Ann. rheum. Dis. (1968), 27, 219

ULCERATIVE COLITIS WITH ANKYLOSING SPONDYLITIS*

BY

MALCOLM I. V. JAYSON† AND IAN A. D. BOUCHIER

Royal Free Hospital, London

Although ankylosing spondylitis and ulcerative colitis are uncommon diseases, there appears to be an association between them. Wright and Watkinson (1965) examined 234 patients with ulcerative colitis and the same number of controls; 42 (17·9 per cent.) of their ulcerative colitic patients showed radiological "moderate" or "severe" sacro-iliitis, with typical ankylosing spondylitis in nine (3·8 per cent.). Only eleven (4·7 per cent.) of the controls had sacro-iliitis.

Conversely, among the 399 patients with ankylosing spondylitis attending the London Hospital, Steinberg and Storey (1957) found four cases (1 per cent.) of clinical ulcerative colitis, and Romanus (1953), Wilkinson and Bywaters (1958), McBride, King, Baikie, Crean, and Sircus (1963), and Serre and Simon (1964) have reported this incidence as being up to 3·9 per cent.

Ulcerative colitis is a disease of unknown aetiology in which there is inflammation of the large bowel. The diagnosis may be made from the clinical symptoms, sigmoidoscopic appearances, rectal biopsy, and barium enema examination. It is recognized that patients may be symptom-free and yet demonstrate the changes of ulcerative colitis on investigation (Dick, Holt, and Dalton, 1966; Kiefer and Gialanella, 1960). Furthermore, there may be little correlation between *x*-ray and sigmoidoscopic appearances, the enema showing typical changes and the sigmoidoscopy being virtually normal and *vice versa* (Edling, Eklöf, Kistner, and Lagerlöf, 1966, Sparberg, Fennessy, and Kirsner, 1966). In attempting to determine the prevalence of ulcerative colitis in patients with ankylosing spondylitis, it is therefore necessary to perform both sigmoidoscopic and barium enema examinations in all cases.

*Requests for reprints: Royal National Hospital for Rheumatic Diseases, Bath.

†Present address: Department of Medicine, Royal Infirmary Bristol, and Royal National Hospital for Rheumatic Diseases, Bath.

Methods

The 77 patients who had attended the Royal Free Hospital between 1957 and 1966 and who had been classified as suffering from ankylosing spondylitis were asked to report to the out-patient clinic, those who defaulted or failed to reply being sent a second request. The procedures to be undertaken were fully explained and 36 patients volunteered to be studied. In 33 of them the diagnosis of ankylosing spondylitis was confirmed by clinical examination and by reviewing recent *x*-rays of the sacro-iliac joints and lumbar spine, but three did not fulfil the Rome Criteria (Kellgren, 1962) for ankylosing spondylitis and were not considered further.

The 33 patients studied were assessed regarding the extent of their ankylosing spondylitis. They were questioned regarding iritis, urethritis, and venereal disease, and were also examined for psoriasis and aortic incompetence. Their present and past treatment including radiotherapy was noted and a family history was taken.

A detailed gastrointestinal history was obtained, with particular attention to diarrhoea, colic, bleeding, and rectal complaints. A sigmoidoscopy was performed on all the patients, the mucosa being examined for contact bleeding, granularity, vascular pattern, oedema, and ulceration. Rectal biopsies were not performed. All patients, except one who had undergone colectomy and two who refused, were submitted to barium enema examination.

Results

Six of the 33 patients were found to have ulcerative colitis, an incidence of 18 per cent. One had a 16-year history of severe ulcerative colitis and a 12-year history of ankylosing spondylitis; 10 years previously he had undergone total colectomy and ileostomy, and proctoscopic examination of the rectal stump still revealed a mild proctitis. Three of the remaining five patients had no bowel symptoms, and although the other two both gave a 2- or 3-month history of loose diarrhoea neither had passed any blood, mucus, or pus. One of these five patients showed ulcers on sigmoidoscopic examina-

tion and all of them showed the changes of mild ulcerative colitis on *x*-ray as described by Fennessy, Sparberg, and Kirsner (1966): poor contractions of the bowel, widening of the presacral space, slight blunting of the haustral markings leading to their partial or complete obliteration, and the mucosa perhaps showing shallow ulcer craters. It must be emphasized that these changes, though slight, were constant in our patients, and were present in all the films taken during the examination. These features are known to occur before the development of a shortened rigid bowel.

Illustrative Cases

Case 1 had developed spinal symptoms about 18 years previously; when examined he had a virtually ankylosed spine. He gave a history of loose motions only and yet his enema (Fig. 1) revealed a narrowed colon which failed to distend and haustral markings were absent.

Case 2 had a 20-year history of ankylosing spondylitis. Close questioning did not reveal any history of bowel symptoms. Examination revealed a rigid spine and *x* ray of the sacro-iliac joints showed erosions and sclerosis. The barium enema (Fig. 2, opposite) revealed a narrowed segment of bowel which failed to distend and loss of haustrations.

In the Table (opposite) the clinical features of the patients with ulcerative colitis are compared with those of the patients with normal colons.

The ulcerative colitis patients had a mean age of 48 years (range 40 to 55) while those with normal bowels had a mean age of 43 years (range 24 to 66). These were not significantly different. All the ulcerative colitis patients were male but as only three of the total number of 33 patients were females no significance can be attached to this.

The length of history of ankylosing spondylitis was significantly longer ($P<0\cdot01$) in the patients

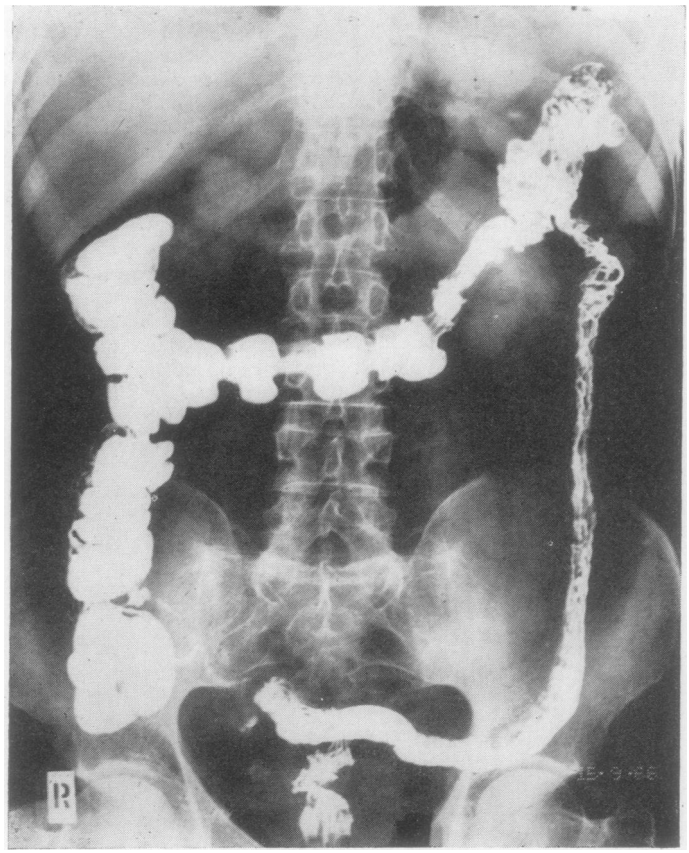

Fig. 1.—Barium enema in Case 1.

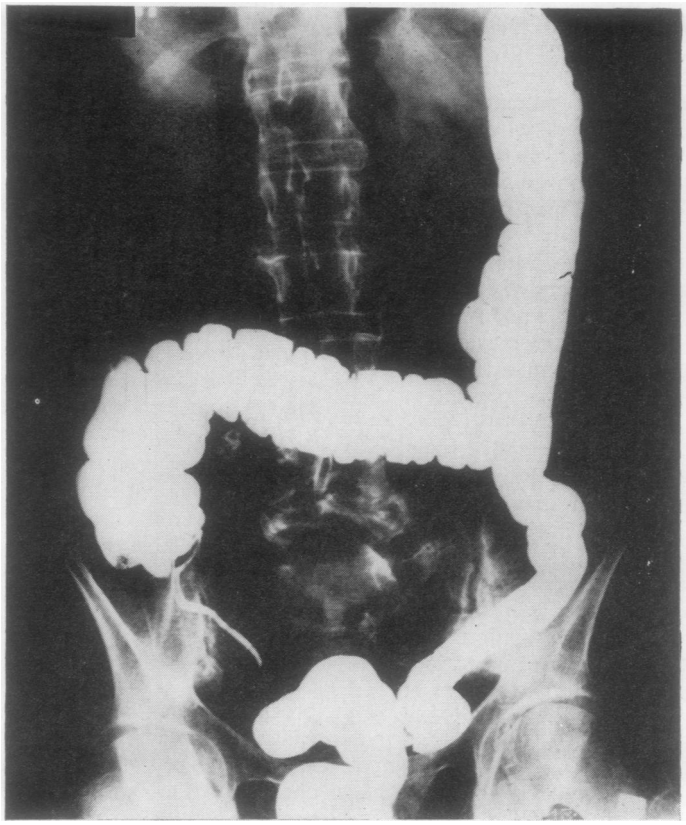

Fig. 2.—Barium enema in Case 2.

TABLE
COMPARISON OF ANKYLOSING SPONDYLITIS PATIENTS WITH AND WITHOUT ULCERATIVE COLITIS

Bowel		Ulcerative Colitis		Normal	
			Per cent.		Per cent.
Patients		6	18	27	82
Mean Age (yrs.)		48	—	43	—
Sex	Male	6	100	24	89
	Female	0	0	3	11
History of ankylosing spondylitis (yrs.)		20	—	13	—
Findings	Peripheral joint involvement	2	33	8	30
	Fused sacro-iliac joints	4	67	16	59
	Aortic incompetence	0	0	0	0
	Iritis	1	17	5	19
	Urethritis	0	0	4	15
	Psoriasis	1	17	1	4
	Phenylbutazone therapy	1	17	8	30
	Radiotherapy	4	67	14	52
Family History	Ankylosing spondylitis	1	17	3	11
	Ulcerative colitis	0	0	2	7
	Psoriasis	0	0	0	0

with ulcerative colitis (mean 20 years; range 14 to 29) than in the rest (mean 13 years; range 6 months to 31 years).

The frequency of peripheral joint involvement, fused sacro-iliac joints, aortic incompetence, iritis, a history of urethritis, psoriasis, phenylbutazone therapy, radiotherapy, and a family history of ankylosing spondylitis, ulcerative colitis, and psoriasis was not significantly different in the two groups.

Discussion

The prevalence of 18 per cent. for the occurrence of ulcerative colitis in our series of patients with ankylosing spondylitis is very much higher than that found in previous studies. The investigations are not comparable, however, as in previous series sigmoidoscopy and barium enema were performed only on patients with gastrointestinal symptoms. McBride and others (1963) performed barium meal and follow-through examinations on 67 patients

with ankylosing spondylitis and found two cases of small bowel disease. This is, however, an unreliable method of diagnosing ulcerative colitis. If we had restricted our investigations to patients with bowel symptoms, only three cases of ulcerative colitis would have been found, a prevalence of 9 per cent. In two of these patients symptoms were minimal and investigation might not have been pursued at this stage. McBride and others (1963) comment that the clinical manifestations of the intestinal disease associated with ankylosing spondylitis are usually mild. It is of interest that Bywaters and Ansell (1958) described a patient with a migratory polyarthritis and fever, in whom barium enema revealed ulcerative colitis although no diarrhoea was present at that stage.

It could be that ankylosing spondylitis patients with bowel symptoms are more likely to volunteer for this type of investigation than those without bowel symptoms. This would introduce an element of selection in our series.

Comparable data regarding the incidence of ulcerative colitis in the general population is not available. In all surveys the investigations including sigmoidoscopy and barium enema examinations have been performed only on patients with symptoms and not on the whole group studied. Houghton and Naish (1958) studied the population of 800,000 served by the Bristol Hospitals and found 170 admissions for ulcerative colitis. They concluded that the maximum possible prevalence of ulcerative colitis was 0·085 per cent., assuming that only a quarter of all cases would require in-patient treatment. Wigley and Maclaurin (1962) thought this to be 0·041 per cent. in Europeans in New Zealand, and Evans and Acheson (1965) found the combined prevalence of ulcerative colitis and proctitis to be 0·0799 per cent. in the Oxford area.

In a survey of 23 teaching hospitals throughout Great Britain, Melrose (1955) found that 1·09 per cent. of general hospital admissions were for ulcerative colitis. Similarly, Bywaters and Ansell (1958) found 0·95 per cent. and 0·71 per cent. of new patient admissions to be for ulcerative colitis. However, information relating the number of cases of ulcerative colitis to the admission rate to hospitals may well not reflect in any way the prevalence of ulcerative colitis in the general population. These latter figures cannot be compared with that reported in this paper.

The association of ankylosing spondylitis and ulcerative colitis can be due either to one disease occurring as a complication of the other or to some common factor causing both conditions. The longer length of history of ankylosing spondylitis in the ulcerative colitic group can be interpreted in different ways. If the colitis is regarded as a complication of ankylosing spondylitis, then it would be expected to be more common in those patients with a longer history of spondylitis. Alternatively, if some unknown factor is aetiological for both conditions and yet the colitis is slower to appear, a longer history of ankylosing spondylitis would be found in patients developing ulcerative colitis.

As we have shown that ulcerative colitis can exist in the absence of symptoms it may be impossible to be certain which condition appeared first.

It is of interest that Wright and Watkinson (1965) found 14·4 per cent. of patients with ulcerative colitis of less than 4 years' duration to have sacroiliitis as compared with 22·0 per cent. of patients with a history of more than 4 years.

A history of urethritis was obtained in four of the non-ulcerative patients with normal bowels, but in none of the colitic group. History alone, however, is a very unreliable means of diagnosing urethritis. The difference between the two groups is not statistically significant, but nevertheless it is interesting to speculate whether one form of pelvic inflammation is always present in ankylosing spondylitis.

Romanus (1953) found evidence of chronic prostato-vesiculitis in 112 out of 114 cases and Mason, Murray, Oates, and Young (1958) found 83 per cent. of their ankylosing spondylitics to have chronic prostatitis as compared with 33 per cent. of patients with rheumatoid arthritis. Grimble and Lessof (1965) demonstrated anti-prostate antibodies in eighteen of 46 cases with ankylosing spondylitis and in only five of 168 cases of rheumatoid arthritis. Acheson (1960) found that 3 per cent. of patients with regional enteritis also had ankylosing spondylitis, and eighteen spondylitics were discovered by Kelly and Weisiger (1963) among reports of 95 cases of Whipple's disease.

In all these conditions one can postulate that infecting organisms enter the venous blood and pass directly to the spine *via* the vertebral venous system to cause chronic inflammation. Against this argument, however, is the fact that females are particularly prone to chronic pelvic infection whereas ankylosing spondylitis is a predominantly male disease. In our own series, only three of our 33 patients were women. Again, Wright, Catterall, and Cook (1965) studied 38 male patients with paraplegia; twelve of these showed sacro-iliac joint changes, but none showed major erosions or ankylosis and they were not typical of ankylosing spondylitis. There was no relation to the chronic genito-urinary infections or decubitus ulcers common in these patients. It was thought that the changes were due to mechanical damage.

The incidence of past radiotherapy treatment was not significantly different in the two groups of patients, confirming the findings of McBride and others (1963) and contradicting the suggestion that previous deep *x*-ray therapy to the spine may have resulted in chronic inflammation of the bowel.

Similarly, no differences were found in phenylbutazone administration or in any other therapy that could be implicated as causing intestinal inflammation.

Summary

33 patients out of 77 who had been diagnosed as cases of ankylosing spondylitis between 1957 and 1966 were investigated in order to determine the incidence of ulcerative colitis. Six cases were found of whom only one had been previously diagnosed. Three patients had no gastrointestinal symptoms.

We wish to thank Dr. A. T. Richardson, Dr. E. D. R. Campbell, and the other consultant staff of the Royal Free Hospital, London, for allowing us to examine their patients.

REFERENCES

Acheson, E. D. (1960). *Quart. J. Med.*, **29**, 489 (An association between ulcerative colitis, regional enteritis, and ankylosing spondylitis).

Bywaters, E. G. L., and Ansell, B. M. (1958). *Ann. rheum. Dis.*, **17**, 169 (Arthritis associated with ulcerative colitis).

Dick, A. P., Holt, L. P., and Dalton, E. R. (1966). *Gut*, **7**, 355 (Persistence of mucosal abnormality in ulcerative colitis).

Edling, N. P. G., Eklöf, O., Kistner, S., and Lagerlöf, B. (1966). *Acta radiol. Diag.*, **4**, 536 (Correlation of findings at barium enema examination, rectoscopy and biopsy of rectum).

Evans, J. G., and Acheson, E. D. (1965). *Gut*, **6**, 311 (An epidemiological study of ulcerative colitis and regional enteritis in the Oxford area).

Fennessy, J. J., Sparberg, M., and Kirsner, J. B. (1966). *Radiology*, **87**, 848 (Early roentgen manifestations of mild ulcerative colitis and proctitis).

Grimble, A., and Lessof, M. H. (1965). *Brit. med. J.*, **2**, 263 (Anti-prostate antibodies in arthritis).

Houghton, E. A. W., and Naish, J. M. (1958). *Gastroenterologia (Basel)*, **89**, 65 (Familial ulcerative colitis and ileitis).

Kellgren, J. H. (1962). *Bull. rheum. Dis.*, **13**, 291 (Diagnostic criteria for population studies).

Kelly, J. J., and Weisiger, B. B. (1963). *Arthr. and Rheum.*, **6**, 615 (The arthritis of Whipple's disease).

Kiefer, E. D., and Gialanella, R. R. (1960). *Gastroenterology*, **39**, 687 (Arrested chronic ulcerative colitis).

McBride, J. A., King, M. J., Baikie, A. G., Crean, G. P., and Sircus, W. (1963). *Brit. med. J.*, **2**, 483 (Ankylosing spondylitis and chronic inflammatory diseases of the intestines).

Mason, R. M., Murray, R. S., Oates, J. K., and Young, A. C. (1958). *Ibid.*, **1**, 748 (Prostatitis and ankylosing spondylitis).

Melrose, A. G. (1955). *Gastroenterology*, **29**, 1055 (The geographical incidence of chronic ulcerative colitis in Britain).

Romanus, R. (1953). *Acta med. scand.*, **145**, Suppl. 280 (Pelvo-spondylitis ossificans in the male and genito-urinary infection).

Serre, H., and Simon, L. (1964). *Rheumatism*, **20**, 13 (Rheumatoid spondylitis and ulcerative colitis).

Sparberg, M., Fennessy, J., and Kirsner, J. B. (1966). *Medicine (Baltimore)*, **45**, 391 (Ulcerative proctitis and mild ulcerative colitis: A study of 220 patients).

Steinberg, V. L., and Storey, G. (1957). *Brit. med. J.*, **2**, 1157 (Ankylosing spondylitis and chronic inflammatory lesions of the intestines).

Wigley, R. D., and Maclaurin, B. P. (1962). *Ibid.*, **2**, 228 (A study of ulcerative colitis in New Zealand, showing a low incidence in Maoris).

Wilkinson, M., and Bywaters, E. G. L. (1958). *Ann. rheum. Dis.*, **17**, 209 (Clinical features and course of ankylosing spondylitis).

Wright, V., Catterall, R. D., and Cook, J. B. (1965). *Ibid.*, **24**, 419 (Bone and joint changes in paraplegic men).

—— and Watkinson, G. (1965). *Brit. med. J.*, **2**, 675 (Sacro-iliitis and ulcerative colitis).

La colite ulcérative chez des malades ayant une spondylarthrite ankylosante

RÉSUMÉ

Sur 77 malades atteints de spondylarthrite ankylosante vus entre 1957 et 1966, 33 furent examinés dans le but de rechercher une colite ulcérative. On trouva six cas, dont un seul avait été diagnostiqué auparavant. Trois d'entre eux n'avaient aucun signe digestif.

La colitis ulcerativa con espondilartritis anquilosante

SUMARIO

De 77 enfermos con un diagnosis de espondilartritis anquilosante, vistos entre 1957 y 1966, 33 fueron investigados para determinar la incidencia de colitis ulcerativa. Se encontraron seis casos de los cuales uno sòlo habìa sido reconocido anteriormente. Tres de ellos no presentaron sìntoma gastro-intestinal alguno.