WHY SURGICAL RESECTION CAUSES THE FORMATION OF STRICTURES IN CROHN’S DISEASE

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A resection of the terminal ileum, with a limited right hemicolectomy, is the most common surgical resection performed for Crohn’s disease. Recurrence of active Crohn’s disease in the neo-terminal ileum is almost inevitable when assessed by colonoscopic follow-up, and clinical symptoms with inflammation and stricture formation are extremely common. Multiple resections of the neo-terminal ileum are not unusual.

Why does recurrence of Crohn’s disease favour the neo-terminal ileum? Is it due to genetic predisposition - unlikely. Is it a problem of immunity or exposure to bacteria - unlikely. Is it due to tumour necrosis factor or other cytokines - unlikely. Is it allergy to the surgical knife or catgut - unlikely.

I would like to propose that the problem lies with the blood supply to the neo-terminal ileum, and the fact that Crohn’s disease is a granulomatous vasculitis.

Research by the Inflammatory Bowel Disease Study Group at the Royal Free Hospital in London, has demonstrated that in Crohn’s disease there is major damage to the blood supply of the terminal ileum. Perfusion-fixation of resection specimens has shown that 85% of granulomas are associated with blood vessels. It is proposed that the damage of Crohn’s disease is due to ‘multifocal gastrointestinal infarction’, with spontaneous thrombosis of multiple small vessels in the bowel wall causing mucosal infarction, ulceration and fibrosis. Patients with Crohn’s disease often have a pro-thrombotic problem, and the disease is extremely rare in haemophiliacs. Linear ulceration of the mesenteric aspect of the small bowel is due to blockage of functional end-arteries, with little anastomotic support.

Experiments in ferrets have demonstrated that occluding small intestinal submucosal vessels with latex particles causes transient damage, but does not affect tissue viability. However anastomosis using previously embolised, but apparently viable small bowel, results in ulceration and inflammation in the bowel proximal to the anastomosis.

Recurrence of Crohn’s disease occurs in the neo-terminal ileum because microvascular disease is much more extensive than can be seen by the naked eye. After surgical resection, the apparently normal bowel is Anastomosed - but this anastomosis is an additional ischaemic insult to the already damaged small bowel. The pressure is higher on the proximal side of the anastomosis, and this reduces blood flow. Ischaemia causes tissue damage, inflammation and fibrosis - recurrence of Crohn’s disease in the neoterminal ileum.

Can anything be done to decrease the chance of recurrence? Operating with inflammation under control using steroids, azathioprine or even infliximab should help. Attention to oxygenation and tissue blood flow in the immediate post-operative period might help when tissue damage is at its post-operative maximum. Wide side-to-side anastomoses will decrease proximal pressures. But finding the underlying cause of the granulomata must be the priority.

INFLAMMATORY BOWEL DISEASES: AN ASIAN PERSPECTIVE

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It is well known that the two chronic inflammatory bowel diseases are less common among Asian when compared to other ethnic groups such as North Americans and Europeans. This may be partly related to inaccessibility of diagnostic facilities in the past, differences in environment factors of this region and reluctance of diagnosing IBD amongst Asian. In recent years, however, there is evidence to suggest a rising trend of IBD among Chinese.

At the Prince of Wales Hospital, as a single center in the NTE of Hong Kong, we have a cohort of 87 patients with ulcerative colitis. The number of new cases is rising in the last 2 decades. While there is an equal sex distribution in UC, a male preponderance in Crohn’s disease (M:F=3:1) has been observed in our series. Family history is rare and the effect of smoking is not obvious in this small cohort. There are several features that may distinguish IBD in Chinese from the other ethnic groups

1. Colonic involvement is very common in Crohn’s disease
2. There are many strictures but fewer perforations in Crohn’s disease
3. Extraintestinal manifestation of IBD is relatively uncommon, except for arthropathy (including ankylosing spondylitis)
4. Biliary disease complicating IBD is extremely rare
5. ANCA is helpful in distinguishing IBD from infection and irritable bowel syndrome