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Free Perforation in Crohn's Disease

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ABSTRACT : Rare complication of free perforation in Crohn's disease was clinically reviewed on the basis of surgical experiences with Crohn's diseases.

1) Free perforation occurred in younger patients with steroid therapy.

2) There are no close correlation with the time duration of the disease affection.

3) The fortuitous locations of free perforation were the ileum and the ascending colon with multiple perforations.

4) One expired with postoperative sepsis on 55 days after surgery because of delay in diagnosis and treatment, although the other one was very well one year and one month following surgery.

It was emphaseized that physicians should be aware of rare complication of free perforation in the follow-up of younger patients with Crohn' disease in the use of steroid.

INTRODUCTION

Crohn's disease is known as a chronic granulomatous inflammation of the gut, defined by the Committe of Studying Group for the Crohn's Disease, Japan Society for the Digestive Disease (1976).

It is also well known that it is combined with adhesion to the neighboring intestine and fistula formation. In contrast, perforation is rare in occurence. In this study we have reviewed the clinical feature of free perforation, which is one of the serious complications resulting from Crohn' disease, on the basis of our 10 clinical experiences.

PATIENTS

Table 1 showed the 10 patients with penetration and perforation caused by advancing Crohn disease. Six of the ten cases underwent the medical treatments.

The types of penetration and perforation were cecoretroperitoneal penetration in four, cecocutaneous fistula in one, ileocecocutaneous fistula in one, cecoileal fistula in one, ileosigmoid fistula in one, perforation in the ileum in one and perforation of cecotransverse fistula in one respectively.

A total of two free perforations were treated

Table 1. Location of free perforation

Perforated location	Cases
Cecoretroperitneum	4 (3)
Cecocutaneous	1 (1)
Ileocecocutaneous	1
Ileoileo	1
Ileosigmoid	1
End of ileum	1 (1)
Cecum and transverse colon	1 (1)
Total	10 (6)

( ): with preop. therapy

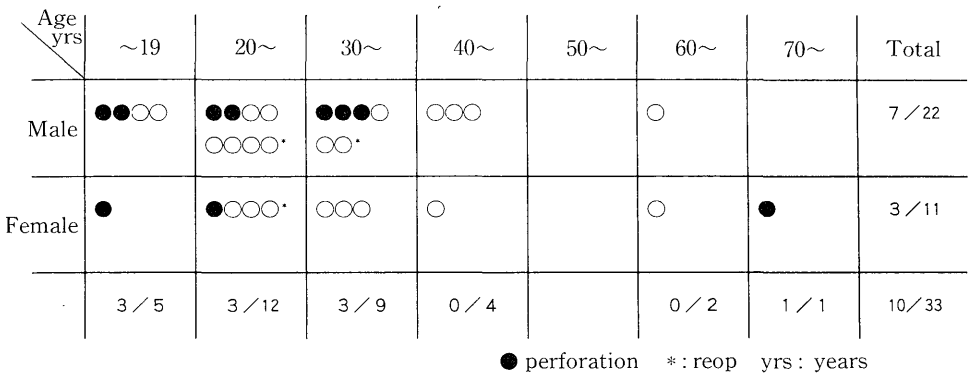

Fig. 1. Patients with penetration or perforation originated from Crohn' disease.

Table 2. Patients with free perforation originated from Crohn' disease

Case	Preop. therapy	Type	Perforated location	Operative method	Potop course
36yrs M	SASP Steroid (1.10 yr)	larg. intestine non-sequent ulcer	Cecum~ transverse colon (4 sites)	1. total colectomy ileorectal anastomosis 2. amputation of rectum	died of sepsis on day 55
35yrs M	SASP Steroid (7.4 yrs)	small and large intestine tumorous longitudinal ulcer	ileum 5cm proximal to B-valve	rection of ileocecum	alive without recurrence

at the First Department of Surgery Nagasaki University Hospital. The complications of penetration and perforation accounted for the 30.3% (10 out of 33) and perforation corresponded to the incidence of 6.6% (two out of 33). According to age distribution, Crohn's disease was distributed in younger age less than 40 years old and men were prdominantly affected as shown in **Figure 1**.

Two patients with free perforation of Crohn's disease were listed in **Table 2.** The age was centered to the third decade. Those who accidentally suffered from free perforation included the patients with previous prescription of steroid. The time duration suffering from illness was less than two years and seven years. The perforated locations were the right colon and the end of ileum respectively. One in whom the right colon was preforated had multiple perforations. The types of perforated lesions in either case were neither sequential skipping ulcer nor longitudinal ulcer formed by the tumor respectively.

The surgical outcomes were fair except for one patient who died of sepsis on the 55ht postoperative day. It was thought that the death might be caused by fulminating inflammation owing to multiple perforation.

DISCUSSION

Crohn[1] described that perforation due to Crohn's disease had never been experienced in his accumulated and detailed analyses. However, perforation is not so rare as expected. Meanwhile, since 1967, it has been reported by Waye[2], Nasr[3], Menguy[4] and Greensteen[5].

In Japan, 728 patients with Crohn's disease were collectred in accordance with the role defined by the committe of studying group for the Crohn's disease. It is defined that the incidence of perforation is as frequent as 3.4%.

The average age of the patients with perforation by Crohn's disease was 36 years old. As for the sites of perforation, the ileum was predominant in contrast with the colon in the western countries.

In many cases, perforation used to occur abruptly without any specific sign. As an acute symptom, abdominal pain is common, although a few cases accompanied fever, and much less leucocytosis. There were a few cases with precisely preoperative diagnosis of perforation due to Crohn's disease.

All underwent one stage anastomosis except one with temporary colotsomy following a resection of perforated gut. Two patients (8%) died, one of them was in association with anastomosis insufficiency. The mortality rates related to perforation due to Crohn's diease were reported as 13% by Janevicus[6], 20-25% by Nasr[3]. It was a tendency toward a decreasing mortality rate owing to advaces in the operative techniques of resection of the affected gut and improved pre- and postoperative cares.

The causes of perforation are; first, acute progressive ulceration which is sufficent to perforate, second, an increase in the intraluminal pressure in the proximal site to stenosis, third, ill effect of steroid therapy, followed by loose and/or less adhesion responses[7], finally ischemic change of the wall of the gut due to obstruction of the nutritional vessels resulting from vasculitis.

Needless to say, the operative intervention is mandatory for the treatment of free perforation by Crohn's disease. A difficult problem about surgery is how long the gut should be resected and whether one stage anastomosis should be performed. Surgeons should be aware of the fact that extensive resection leaves the short bowel syndrome as far as the affected gut be removed. Furthermore, it is difficult to decide the selection of one stage anastomosis or not, taking postoperative steroid therapy into consideration.

Sometimes the delay in diagnosis of perforation due to Crohn's disease is inevitable because of much less evidence of a presence of free abdominal gas on abdominal xp film in case of perforation by Crohn's disease rather than perforations by gastric or duodenal ulcers[2]. It is accepted that a predominant site of perforation is the mesenterium-attaching side in which the mesenterial vessels are penetrating into the wall of the gut. As a resutl, it is natural to take it into account that longitudinal ulcer lying along the line attaching to the mesenterium tends to perforate at the time of increased intraluminal pressure.

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