very little sub-mucosa and no serosa. Fifteen minutes later the patient complained to the nurse of abdominal discomfort but did not want to stay in hospital. She went home after an hour. She had more pain at home and was admitted several hours later with severe pain, abdominal guarding, and absent bowel sounds. An abdominal radiograph showed air under the diaphragm. Emergency laparotomy was done. A small perforation in the lateral aspect of the second part of duodenum was identified and sutured. She made an uncomplicated recovery.

PATIENT 2

A 72 year old woman presented to her general

practitioner with lethargy. A macrocytic anaemia was found and she was referred for further investigations. These showed folate deficiency and steatorrhoea and a jejunal biopsy taken with a Crosby capsule showed total villous atrophy, indicative of coeliac disease. A gluten free diet was commenced and the anaemia, after correction, did not recur. Her tiredness resolved and her sense of well being returned. In order to check mucosal recovery after gluten withdrawal a second small intestinal biopsy was obtained using an Olympus GIFK2 endoscope and spiked biopsy forceps. The procedure was carried out uneventfully as a day case and performed by an endoscopist of 10 years' experience. Four days later the patient was admitted to hospital at the request of her general practitioner because of increasing abdominal distension. There was no other symptom and, in particular, no pain. On examination she was not distressed but had an enlarged, soft, non-tender, tympanic abdomen. Bowel sounds were present. An abdominal radiograph revealed a considerable amount of air under the diaphragm. As there was no indication to operate immediately she was observed on the ward and over the ensuing few days it was clear that the air was gradually being absorbed. She made a full recovery.

Discussion

The introduction of peroral suction biopsy instruments specifically designed to sample the small intestine by Royer *et al*² in 1955 and Shiner³ in 1956 placed the diagnosis and management of patients with small bowel disease, especially coeliac disease, on a much more rational basis. Various modifications were made and a variety of instruments became available including the Crosby capsule,⁴ the multipurpose instrument of Brandborg,⁵ the hydraulic multiple biopsy instruments,⁶⁻⁹ and the Carey¹⁰ and Choudhury¹¹ capsules. Complications, although rare, were reported with nearly all these instruments.¹²⁻¹⁸ The majority seem to have been with the Crosby capsule¹⁵ but this probably reflected its more frequent use. The most serious complications were massive haemorrhage¹³ and perforation with peritonitis.¹⁴ Bacteraemia had also been observed.¹⁷

With the introduction of endoscopic small bowel biopsy we anticipated that there would be fewer complications and indeed that has probably been the case. It is always important to remember, however, that very few investigations in hospital are completely without risk and we must balance

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the risks and benefits. In these two patients we have been responsible for the most serious potential complication, that is perforation.

The reason for the perforations is not apparent. We presume that the biopsy forceps were pushed through the duodenal wall and this serves to remind us of the importance of not advancing forceps blindly, especially in the confined space of the duodenum. The actual biopsies were not full thickness and so the size of the forceps cannot be blamed. One wonders about a defective or thin duodenal wall but in patient 1 no abnormality was detected at laparotomy. Patient 2 was found to have coeliac disease but that should not cause any thinning or defect of the submucosal tissues.

As far as we are aware this complication has not previously been reported and the incidence must be extremely low. In our combined units we have undertaken over 5000 small bowel biopsies using this technique. Patients should be made aware of this possible complication before giving consent, and doctors and endoscopy nurses should be alert to the possibility that postendoscopic abdominal pain can be caused by a perforation even after an apparently uncomplicated procedure.

The number of upper gastrointestinal endoscopies has increased tremendously and there is no sign of the increase abating.¹⁹ Familiarity is said to breed contempt and many endoscopies are done without much thought as to the risks. It is therefore salutary to be reminded that serious complications may occur. No upper gastrointestinal endoscopy should be undertaken without

good reason and without the patient being made aware of the possible risks.

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