CROHN'S DISEASE IN SAUDI ARABIA

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ABSTRACT

We report 17 children with Crohn's disease seen at King Abdulaziz University Jeddah, Saudi Arabia during 1980 to 1990. The ages ranged from 5 to 15 years; 10 cases were boys. The average duration of symptoms prior to presentation was 25 months (range 4 days - 4 years). The chief clinical features included abdominal pain in 15 patients, diarrhea in 12, fever in 7, hematochezia in 6, weight loss in 8 and arthralgia in 2 patients. Radiological signs of Crohn's disease involving the terminal ileum and/or the small bowel were seen in 4 of 10 cases. Four cases showed nonspecific inflammation with chronic inflammatory cells and granulomas on bowel and lymph node biopsies. A satisfactory response to therapy with steroids was seen in all cases. Sixteen recurrences were seen in 11 patients; all these recurrences were mild and seen in patients with poor compliance to medication. This study suggests that Crohn's disease is not an uncommon entity in Saudi Arabia. Most cases show satisfactory response to therapy with steroids; however prolonged follow-up is required.

Key words: *Crohn's disease, Granulomas.*

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Crohn's disease was first reported as a specific disease, termed regional ileitis by Crohn *et al.* in 1932(1). It is, however, known that the disease affects not only the terminal ileum, but the entire digestive tract from the oral mucosa to the anal region. Despite the extensive reports on Crohn's disease in childhood from North America, Western Europe, Japan, and to a lesser extent, from South America and the Soviet Union, there are extremely few reports about the condition in Arab countries. In this paper, we describe 17 cases in Crohn's disease in children in the Western province of Saudi Arabia during 1980 to 1990. To our knowledge, this is the first report on Crohn's disease in children from this region.

Material and Methods

During a period of ten years (1980 to 1990), 17 chidlren with Crohn's disease (ten boys and seven girls) from the Western region of Saudi Arabia were followed up in the pediatric unit at King Abdulaziz University Hospital in Jeddah, Saudi Arabia, for an average period to two to three years. The average duration of symptoms prior to presentation was 25 months (ranging from four days to four years).

A detailed history of diarrhea, abdominal pain, fever, weight loss, fresh bleeding per rectum, and joint pain was taken in all cases. All children underwent the following investigations: complete blood count, erythrocyte sedimentation rate, stool analysis and culture (to exclude bacteria, ameba and giardia), urinalysis and urine culture, liver function tests, plain chest *X*-ray, plain abdominal *X*-ray, gastric lavage for acid fast bacilli and barium enema. Ten affected children had upper gastrointestinal radiological examinations performed. In addition, all patients underwent a colonoscopy, and biopsies of the colon were taken for histo-

pathological examination. Laparotomy and biopsy was performed in the presence of obstruction, acute abdomen or palpable mass. Out of the 10, 4 had bowel resection and lymph node biopsies taken. Focal non-specific inflammation with chronic inflammatory cells and granuloma were considered features consistent with Crohn's disease. Crohn's disease was diagnosed in the presence of the clinical features suggestive of the disease and histopathological or radiological evidence or both.

Results

The age at presentation ranged from 5 to 15 years. One patient each presented at the age of 5, 9, 10 and 12 years; 2 at 11 years; 4 at 13 years; 3 at 14 years; and 4 at 15 years of age.

The clinical and laboratory manifestations of Crohn's disease are summarized in *Table I*. Abdominal pain was the presenting symptom in 88.2% of patients. Diarrhea was present in 70.5%, while fever and hematochezia occurred in 41.1% and 35.2%, respectively. Weight loss existed in 47% of the patients. Arthralgia and jaundice were present in 11.7% each; 17.6% patients presented with intestinal obstruction, while another 18% presented with an abdominal mass in the right iliac fossa. Extra-intestinal manifestations included finger clubbing in 23.5% cases and erythema nodosum in 5.8% cases. Laboratory investigations revealed anemia in 17.6%, raised erythrocyte sedimentation rate in 23.5% and hypoalbuminemia in 11%. Abnormal liver functions were present in 23.5% of patients. The stool examination was negative in all the 17 patients. Plain radiograph of the chest was normal and gastric lavage for acid fast bacilli was negative. Of the 10 patients who underwent an upper gastrointestinal radiological examination, 4 patients showed radiological signs of Crohn's disease involving the terminal ileum and/or the small bowel. No radiological abnormality was seen in 6 patients.

Only 3 patients showed features compatible with Crohn's colitis. All affected children were treated after hospitalization. The parents of the affected children were given a detailed view about the disease, its complications and treatment. Nutritional support was given to all affected children. Eight patents received total parenteral nutrition for an average period of 5 weeks. The remaining patients received oral nutrition, high in calories and protein. In addition, patients received elemental iron (5 mg per

TABLE I–*Clinical and Laboratory Manifestations of Crohn's Disease*

	Boys (n=10)	Girls (n=7)	Total (n=17)	%
Diarrhea	7	5	12	(70.5)
Abdominal pain	10	5	15	(88.2)
Fever	3	4	7	(41.1)
Weight loss	5	3	8	(47.0)
Hematochezia	5	1	6	(35.2)
Arthralgia	1	1	2	(11.7)
Jaundice	0	2	2	(11.7)
Palpable mass	2	1	3	(17.6)
Anal problems	3	1	4	(23.5)
Abnormal liver function tests	2	2	4	(23.5)
Finger clubbing	2	2	4	(23.5)
Intestinal obstruction	3	0	3	(17.6)
Erythema nodosum	1	0	1	(5.8)
Anemia	2	1	3	(17.6)
Raised ESR	1	3	4	(23.5)
Positive barium enema	6	3	9	(52.9)
Hypoalbuminemia	1	1	2	(11.7)

day in three doses), folic acid (5 mg/kg daily) and vitamin B_{12} (250 µg weekly) in case of proven deficiency of above mentioned elements. Malabsorption, when present was dealt with appropriate measures. Pain was relieved by codeine phosphate.

All the patients received prednisone in a dose of 2 mg/kg body weight per day orally. In our children, we administered the steroids for a period of four weeks, then prednisone was tapered by 0.5 mg/kg every week with the child being observed for signs of increased disease activity. Once the child improved with regard to clinical signs and laboratory tests, prednisone was gradually changed to alternate day regimen, which was then continued. The children were observed for side effects of prednisone, including growth retardation, hypokalemia, hypertension and osteoporosis. After one month of prednisone therapy, 6 patients were asymptomatic by 6 months, 11 of the 17 had no symptoms. There were 16 recurrences in 11 patients. Eight cases had one recurrence, one case had 4 recurrences and 2 cases had 2 recurrences each. All these recurrences were brief and mild. The recurrences were present more in patients with poor compliance to medications and were associated with laboratory abnormalities in 11 episodes.

Ten cases required surgical intervention. Out of those laparotomises, 4 patients had bowel resection and lymph node biopsies taken. There was no evidence of tuberculosis and the histology was suggestive of Crohn's disease.

Discussion

Crohn's disease is characterized by localized areas of non-specific granulomatous inflammation of the bowel. The sites most commonly involved are in order of frequency, terminal ileum and right side of colon alone, ileum and jejunum(2). The low incidence of Crohn's disease in Saudi Arabia may be explained by the high frequency of bacterial colitis, parasitic infestations and tuberculosis which may cause difficulties in diagnosis or mask the clinical diagnosis of inflammatory bowel disease. Lack of awareness of the disease, in addition to poorly developed medical services add to the problem of diagnosis.

In our patients, only 2 were below 10 years of age. In literature, most childhood cases appear in pre-adolescence and adolescence. Cases have also been described within the first four months of life. Onset in infancy is, however, extremely rare(3).

Abdominal pain was present in 80% of the cases compared to 74 and 66% in other series(4). Crampy abdominal pain is the most common initial complaint. Pain from the small intestine is often periumbilical or in the right lower quadrant, rather than confined to the lower abdomen as in ulcerative colitis and there is less tenesmus except when the distal segment is involved. The pain is often triggered by food. Diarrhea was present in 70% of our cases compared to 55% in other studies(4). Hemoatochezia, which was present in 35% of the patients, runs a similar pattern to the cases reported by O'Donoghue *et al.*(4). Weight loss was present in 50% of our patients compared with 41% of patients in cases reported by O'Donoghue *et al.*(4).

Almost one-half of all patients may have extra intestinal symptoms including fever and arthralgia(5). Fever was present in 40% of our patients compared with 22% by O'Donoghue *et al.*(4). The reason for the higher percentage of fever in our group could be the higher incidence of associated viral and bacterial infections. Other extra-intestinal manifestations include finger clubbing (23% patients), arthralgia (11%

patients) and anemia (18% patients). All run a similar pattern to other studies(6).

In our study, 4 affected children had classical radiological picture on follow-through examination. Barium enema was done in all the patients which showed that 9 patients had radiological picture of Crohn's disease. Barium meal and follow through examination may show alterations of the mucosal pattern, deep ulceration and the pathognomonic string sign due to marked narrowing of segment of affected bowel. The lesions tend to be discontinuous along the length of the bowel(7). A higher number of cases with Crohn's colitis in our patients could be explained by the delay in diagnosis. Among our cases, 3 cases showed colonoscopic picture of Crohn's colitis. The endoscopic picture of Crohn's disease in children is characterized by discontinuous mucosal alterations, such as ulcers, aphthoid lesions, cobble-stone formation, pseudopolyps, strictures, fissures and fistulas. All the three had biopsies taken which showed a histopathological picture of Crohn's disease(6).

Cases with Crohn's disease showing clinical and laboratory improvement on daily prednisone were changed to alternate day prednisone regimen. In our series, there was satisfactory response to the therapy as evidenced by the fact that 11 out of 17 patients (64%) had attained a remission within 6 months of therapy, compared with 68% in other series(9).

There is a considerable recurrence rate following surgery. In our study, we had 16 recurrences. The recurrence is defined as the appearance of symptoms after a period of being asymptomatic. The 16 recurrences were present in 11 patients. The recurrences were associated with laboratory abnormalities in 11 instances. Our data on recurrences are similar to that reported by Bergman and Kranse(10). This study shows that Crohn's disease is not a rarity in our area, and that efforts are required to diagnose, treat and carefully follow up these cases. We also conclude that the response of our patients to treatment, the need for surgery and the recurrences run a similar pattern as in the West.

REFERENCES

1. Crohn BB, Ginzburg L, Oppenheimer GD. Regional ileitis. JAMA 1932, 99: 1323-1328.
2. Gryboski JD. Crohn's disease in children. Pediatr Rev 1981, 2: 239-251.
3. Postuma R, Morol SP. Pediatric Crohn's disease. J Pediatr Surg 1985, 20: 478-482.
4. O'Donoghue DP, Dawson AM. Crohn's disease in childhood. Arch Dis Child 1977, 52: 627-632.
5. Greenstein AJ, Janowitz HD, Sachar DB. The extra-intestinal complications of Crohn's disease and ulcerative colitis: a study of 700 patients. Medicine 1976, 55: 401-410.
6. Yoon CM, Kim SB, Park IJ. Clinical features of Crohn's disease in Korea. Gastroenterol J 1988, 23: 570-581.
7. Olafsdottir EJ, Fluge G, Hang K. Chronic inflammatory bowel disease in children in western Norway. J Pediatr Gastroenterol Nutr 1989, 8: 454-458.
8. Sasaki H, Yagushi T, Hasegawa K, *et al.* Pediatric colonoscopy. Dis Colon Rectum 1981, 24: 2547-2551.
9. Farmer RG, Michener WM. Prognosis of Crohn's disease with onset in childhood or adolescence. Dig Dis Sci 1979, 24: 752-761.
10. Bergman K, Krause U. The incidence of Crohn's disease in central Sweden. Scand J Gastroenterol 1975, 10: 725-729.