Ulcerative colitis

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Ulcerative colitis is a relatively common cause of altered bowel habit and rectal bleeding. Coordinated management of the investigation and care of patients with this condition is vital to optimize treatment. This article reviews current management options.

Ulcerative colitis (UC) is a relatively common cause of altered bowel habit and rectal bleeding. General practitioners, physicians and surgeons all will be involved in the investigation and care of patients with UC, and therefore will need to appreciate the role of other members of the team in the coordinated management of this condition. This article aims to review current management options.

EPIDEMIOLOGY AND CLINICAL FEATURES

UC may present at any age, but is more common in the second and third decades of life. There is an annual incidence of seven new cases per 100 000 population in the UK, with a slight bias towards the male sex (1.4-1.7:1) (Ekbom et al, 1991). The incidence is increased in temperate climes, and has peaks in winter and troughs in spring. The incidence appears to be lower in under-developed countries. Genetically there is an association with HLA-B27, and an increased familial incidence (Satsangi et al, 1996).

Classically UC presents as an increased frequency of loose bowel motions, associated with blood. Proctitis is invariably present and gives rise to urgency tenesmus, and occasionally incontinence. With more extensive disease progressing proximally around the colon, lower abdominal cramps are present which may give rise to abdominal pain on defecation. Systemic symptoms reflect the ongoing inflammatory insult and present as malaise, fever and weight loss. Iron-deficiency anaemia may occur secondary to bloody diarrhoea resulting in loss of exercise tolerance and permanent tiredness. The are a number of extraintestinal manifestations (*Table 1*) (Maeda et al, 1994).

DIAGNOSIS

Diagnosis depends first on excluding common gastrointestinal infections by stool culture (*Table 2*). Sigmoidoscopy confirms inflamed mucosa, and colonoscopy will determine the extent of the disease and allow mucosal biopsies. This will help in differentiation between UC and Crohn's disease (Surawicz and Belic, 1984), and excludes other pathology such as ischaemic colitis, diverticulitis and colonic tumours. Double contrast barium enema shows mucosal granularity in continuity proximally from the anus and may show pseudopolyps or eventually loss of mucosal features from fibrosis, known as hosepipe colon (*Figure 1*).

TABLE 1.
Extracolonic manifestations of ulcerative colitis

Conjunctivitis
Ankylosing spondylitis
Scleritis
Cholesterol stones
Uveitis
Cirrhosis
Chronic active hepatitis
Cholangiocarcinoma
Primary sclerosing cholangitis
Urate stones
Pyoderma gangrenosum
Acrodermatitis
Erythema nodosum
Finger clubbing
Psoriasis

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TABLE 2.
Infective causes of colitis

Cytomegalovirus
Clostridium difficile
Campylobacter
Escherichia coli
Shigella
Chlamydia
Amoebiasis
Cryptosporidia
Giardia

However, histology is not achieved. Choice depends as much on availability as need for histology.

HISTOPATHOLOGY

On inspection of the mucosa there is erythema and loss of vascular pattern. Diffuse small ulcers and contact bleeding occur with increasing severity, eventually giving rise to a pseudopolypoid appearance as mucosal loss becomes confluent (*Figure 2*). Microscopically there is an acute and chronic inflammatory cell infiltrate, with polymorphs leading to crypt abscesses that burst causing mucosal sloughing.

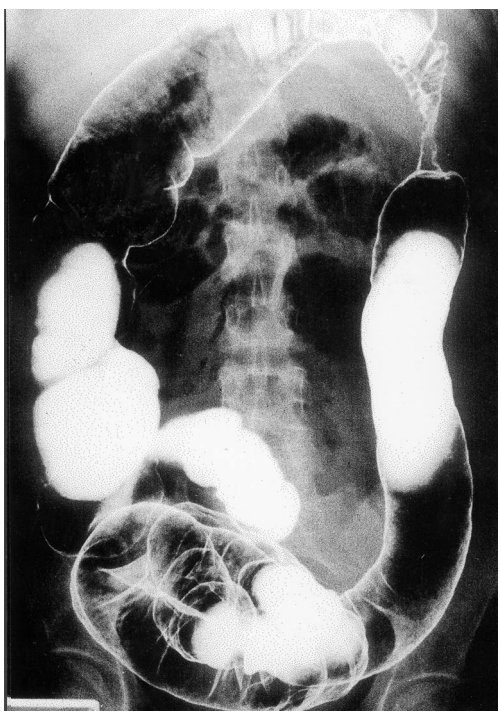

Figure 1. Double contrast barium enema showing hosepipe colon.

AETIOLOGY

The underlying cause of UC is at present unknown. No infectious cause has been conclusively proven. Immunological aspects are currently under investigation, but whether this is an initiating factor or a response to a chronic inflammatory process is undecided. Some have proposed that UC and Crohn's disease are different phenotypes of the same underlying disease; this remains contentious (Sartor, 1995).

TREATMENT

The majority of patients who have UC are managed as outpatients. The patient's symptoms are the best guide to underlying disease activity, with mucosal inflammation and histology lagging behind the clinical situation. Markers of non-specific inflammation merely objectively confirm the clinical impression.

Management must encompass not only disease activity, but also watch for complications both of the disease and of the treatment. In children and adolescents serial growth measurements are essential, in adults attention to the nutritional status is important. An awareness is needed of psychological factors associated with long-term illness and potentially maladaptive behavioural problems, although a true association between UC and psychiatric morbidity is unproven (North et al, 1990). The social context of the illness for the patient must be appreciated. Often they know all the toilet facilities in the locality, or lack thereof. This

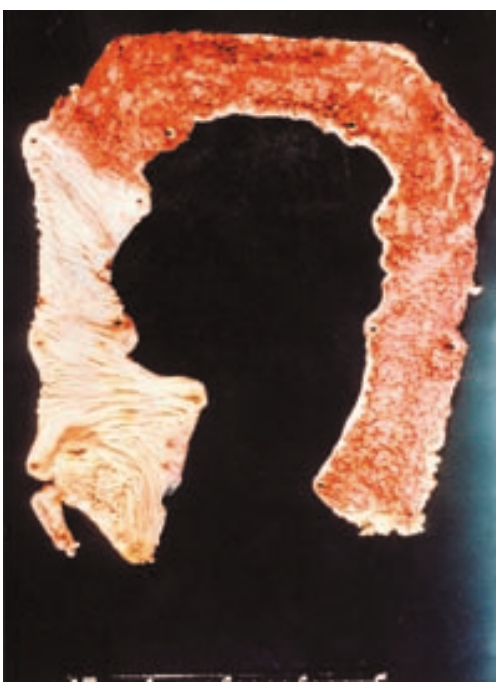

Figure 2. Colectomy specimen showing pseudopolyps.

factor alone may severely limit the quality of life experienced. Patient support groups are invaluable in maintaining morale and providing information.

The extent of the disease at initial presentation determines the severity and requirements for follow up. Proctitis alone occurs in 50%, proctosigmoiditis in a further 30%, and disease extending proximal to the splenic flexure in 20%. It is now recognized that in about 10% of cases proximal extension of the inflammation may occur (Langholz et al, 1996).

MEDICAL

Medical management revolves around anti-inflammatory treatment with symptom control, psychological and social support, and the monitoring of disease severity and complications.

Acute fulminant colitis

These seriously ill patients must be admitted to an acute medical ward and both physicians and surgeons should be involved in the initial assessment and subsequent management. Bed rest, correction of fluid deficit with intravenous normal saline and steroid therapy in the form of hydrocortisone are given. Unfractionated heparin has had encouraging reports of clinical improvement and has undergone initial trials (Folwaczny et al, 1999). Cyclosporin may induce remission in difficult cases, but may not prevent subsequent colectomy, which occurs in around 30–40% of this group.

Relapse

The treatment of a patient who undergoes an exacerbation of symptoms is usually as an outpatient under the care of the GP or hospital physicians. 5-aminosalicylic acids, such as sulphasalazine, balsalazide and mesalazine, are used most commonly in mild to moderate relapses, with the choice dependent on side-effects, cost and route of delivery (Anonymous, 1992). Corticosteroids are used to induce remission in moderate to severe disease. Various rectal preparations are available for proctitis, with foam enemas being well tolerated.

Trials show improvements of 5-aminosalicylic acids over topical steroids in inducing symptomatic remission (Anonymous, 1987). Long-term steroid dependence is to be avoided, particularly in children where failure of growth and fusion of the epiphyses may occur. In adults osteoporotic bone disease has tended to be overlooked in the past. Those with severe disease or unresponsive to steroid therapy may need admission and the disease being brought under control with azathioprine (Louis and Belaiche, 1999) or cyclosporin (Kornbluth et al, 1997).

Maintenance of remission

Owing to the tendency of this disease to relapse, patients are maintained on long-term anti-inflammatory therapy. 5-aminosalicylic acid preparations are used routinely, occasionally with azathioprine as a steroid-sparing agent. Monitoring of renal function is necessary because of the nephrotoxic effects of 5-aminosalicylic acids. The patient should be encouraged to report exacerbation early to allow increase in medication while the symptoms are mild and before systemic dysfunction occurs. Patient education and instruction in how to self manage an exacerbation facilitate this.

NUTRITION

There is, as yet, no evidence that particular diets can induce remission of UC. Research is ongoing into immunomodulation via dietary means. Total parenteral nutrition may be required in the severely ill patient as a supportive measure. In the less severe cases, the input of a dietician as part of the team may be useful in monitoring intake and improving education. Iron supplements are often required but poorly tolerated orally.

SURVEILLANCE

There is an increased incidence of colon carcinoma for longstanding (more than 8 years), extensive (proximal to the splenic flexure) colitis which although small, and exact figures are disputed, can not be ignored (Nugent et al, 1991). Colonoscopic surveillance programmes are well established. The effectiveness of surveillance colonoscopy is unproven in terms of lives saved or earlier detection of carcinoma (Axon, 1994); however, given the alternatives of an elective colectomy or doing nothing it is to be preferred.

SURGICAL

Surgical intervention is required in the case of failure of medical management, or for complications of the disease. The former would include severe disease unresponsive to maximal medical treatment resulting in fulminant colitis, prolonged use of steroids with relapse on attempted weaning, unacceptable side-effects of medical treatment, or recurrent but controllable acute exacerbation. Acute complications of the disease include bleeding, toxic megacolon or incipient

perforation of the colon (colonic diameter greater than 6.5 cm). In the elective situation failure to thrive in children, colonic carcinoma or evidence of dysplasia in the mucosa is an indication for colectomy.

Surgical options

Colectomy with rectal preservation and end ileostomy: This is usually done in the acute situation with a view to further surgery once the patient has recovered from the acute debilitating state. The recto-sigmoid stump is brought up to the laparotomy wound as a mucus fistula. This prevents pelvic sepsis and subsequent adhesions in the event of stump blow out. Experience of the ileostomy may be beneficial for the patient in deciding between completion proctectomy or a ileal pouch. It does, however, commit the patient to further surgery or long-term surveillance of the rectal stump for dysplasia.

Colectomy and ileorectal anastomosis: This is only possible for those with relative rectal sparing of the disease. The rectum must be distensible to act as a reservoir for faecal matter. The anal sphincters must have good function. The patient will need long-term sigmoidoscopic surveillance for dysplasia, and is still subject to frequency and urgency of defecation dependent on disease activity. This operation is less used now with the advent of the ileal pouch, and patients may undergo further surgery progressing to the two further options listed below.

Proctocolectomy and permanent ileostomy: This procedure cures UC, but at the price of a permanent ileostomy. The entire rectum and anal sphincters are excised, and this is therefore not reversible. Complications include para-stomal hernia, strictures, prolapse and retraction of the ileostomy. Perineal wound healing can be problematic with failure to heal at 6 months occurring in 20–50% of cases.

Restorative proctocolectomy and ileal reservoir formation (pouch): The only indication for this procedure over that of a proctocolectomy is to avoid a permanent ileostomy (*Figure 3*). Relative contraindications include poor anal sphincter function, indeterminate colitis, Crohn's disease, rectal cancer or active anal disease.

Patient preference with an informed awareness of local failure rates, surgical complications, expected defecatory function and the surgeon's preference with regard to a defunctioning stoma dictates suitability. The perceived benefit of gastrointestinal continuity in terms of body image is offset against the restriction in

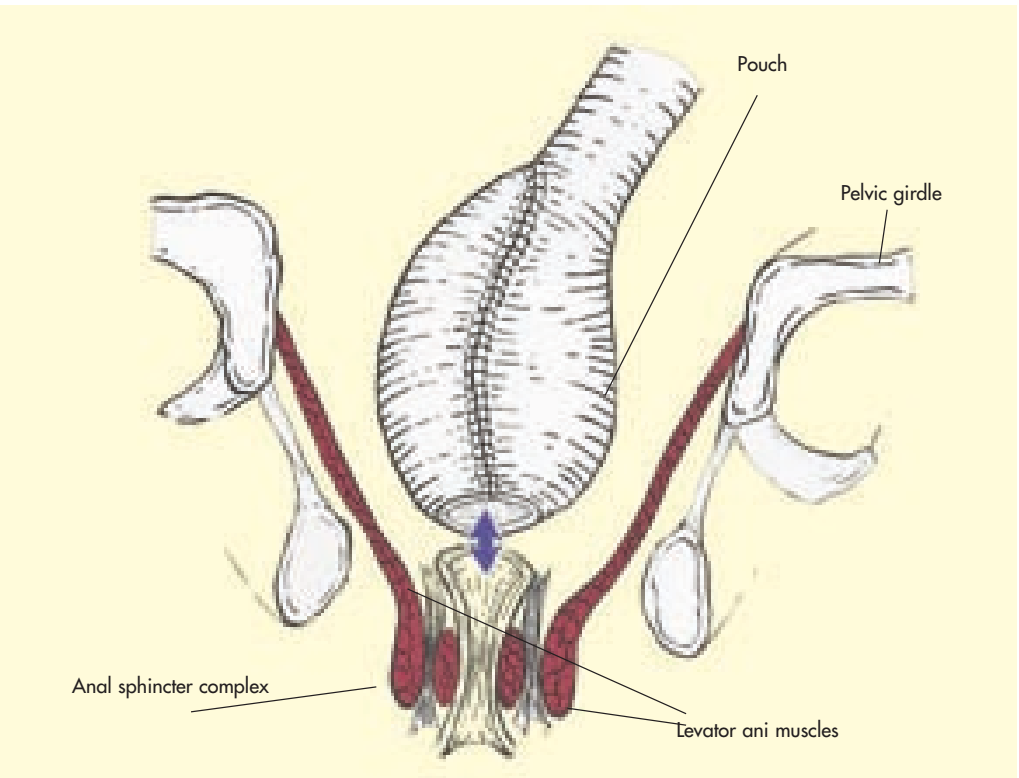

Figure 3. Cross-sectional diagram of J-pouch in pelvis.

lifestyle dictated by frequency of bowel action, typically 6–8 times a day (Kohler et al, 1992). There is, however, a loss of the urgency to defecate. Patient satisfaction often depends on the severity of the preoperative frequency and urgency in relation to the functional outcome. Failure rates for the procedure are around 5–10% over 5 years, levelling off thereafter (Setti-Carraro et al, 1994). The main causes of failure are poor functional result, pelvic sepsis from anastomotic leaks, anastomotic stenosis and pouchitis. The latter appears to be specific to patients with UC (as opposed to familial adenomatous polyposis), and presents with frequency, urgency and liquid stool. This must be differentiated from recurrence of disease in a rectal mucosal remnant between the pouch and the anal canal, termed cuffitis (Moskowitz et al, 1986).

There are various pouch configurations — the original S-pouch, the more common J-pouch or the larger W-pouch. Their differences relate to capacitance, which adapts over time, and emptying characteristics.

CONCLUSIONS

Medical therapy is the mainstay of clinical management for UC. Collaboration between physicians, surgeons and GPs ensures continuity of care and appropriate intervention in cases of surgical need. The satisfaction with the outcome of surgery depends as much on the expectations of the patient as that of the technical virtuosity of the surgeon. HM

Conflict of interest: none.

Anonymous (1987) Topical 5-aminosalicylic acid versus prednisolone in ulcerative proctosigmoiditis. A randomized, double-blind multicenter trial. Danish 5-ASA Group. *Dig Dis Sci* **32**: 598–602

Anonymous (1992) Choosing an oral 5-aminosalicylic acid preparation for ulcerative colitis. *Drug Therap Bull* **30:** 50–2

Axon AT (1994) Cancer surveillance in ulcerative colitis—a time for reappraisal. *Gut* **35:** 587–9

Ekbom A, Helmick C, Zack M, Adami HO (1991) The epidemiology of inflammatory bowel disease: a large, population-based study in Sweden. *Gastroenterology* **100:** 350–8

Folwaczny C, Wiebecke B, Loeschke K (1999) Unfractioned heparin in the therapy of patients with highly active inflammatory bowel disease. *Am J Gastroenterol* **94:** 1551–5

Kohler L, Pemberton JH, Hodge DO, Zinsmeister AR, Kelly KA (1992) Long-term functional results and quality of life after ileal pouch-anal anastomosis and cholecystectomy. *World J Surg* **16**: 1126–31

Kornbluth A, Present DH, Lichtiger S, Hanauer S (1997) Cyclosporin for severe ulcerative colitis: a user's guide. *Am J Gastroenterol* **92:** 1424–8

Langholz E, Munkholm P, Davidsen M, Nielsen OH, Binder V (1996) Changes in extent of ulcerative colitis: a study on the course and prognostic factors. *Scand J Gastroenterol* **31**: 260–6

Louis E, Belaiche J (1999) Treatment of inflammatory bowel disease with azathioprine: how to use it in 1999. *Acta Gastroenterologica Belgica* **62:** 437–9

Maeda K, Okada M, Yao T et al (1994) Intestinal and extraintestinal complications of Crohn's disease: predictors and cumulative probability of complications. *J Gastroenterol* **29**: 577–82

Moskowitz RL, Shepherd NA, Nicholls RJ (1986) An assessment of inflammation in the reservoir after restorative proctocolectomy with ileoanal ileal reservoir. *Int J Colorectal Dis* **1:** 167–74

North CS, Clouse RE, Spitznagel EL, Alpers DH (1990) The relation of ulcerative colitis to psychiatric factors: a review of findings and methods. *Am J Psychiatry* **147**: 974–81

Nugent FW, Haggitt RC, Gilpin PA (1991) Cancer surveillance in ulcerative colitis. *Gastroenterology* **100**: 1241–8

Sartor RB (1995) Current concepts of the etiology and pathogenesis of ulcerative colitis and Crohn's disease. *Gastroenterol Clin North Am* **24**: 475–507

Satsangi J, Welsh KI, Bunce M et al (1996) Contribution of genes of the major histocompatibility complex to susceptibility and disease phenotype in inflammatory bowel disease. *Lancet* **347:** 1212–17

Setti-Carraro P, Ritchie JK, Wilkinson KH, Nicholls RJ, Hawley PR (1994) The first 10 years' experience of restorative proctocolectomy for ulcerative colitis. *Gut* **35**: 1070–5

Surawicz CM, Belic L (1984) Rectal biopsy helps to distinguish acute self-limited colitis from idiopathic inflammatory bowel disease. *Gastroenterology* **86:** 104–13

Further reading

Forbes A (1997) *Inflammatory Bowel Disease.* Chapman & Hall Medical, London

KEY POINTS

- Ulcerative colitis must be considered in any patient presenting with bloody diarrhoea.
- Investigation by endoscopy and biopsy establishes the diagnosis.
- Most patients are managed as outpatients.
- Multidisciplinary care should involve both physicians and surgeons, backed up by stoma therapists, dieticians and specialist nursing staff.
- Surgical intervention is curative, but has inherent risks and complications.
- Surveillance for carcinoma in extensive disease is established, but benefits are unproven.
- Research continues into the underlying pathology.