Right-sided colitis¹

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EDITORIAL SYNOPSIS The term 'right-sided colitis' has been used to describe a lesion in which the right half of the colon shows maximal inflammatory changes; although the terminal ileum is always involved, the rectum is normal or shows minimal inflammatory changes. Some of these cases appear to be of atypical Crohn's disease, whilst the others resemble chronic ulcerative colitis. The high incidence of Jewish people in this series suggests a racial tendency towards this distribution of the inflammatory change. The right-sided nature of the lesion has led to unnecessarily prolonged medical treatment, to right hemicolectomy, and to ileorectal anastomosis. The results of such procedures have been disappointing, all the more so because the rectum was almost normal and hence would seem ideally suited for ileorectal anastomosis. These patients have progressed very well with ileostomy.

In typical ulcerative colitis the most intense inflammatory changes are in the left colon and rectum, although the right half of the colon is often involved. In regional ileitis the disease is confined classically to the terminal ileum but may spread into the caecum.

In some cases the right half of the colon shows quite severe inflammatory changes with involvement of the terminal ileum and minimal or no changes in the rectum. These are either atypical examples of

ulcerative colitis, atypical Crohn's lesions, or are separate disease entities. Because of this uncertainty the term 'right-sided' colitis has been used (Fig. 1).

INCIDENCE OF RIGHT-SIDED COLITIS

In 172 patients with typical ulcerative colitis operation was performed. In seven of these patients the rectum was involved to a lesser degree than is usual. In seven patients the inflammatory lesion was confined to a segment, short or long, single or multiple, and was classified as segmental colitis. In seven patients the inflammation was most intense in the right colon, with involvement of the terminal ileum. This group of seven patients has been classified as 'right-sided' colitis and is reviewed here. In five patients the lesion was typical of Crohn's regional ileitis.

SUMMARY OF CASE HISTORIES OF PATIENTS WITH RIGHT-SIDED COLITIS

The distribution of the inflammatory changes is shown in Figure 2.

CASE 1 C. I., a Jewish woman, began to have abdominal pain and diarrhoea at the age of 16 years. This persisted and led to repeated trials of medical treatment, which included steroids. In 1957, at the age of 24 years she was referred for further advice. She was lethargic, pale, and tender in the right iliac fossa. Sigmoidoscopy showed very mild changes of ulcerative colitis. Barium enema revealed

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FIG. 1. Possible types of inflammatory lesions involving the right colon. Segmental colitis and right-sided colitis may be variants of ulcerative colitis or regional ileitis.

FIG. 2. Distribution of the inflammatory changes in the seven patients with right-sided colitis.

persistent deformity of the ileocaecal region with colitis of the proximal colon. On 23 April 1957 ileostomy and colectomy was performed and on 8 October 1958 the rectum was removed. She has been well since her first operation. The pathologist regarded the lesion as 'chronic ulcerative colitis'.

CASE 2 V. S., a Jewish woman, first developed abdominal pain and diarrhoea at the age of 31 years. There was tenderness in the right iliac fossa. Sigmoidoscopy was normal; barium clysis showed deformity in the ileocaecal region. A right hemicolectomy was performed in December 1955, but symptoms recurred almost at once. She failed to respond to medical treatment (which included steroid therapy), developed arthritis, and finally required emergency intervention for acute, fulminating colitis. Even at this stage sigmoidoscopy showed minimal changes. Ileostomy and colectomy performed on 23 February 1959 was followed by an excellent recovery and as the rectum retained a healthy appearance ileo-rectal anastomosis followed on 12 October 1960. In April 1961 a stricture and recto-vaginal fistula developed at the level of the anorectal ring. The rectum between this stricture and anastomosis was only mildly inflamed. The pathology was regarded as ulcerative colitis.

CASE 3 M. G., a Jew, began to have abdominal pain and diarrhoea at the age of 13 years. Sigmoidoscopy was normal; barium enema showed colitis involving the right colon. In August 1959 at the age of 16 years right hemicolectomy was performed, but pain and diarrhoea persisted despite steroid therapy. In 1961 sigmoidoscopy showed mild inflammation of the rectum to 12 cm. and severe ulceration above. On 9 February 1961 colectomy and ileorectal anastomosis was performed (Fig. 3). After an encouraging period of two or three months diarrhoea and abdominal pain recurred and on 12 August 1961 ileostomy was performed. He has since remained well.

At the last operation 'skip' lesions in the terminal ileum were removed. The case was classified by the pathologist as Crohn's disease.

FIG. 3. Case 3. The segmental type of lesion classified as Crohn's disease.

FIG. 4. *M.S.* Barium enema shows the rigid, deformed right colon and ileocaecal zone.

CASE 4 *M. S.*, a Jew, aged 21 years at the onset of colicky abdominal pain, diarrhoea, and weakness, was referred 12 months later for advice (December 1957). He was tender in the right iliac fossa, sigmoidoscopy showed minor changes of colitis, and barium enema showed distortion and narrowing of the ileocaecal region (Fig. 4). He was not relieved by medical treatment, which included steroid therapy. On 21 February 1958 colectomy and ileorectal anastomosis was performed. Within two months a deep anal fissure developed and on 10 June 1958 an ileostomy was necessary. Four years later he was well and fully employed, but the fissure was still unhealed. The pathologist classified this case as ulcerative colitis (Fig. 5).

CASE 5 *D. C.*, a Jew aged 22 years, developed colicky abdominal pain and diarrhoea and began to lose condition. He had considerable tenderness in the right iliac fossa. Six months later, on 9 August 1960, laparotomy was performed in a provincial centre. The discovery of an inflammatory lesion in the ileocaecal region led to a right hemicolectomy. He failed to improve after this procedure and was referred for further management. He was pale, lethargic, and suffered colicky abdominal pain and diarrhoea. He had an irregular pyrexia, sigmoidoscopy showed minimal colitis, and barium enema revealed advanced colitis in the transverse and descending colons. On 10 October 1960 ileostomy and colectomy were performed and on 4 July 1961 the rectum was removed because of persistent rectal discharge. He has remained well since (12 months). The pathologist regarded the right colon specimen as Crohn's disease, but the colectomy specimen as ulcerative colitis.

FIG. 5A

FIG. 5B

FIG. 5C

FIG. 5. *Case 4, M.S.* A Whole colon B Right colon with involvement of the terminal ileum C Minimal changes in the left colon. This lesion was regarded as ulcerative colitis.

CASE 6 M. M., a Jew, developed colicky abdominal pain and diarrhoea at the age of 33 years. Four years after the onset abdominal palpation revealed a mass in the right iliac fossa; sigmoidoscopy was normal and a barium enema showed narrowing of the ascending colon and caecum. On 5 September 1955 a right hemicolectomy was performed. He has remained well since. The pathologist regarded the lesion as non-specific inflammatory; it has since been reclassified as possibly Crohn's disease.

CASE 7 P.K., a non-jewish woman, developed colicky abdominal pain and diarrhoea at the age of 44 years. Eighteen months later she sought surgical treatment. At this time her bowels were irregular, with both diarrhoea and constipation. Her abdomen was a little distended, with excess bowel activity. Sigmoidoscopy to 20 cm. showed mild, patchy proctocolitis. A barium enema showed persistent rigidity of the ileocaecal region. On 28 June 1961 colectomy with ileorectal anastomosis was performed. The right half of the colon was involved in typical ulcerative colitis, which the pathologist confirmed. Her progress was uneventful and she has remained well since (12 months).

ANALYSIS OF CASE HISTORIES

In this series there were three females and four males. The ages at onset were 13, 16, 21, 22, 31, 37, and 44 years. All but the last were Jewish patients. There were several notable features in the series.

ABDOMINAL PAIN Colicky pain, particularly in the right iliac fossa, was a common symptom, and in this regard resembled Crohn's enteritis rather than ulcerative colitis.

DIARRHOEA Diarrhoea was not as severe as occurs in typical left-sided ulcerative colitis. Bowel actions numbered three or four a day. Blood loss was insignificant.

WEAKNESS Persistent pain and diarrhoea and fear of eating contributed to the lethargy, fatigue, and loss of weight produced by the colitis.

MASS OR TENDERNESS IN RIGHT ILIAC FOSSA In one case a mass was palpable in the right iliac fossa; in the others there was considerable tenderness.

MINIMAL SIGMOIDOSCOPIC ABNORMALITY Symptoms were out of proportion to the sigmoidoscopic changes. Appearances were either normal or showed a mild degree of friability of the mucous membrane. Motions were soft but blood was not often seen.

ABNORMALITY OF ILEOCAECAL REGION ON BARIUM ENEMA EXAMINATION In all cases there was persis-

tent narrowing and rigidity of the ileocaecal region. The colon sometimes showed changes in the transverse colon and upper descending colon but the rectum appeared normal.

PROGRESS With medical treatment progress was disappointing. Temporary improvement was soon followed by relapse.

PATHOLOGY OF RIGHT-SIDED COLITIS

One patient in this series (case 6) had a granulomatous lesion confined to the right colon with some extension into the ileum. This was regarded as a case of Crohn's disease although the pathologist was not convinced.

In two cases (cases 3 and 5) the lesion appeared to be 'Crohn's ileocolitis'. One had 'skip' lesions in the distal ileum. The other had suggestive histological features. Crohn's regional ileitis has been rare in the writer's experience, although granulomatous lesions of the large bowel have been more common.

In four cases in this series the macroscopic and microscopic appearances were indistinguishable from ulcerative colitis, except that involvement of the rectal mucosa was minimal.

The pathology of the cases in this group was not comparable to the ileocolitis described by Brooke and Cooke (1951) and reaffirmed by Brooke (1959a). This lesion commences in the ileum or higher and produces steatorrhoea, which in turn causes changes in the colon. Malabsorption and liver changes are common and ileostomy disastrous.

TREATMENT OF RIGHT-SIDED COLITIS

Medical treatment failed in these cases. In four patients (cases 1, 2, 3, and 4) steroid therapy was tried. In two others the physical signs pointed so strongly to a right-sided lesion that surgical intervention was advised without prolonged preliminary medical treatment and with excellent results.

Two patients (cases 2 and 5) had acute exacerbations (one during the course of steroid therapy) and required emergency surgery. One (case 2) was troubled by arthritis which improved after colectomy but which recurred when a stricture developed in the rectum after an ileorectal anastomosis.

Right hemicolectomy was performed in four patients. In each the surgeon believed the lesion to be localized to the right colon. After resection the ileum was anastomosed to the transverse colon. One has remained well (case 6) for seven years following the operation. (This patient had an unusual lesion which was finally classified as probably Crohn's disease.) The remaining three patients were not relieved by

this operation and required further intervention after two, 18, and 38 months respectively.

Colectomy and ileorectal anastomosis was done in four patients. In the last case in the series (case 7) ileorectal anastomosis was selected as the treatment of choice at the outset and operation was performed without prolonged medical treatment. The result has been excellent so far (12 months). In the second (case 4) operation was performed after 12 months' unsuccessful medical treatment which included steroids. Three-and-a-half months after operation it was necessary to establish an ileostomy because of a deep anal fissure. Four years later this patient is well, but the fissure is still unhealed. The third patient (case 3) had a right hemicolectomy; 18 months later colectomy and ileorectal anastomosis was performed. Persistent diarrhoea and discomfort led to ileostomy after seven months. He has been in excellent health since this was done (11 months), the first such period he has had in five years since his illness started. The fourth patient (case 2) also had a right hemicolectomy; 38 months later emergency colectomy and ileostomy was necessary for acute fulminating colitis. She progressed well and after 20 months an ileorectal anastomosis was performed. This has been marred by a persistent frequency of bowel action and by the gradual development of a stricture and rectovaginal fistula at the anorectal ring. The rectum between this zone and the level of the anastomosis shows mild inflammation only.

Four of the patients (cases 1, 3, 4, and 5) now have an ileostomy. In two of these the rectum has been removed; in the other two excision will certainly be necessary. All four patients have progressed well since ileostomy. One has had the ileostomy for five years, a second for four years, a third for 21 months, and the fourth for 11 months.

DISCUSSION

The seven patients in this series had characteristic clinical features. Abdominal pain, diarrhoea, and general lethargy were present in all cases. In addition there were signs referable to the right iliac fossa: either a mass (one case) or tenderness, mild changes on sigmoidoscopic examination, and persistent narrowing, rigidity, or distortion of the ileocaecal region and right colon in the barium radiological studies. None was controlled by medical treatment, including steroids. These features are those enumerated for 'right-sided colitis' by Crohn and Berg in 1938.

The term 'right-sided colitis' is unsatisfactory because it is vague and does not indicate whether the lesion is related to Crohn's disease or ulcerative colitis or whether it is some specific, as yet unrecog-

nized, condition. In all cases the terminal ileum was affected and in this way right-sided colitis differed from segmental colitis. Involvement of the ileum has been regarded as indicating that Crohn's disease is responsible for right-sided colitis. Certainly it is known that Crohn's regional ileitis spreads into the colon in about half the cases (Brooke, 1959b; Cornes and Stecher, 1961).

Lymph node enlargement was noted in some of the cases, but this can be a feature of either ulcerative colitis or Crohn's disease. Care must be taken in interpreting the pathologist's report on the nodes because the surgeon may keep close to the bowel in these inflammatory conditions, leaving the proximal nodes *in situ* (Neuman and Dockerty, 1954; Brooke, 1962).

Macroscopic and microscopic appearances of the bowel varied in this series. In three cases the lesion was considered to be Crohn's disease and in four the bowel appeared to be typical of ulcerative colitis except for the distribution.

Most authors have grouped segmental and right-sided colitis together (Crohn and Berg, 1938; Crohn, Garlock, and Yarnis, 1947; Neuman, Bagen, and Judd, 1954; Watkinson, Thompson, and Goligher, 1960). On the other hand, Brooke (1962) recommends that both terms be abandoned. He feels that ulcerative colitis is a 'left-sided' disease and that a 'right-sided' lesion cannot be ulcerative colitis. Furthermore he considers that such right-sided lesions originate in the small intestine and that ileostomy in such circumstances may be dangerous. However, in this series four cases appeared to be variants of chronic ulcerative colitis. Further, in four cases ileostomy has produced excellent results.

The very large number of Jewish people in this series is a feature. In the series of 172 with typical ulcerative colitis there were only three Jewish persons. Neuman, Bagen, and Judd (1954) found that nearly 25% of their cases with segmental colitis were Jewish (and their segmental cases included right-sided colitis). Acheson (1960) found that Jewish people were more prone to ulcerative colitis and to regional enteritis but he did not analyse the pathological features. It is possible that the right-sided distribution of the lesion, whether it is regarded as Crohn's disease or ulcerative colitis, is a racial feature.

Apart from the pathological interest of right-sided colitis the distribution of the inflammatory reaction on the right side led to three therapeutic procedures which were unsatisfactory. The minor changes observed at sigmoidoscopy were responsible for prolonged medical treatment. Indeed persistent symptoms prompted a diagnosis of functional exaggeration, but the excellent results of ileostomy

suggested a fault in the initial medical assessment of the patient. Steroid therapy proved unsuccessful.

Secondly, although right hemicolectomy proved satisfactory in one patient, in three others it failed. An inflammatory lesion in the right colon should be very carefully assessed before deciding to restrict surgery to right hemicolectomy and anastomosis.

Lastly, ileorectal anastomosis was disappointing. Only one of four patients has done well, and this patient has been followed for 12 months. These poor results of anastomotic procedures are similar to those reported from the Mayo Clinic and elsewhere (Neuman and Dockerty, 1954; Manning, Warren, and Adi, 1955). On the other hand, both Watkinson *et al.* (1960) and Lockhart-Mummery and Morson (1960) believe that the rectum could remain free from the disease and that therefore ileorectal anastomosis is a reasonable operation. However, they included cases of segmental colitis in which the ileum was not involved and which have done well with ileorectal anastomosis in the writer's hands.

Ileostomy has given excellent results and, despite the warning given by Brooke, such a procedure can be advised with confidence in this group of cases.

The rectum should be left alone for some time before a decision is made to anastomose ileum to it.

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