SKELETAL ABNORMALITIES IN CROHN'S DISEASE*

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Crohn's disease is a chronic disorder which primarily involves the bowel but may be associated with changes in the joints,[1] eyes[2] and skin.[3] The association between Crohn's disease and skeletal structures other than those of the joints appears to have been less frequently noted. In this article an outline is presented of the bone and joint changes noted in a retrospective analysis of 94 cases of Crohn's disease.

SELECTION OF CASES

Ninety-four cases of Crohn's disease seen at Hammersmith Hospital between 1946 and 1968 were included. The case notes provided adequate information as to whether or not the fingers and hands were abnormal in 61 of them. The number of patients with clinical evidence of joint abnormality and of those that had had X-rays taken of the sacro-iliac joints were also recorded. The diagnosis of Crohn's disease was made on clinical, radiological and/or operative findings in 40, and on histology in 54 of the cases (Table I).

Patients were classified according to whether or not the colon was affected by Crohn's disease, and also according to the extent of small bowel disease as shown in Table II. It was usually easy to determine the appropriate grade for each patient and borderline cases (i.e. ±25%, ±50% and ±75%) were classified in the higher grade if severe malabsorption or fistulae were also present but in the lower grade if either was absent. The number of cases in the various groups are shown in Fig. 1.

TABLE I. DIAGNOSIS OF CROHN'S DISEASE (94 CASES)

Investigation	*No. of cases*
Clinical	17
Laparotomy	23
Histology (definite 43, compatible 11)	54

TABLE II. SUGGESTED CLASSIFICATION OF CROHN'S DISEASE ACCORDING TO EXTENT OF SMALL BOWEL INVOLVEMENT

Grade	*Extent of small bowel disease*
I	0 - 25%
II	25% - 50%
III	50% - 75%
IV	75% - 100%

RESULTS AND DISCUSSION

The various skeletal abnormalities noted in this survey are recorded in Table III.

TABLE III. SKELETAL CHANGES IN CROHN'S DISEASE

Changes	*No. of cases*
Changes in hands	
Clubbing	14
Koilonychia	4
Arachnodactyly	5
Changes in joints	
Polyarthritis	2
Ankylosing spondylitis	8

Hand Changes

Clubbing of the fingers was present in 14 patients—it was prominent in 10 but only slight in 4. Clubbing of the fingers was more common in the group of patients that had major involvement of the colon (Fig. 2), and did not appear to be related to the extent of small bowel disease. The sex incidence, age at onset of symptoms and duration of symptoms were the same in patients with and

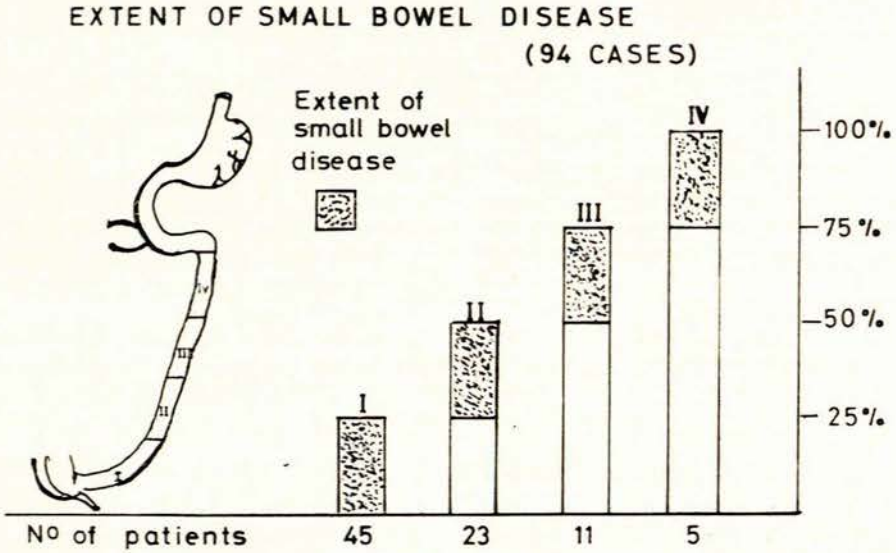

Fig. 1. Diagram to illustrate the method whereby the extent of small bowel disease in Crohn's disease has been classified (Table II).

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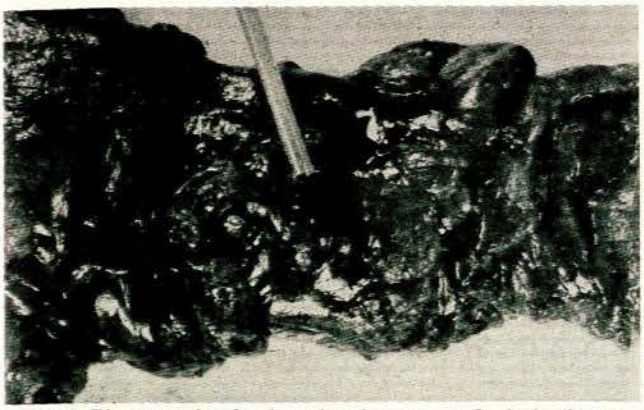

Fig. 2. Photograph of colon showing severe Crohn's disease with fistula in a patient who had prominent finger clubbing.

without clubbing. One patient with hypertrophic osteopathy associated with extensive Crohn's disease of the small and large bowel has been reported elsewhere.[4] Five patients with clubbing also had perianal pathology and 3 of these had associated colonic disease. The incidence of clubbing of the fingers in this series is higher than that recorded by Crohn and Yarnis[3] who noted that 3% of their cases had finger clubbing.

Koilonychia was noted in 4 patients. Three of the 4 patients with spoon-like changes of the fingernails suffered from severe malnutrition, hypochromic anaemia and hypoferraemia.

The third skeletal abnormality noted in this study was the presence of arachnodactyly in 5 patients. These patients were asked to attend the outpatient clinic in order to assess whether or not they had any of the other features of Marfan's syndrome. All 5 patients had some of the typical skeletal features of Marfan's syndrome. The patellar ligament was longer than normal and a high arched palate was present in all. The metacarpophalangeal index (Sinclair) was measured by means of X-ray in 3 and found to be in the Marfan's range in all of these. One patient also suffered from recurrent dislocation of different joints. There were no heart abnormalities and no cases had recurrent dislocation of the lens although one patient had myopia. The clinical picture described in these 5 cases is considered to represent the *formes frustes* of Marfan's syndrome. The case notes of 13 other patients with Marfan's syndrome were also examined to see if any had clinical features of Crohn's disease. Ten of these patients had the *formes frustes* and 3 had florid Marfan's syndrome with typical heart and/or eye changes. None of the 13 patients had any of the clinical features of Crohn's disease. However, a possible association with Marfan's syndrome and Crohn's disease was not thought of when the patients were admitted to hospital and in none of them was a barium meal or enema done.

Joint Changes

In addition to examining the features of hand changes in patients with Crohn's disease, the incidence of joint changes was also recorded. Two different types of joint abnormalities have been reported to occur in patients with Crohn's disease: polyarthritis[1] and ankylosing spondylitis.[5] Two patients gave a definite history of polyarthritis.

X-rays of the sacro-iliac joints were available in 23 patients and of these 8 were found to be abnormal. Six patients had typical radiological features of ankylosing spondylitis (Fig. 3), whereas two had minimal lipping of

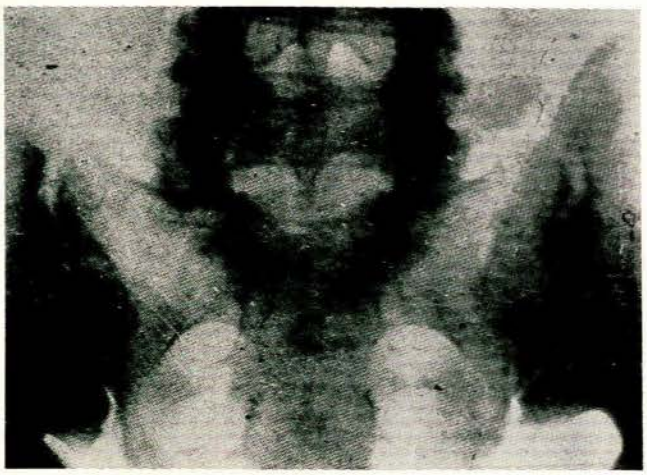

Fig. 3. Photograph of X-rays showing changes of ankylosing spondylitis of the left sacro-iliac joint.

the sacro-iliac joints. The 6 patients with the more definite changes were males and in all of them the large bowel was thought to be free from Crohn's disease (Table IV).

TABLE IV. SACRO-ILIITIS IN CROHN'S DISEASE

	No. of cases	*No. of males*	*Colon involved*
Sacro-iliitis (prominent)	6	6	0
Crohn's disease	94	45 (43%)	30 (31%)

The aetiology of Crohn's disease is still an enigma. The main manifestations of this condition are confined to the intestinal tract but occasionally symptoms remote from the alimentary tract may be present. When clinical features indicate the possibility of any of the skeletal abnormalities discussed in this paper, Crohn's disease should perhaps be considered when other aetiological factors cannot be found.

SUMMARY

In a review of 94 cases of Crohn's disease, various skeletal abnormalities were recorded. Although individual case reports have previously reported the presence of clubbing of the fingers, the high incidence of this condition in Crohn's disease does not appear to have been noted in the past. Five patients with arachnodactyly were seen; it is suggested that cases of Crohn's disease should be examined to determine whether or not a definite association with Marfan's syndrome exists. There were 8 patients who were noted to have ankylosing spondylitis.

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