Avoiding unnecessary surgery in irritable bowel syndrome

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Protecting patients with IBS from the risks and costs of unnecessary surgery

Surgery has no role in treating irritable bowel syndrome (IBS), the prototypic functional bowel disorder.¹ Nevertheless, since Ryle² reported a high appendectomy rate in such patients nearly 80 years ago, descriptive case series, population-based studies and comparisons of patients with IBS with subjects without IBS and patients with inflammatory bowel disease^{3–8} have shown that patients with IBS are predisposed to surgery. In two large groups of patients with IBS, cholecystectomy and hysterectomy, which are mainly elective procedures, were increased threefold and twofold, respectively, and the primarily emergency operation, appendectomy, was also increased twofold.^{5,7} Other abdominopelvic operations, especially colon resection, are also increased,⁷ as is back surgery.⁵ Much of this increased surgery must be unnecessary, and high surgical rates have been reported from the UK, Western Europe, Scandinavia, North America, Latin America and South Africa. The association of IBS with normal appendiceal pathology after urgent appendectomy, as reported by investigators from Taiwan in this issue,⁹ (see page 655) further emphasises the worldwide importance of avoiding unnecessary surgery in IBS.

How much surgery is unnecessary on patients with IBS and the reasons for this problem are difficult to ascertain from studies that are retrospective and lack information on surgical pathology. Furthermore, unlike appendicitis, gallstones and uterine pathology are often asymptomatic and are not life threatening, so their documentation does not necessarily mean that surgery was needed. If hysterectomy is performed for dysfunctional uterine bleeding and chronic pelvic pain (CPP), consistent elimination of bleeding with variable pain relief complicates assessment of the overall benefit. Nevertheless, the available data identify preoperative misdiagnosis of the aetiology of pain as a major reason for increased abdominopelvic surgery in patients with IBS. The prospective study

by Lu *et al*⁹ provides the best evidence to date of mistaken diagnosis of appendicitis. Anxiety, atypical pain and physical examination findings, a lower neutrophil count, less use of computed tomography (CT), and IBS symptoms independently predicted a normal appendix. In patients with cholecystectomy, preoperative gas symptoms,^{10,11} constipation,¹¹ psychotropic drug use,¹¹ psychological symptoms and broadly defined dyspepsia¹² predicted persistent symptoms, suggesting that the patients had functional pain before surgery. In women undergoing elective hysterectomy, CPP without identified pathology was more often the only preoperative diagnosis in those with IBS than in those without IBS; in those who preoperatively stated that their surgery was for pain there was a higher proportion of patients with IBS than in those not having hysterectomy for pain. These findings, similar surgical pathology in the two groups and a trend toward lower pain improvement after 1 year in the women with IBS, suggest that IBS caused the pain that hysterectomy was intended to relieve in some patients.¹³

Increased surgery contributes to a cycle of events that often characterise the ineffective care of severe IBS and functional abdominal pain syndrome (FAPS),¹⁴ which shares psychosocial correlates and pain behaviours with IBS but lacks bowel dysfunction (fig 1).¹⁵ Research findings on patients and doctors, and widespread clinical experience, support this sequence of events. Initially, patients' pain and disability lead to frequent visits to doctors who may feel "drained" because of their inability to diagnose the disorder, improve or cure it, and to feel gratified from caring for them.^{16,17} They may lack important knowledge about IBS,¹⁷ minimise the seriousness of the patients' symptoms,¹⁸ and believe that IBS is more difficult to diagnose in women than men but that men with IBS are more difficult to manage.¹⁹ When the patients urgently seek care at emergency departments, the doctors may not have complete medical

records or contact with the patients' doctors, and they may focus on acute illness and fail to recognise the pain as an exacerbation of a chronic disorder. Emergency physicians may concentrate on excluding "organic" disease and consult surgeons who have little experience with functional pain syndromes, and fail to consider IBS and FAPS. Doctors request more radiology and laboratory tests for patients with IBS,²⁰ including gallbladder procedures and endoscopic retrograde cholangiopancreatography,⁷ than for patients without IBS. Patients with IBS receive prescriptions for many categories of drugs and have increased rates of hospitalisation compared to controls without IBS.²⁰ They are often referred to gynaecologists for CPP, and IBS was the most common diagnosis in one CPP clinic, accounting for 37% of cases.²¹ Therefore, non-gastroenterologists and biased or inadequately knowledgeable practitioners contribute to the care of many of the most severely affected patients with IBS.

This cycle of intense, misdirected medical activity ("furor medicus"), including unnecessary surgery, does not help patients with IBS; rather, it promotes or fails to alleviate maladaptive ("catastrophising") coping, alexithymia, psychiatric distress (anxiety and depression), and somatic and visceral hypervigilance (symptom-attentive behaviour). These psychosocial disturbances contribute to the brain-gut dysregulation that underlies the pathophysiology of IBS and other functional gastrointestinal disorders.²²

Psychosocial factors have long been associated with polysurgery and persistent postoperative abdominal pain. Canadian surgeons reported, 40 years ago, that patients with "personality defects", including depression and drug addiction, tended to become "albatrosses" after gastrectomy, complaining of continued abdominal pain and other symptoms. This experience prompted the surgeons to advise ulcer surgery on such patients only if they had ulcer complications.²³ DeVaul and Faillace²⁴ described patients with a mean of about 10 major surgeries, especially abdominopelvic operations for painful conditions. Most were women, and many had a history of childhood abuse or deprivation and continued to insist on cure of their pain. Creed found that patients who had severe stressful life events during the year before emergency appendectomy, or had psychiatric symptoms, were more likely to have a non-inflamed appendix and persistent pain 1 year postoperatively than other patients.²⁵ It is likely that many of the patients in these surgical series had severe IBS or FAPS.

Figure 1 Typical cycle of ineffective management of patients with severe irritable bowel syndrome or functional abdominal pain syndrome.¹⁵ Reprinted with permission.

What can doctors do to reduce unnecessary surgery in these patients? More research on the effectiveness of specific measures would be valuable, but the study by Lu *et al*,⁹ previous research observations, and basic clinical principles support both general and operation-specific approaches.

GENERAL PRINCIPLES

Emotional descriptions of pain—for example, “It is killing me”—that are out of proportion to examination findings or laboratory test or imaging results should raise the question of functional pain. Narcotic-seeking behaviour can be another clue. The medical and surgical history can be especially valuable. When a patient presents to an emergency department with acute abdominal pain, the doctor should seek information on previous episodes of similar pain through both the interview and record review, which can reveal previous visits for severe pain that the patient does not report. The presence of other painful disorders that have not been satisfactorily relieved and a history of abdominopelvic surgery for pain, especially if it was unsuccessful, are also important. The interview should attempt to disclose recent emotional stress, chronic anxiety, depression and a detrimental change in the family or cultural milieu or social support.

Abdominal examination can reveal four characteristics of patients with functional pain: lack of autonomic arousal, multiple surgical scars with uncertain

indications, the “closed eyes sign” (eye closure during palpation) and the “stethoscope sign” (the detection of less tenderness during pressure with a stethoscope than with palpation).¹⁴ Carnett’s test accurately distinguishes visceral pain from abdominal wall pain when abdominal tenderness increases during abdominal muscle contraction. In a series of outpatients with chronic abdominal wall pain, 22% also had IBS²⁶; such patients can have somatic and visceral pain together or at different times, and both types of pain can lead to unneeded surgery. Chronic abdominal wall pain is suggested as a cause of gynaecologists’ patients’ CPP by published descriptions of focal abdominal tenderness.²⁷

In patients presenting with acute pain, a request for abdominal imaging (eg, CT) should depend on other findings. Furthermore, patients with IBS who have undergone such procedures with normal results are unlikely to benefit from repeat testing unless their symptoms change. CT scan is rarely diagnostic in outpatients with non-acute abdominal pain who lack warning symptoms or signs, but is commonly reported to show abnormalities unrelated to the pain that result in specialty referral, additional imaging procedures and surgery that are usually fruitless or do not benefit the patient.²⁸

The counterproductive management cycle, including unnecessary surgery, is best prevented or stopped though the care of a single supervising doctor who promotes a therapeutic doctor–patient

interaction through effective communication, attention to psychosocial factors, legitimising symptoms, wise use of diagnostic tests and consultations, confident diagnosis, and individualised therapy that may include psychotherapy and central nervous system pharmacotherapy.¹⁵ The most worried and disabled patients do not accept the diagnosis and learn to cope with their symptoms until the testing and referrals stop. It is especially important to prevent urgent emergency department visits and unnecessary specialist referrals. Primary physicians can take the main responsibility for the care of many patients but, depending on the circumstances, sometimes a gastroenterologist must assume this role.

APPENDECTOMY

The study of Lu *et al*⁹ emphasises that some unnecessary appendectomies might be prevented by a proper general approach, including documenting an atypical history and examination findings, anxiety, a normal neutrophil count and obtaining CT when needed to confirm appendicitis. However, 100% preoperative diagnostic accuracy is not achievable, and clinical judgment must prevail.

CHOLECYSTECTOMY

Although most patients with IBS localise their worst pain to the lower abdomen, they can have pain anywhere in the abdomen and often have dyspepsia. Increasingly, experienced doctors recognise typical biliary pain as severe epigastric and/or right upper quadrant in location, often accompanied by vomiting, and ≥ 1 h in duration at intervals of weeks to months. Variability in these characteristics occurs, but chronic, daily dyspepsia, for example, when the patient says it occurs “all the time,” is unlikely to be relieved by cholecystectomy. Generally, patients whose symptoms and basic laboratory test results are not typical of biliary disease are not helped by ultrasonographic examination, and failure to document their asymptomatic gallstones may prevent cholecystectomy by a surgeon who misinterprets the aetiology of their pain.

HYSTERECTOMY

Gynaecological referral should be considered for women with abdominal or “pelvic” pain and menstrual abnormalities, other gynaecological symptoms or when the relation of pain with bowel function is uncertain. There is marked similarity between the psychosocial and behavioural aspects of CPP and IBS (eg, depression and a history of sexual or physical abuse),²¹ so the general principles of managing IBS also apply to the

care of patients with CPP. Furthermore, the high proportion of women who have IBS among gynaecologists' patients with CPP suggests that in some cases their "pelvic" pain would be regarded as abdominal pain by gastroenterologists. Unnecessary pelvic surgery is best avoided through collaboration between the patient's gastroenterologist and gynaecologist.

Additional prospective studies on patients with IBS undergoing surgery could help identify more associations between patient features and unnecessary surgery. However, current knowledge can protect many patients from the risks and costs of unneeded surgery.

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Escherichia coli in IBD

The role of *Escherichia coli* in inflammatory bowel disease

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Mucosa-associated *E Coli* are reported to be increased in Crohn's disease

There is a widespread assumption that both of the major inflammatory bowel diseases, Crohn's disease and ulcerative colitis, arise as a result of a host response to intestinal bacteria. Evidence to support this includes the involvement of non-pathogenic bacteria in the development of colitis in genetically altered animals, knowledge that the Crohn's disease-associated gene NOD2/CARD15 is a receptor for bacterial cell-wall peptidoglycan, the common presence of circulating anti-bacterial antibodies in Crohn's

disease, and the role of known pathogens in precipitating relapse in ulcerative colitis.¹ We still need to know which bacteria are the culprits, where they are (intraluminal, intramucosal, intracellular) and whether there is an abnormal host response to "commensal" bacteria or whether the bacteria themselves have pathogenic features.

Study of the gut microbiota is not easy. The human gut contains 500–1000 bacterial species² and around 80% of these have yet to be cultured.³ There is growing

evidence that the bacteria that are closely related to or adherent to the mucosa may be more relevant to mucosal inflammation than those in the faeces. Studies of the mucosa-associated bacteria are, however, affected by the method used. The colonic mucosa, unlike the small intestine, has a near-continuous mucus coat⁴ and bacteria adherent to the surface of this coat will differ in number and nature from those underneath the mucus. Moreover, the surface of the mucus layer, like the faeces, is likely to suit the growth predominantly of anaerobic bacteria, whereas mucus represents a significant barrier to oxygen diffusion,⁵ so the sub-mucus niche may be relatively well oxygenated by the underlying mucosa and more suitable for micro-aerophilic bacteria. We have found that aerobic culture of colonoscopic biopsies after removal of the mucus layer with dithiothreitol is often sterile in control colons, whereas the colon in Crohn's disease and colon cancer contains increased bacterial numbers in this sub-mucus niche, more than half of which are *E coli*,⁶ even though