

## ORIGINAL

## Ulcerative Colitis in Children in the Western Region of Saudi Arabia

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### ABSTRACT

During a period of ten years (1980 to 1990), twenty six children with ulcerative colitis were treated and followed up at King Abdulaziz University, Jeddah, Saudi Arabia, of whom eleven were males and fifteen were females. Their ages ranged from 4-15 years. The clinical picture, investigation results and methods of treatment for these twenty six children are discussed in view of the relevant literature currently available. To our knowledge, this is the first report on ulcerative colitis in children in Saudi Arabia.

Despite the extensive literature on ulcerative colitis in children from North America, Western Europe, Japan, and to a lesser extent from South America, there are very few reports about ulcerative colitis in children in Arab countries. This prompted us to review our experience of this condition in childhood with special focus on the clinical picture, results of investigation and methods of treatment. We studied patients who presented to our hospital prior to their 16th birthday. To our knowledge, this is the first report on ulcerative colitis in children in Saudi Arabia.

### METHODS

During a period of ten years (1980 to 1990), twenty six

children with ulcerative colitis were followed up at King Abdulaziz University Hospital, Jeddah, Saudi Arabia, of which eleven were males and fifteen were females. Their ages at presentation ranged from 4-15 years (Fig 1). Only six patients presented below, while twenty above, the age

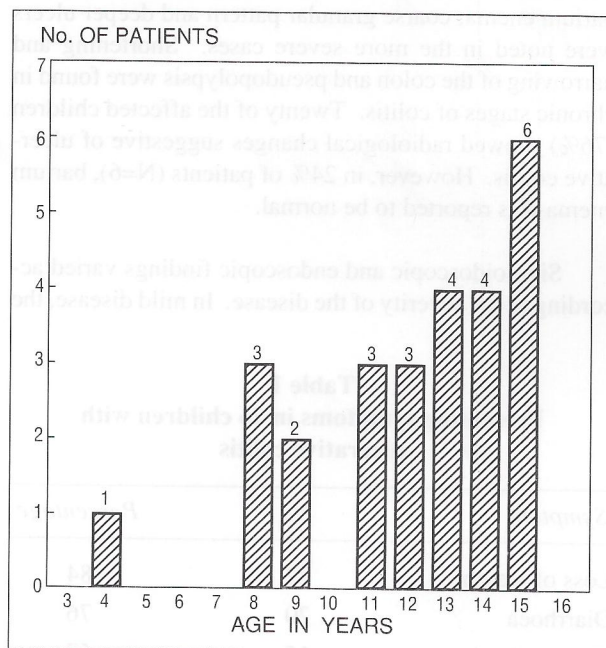


Figure 1

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of ten years. The mean age at presentation was 12.05 years. All the patients had the following investigations: complete blood count and differential, erythrocyte sedimentation rate (ESR), urinalysis, urine for culture and sensitivity, stool analysis and culture, liver function tests, transferrin, immunoglobulins, serum electrolytes, Ca<sup>++</sup>, phosphate, abdominal plain x-ray, barium follow-through, barium enema, colonoscopy and colonic biopsy.

## RESULTS

The presenting symptoms and investigation results are summarised in Tables 1 and 2. Reasons for delay in establishment of diagnosis are multiple. Often, physicians were unaware that inflammatory bowel disease occurred in children and adolescents. Some physicians caring for children had been over-zealous or ordering extensive tests such as barium enema, proctosigmoidoscopy and colonoscopy. Furthermore the failure of children to communicate their bowel habits to their parents and their physicians is another factor. In our series, there was an average delay of 9.5 months between the onset of initial symptoms and the establishment of the diagnosis.

None of our patients had raised conjugated bilirubin. Elevated immunoglobulins were present in 11% of the patients. Mucosal edema with discrete erosions producing fine granularity was the earliest detectable change on barium enema; coarse granular pattern and deeper ulcers were noted in the more severe cases. Shortening and narrowing of the colon and pseudopolyps were found in chronic stages of colitis. Twenty of the affected children (76%) showed radiological changes suggestive of ulcerative colitis. However, in 24% of patients (N=6), barium enema was reported to be normal.

Sigmoidoscopic and endoscopic findings varied according to the severity of the disease. In mild disease, the

**Table 1**  
Presenting symptoms in 26 children with ulcerative colitis

Symptom	No	Percentage
Loss of weight	22	84
Diarrhoea	20	76
Hematochezia	15	57
Abdominal pain	8	30
Aphthous stomatitis	5	19
Iritis	3	11
Arthralgia	5	19
Clubbing of fingers	2	7

**Table 2**  
Results of investigations performed in 26 children with the ulcerative colitis

Investigations	Children with positive results	
	No	Percentage
Anaemia	9	38
Leucocytosis	6	23
Thrombocytopenia	2	7
Raised ESR	8	30
Positive urine culture	4	14
Positive stool culture	2	7
Abnormal liver functions	7	26
Elevated immunoglobulins	3	11
Hypocalcemia	1	3
Hypomagnesemia	1	3
Hyperphosphatemia	1	3
Abnormal plain x-ray	4	14
Positive barium enema	20	76
Positive colonoscopy	26	100
Total colitis	4	14
Isolated left colon involvement	8	30
Rectum and sigmoid involvement	14	54

mucosa showed diffuse hyperemia and tiny petechiae. The mucosa was found to be fragile as shown by the occurrence of bleeding when rubbed with a piece of gauze held by forceps introduced through the sigmoidoscope. In moderate ulcerative colitis, hyperaemia, granularity and contact bleeding were found to be much more pronounced. Hemorrhagic flares could be seen, rather small petechiae. Areas of purulent exudate were present in some of the cases, and discrete ulceration could be seen. In severe colitis, the mucosa appeared intensely inflamed, with blood oozing spontaneously from its surface. Purulent exudation and gross ulceration could be seen.

Histopathological examination of tissue specimens obtained by endoscopic biopsy was done in all cases. Abnormalities indicating ulcerative colitis were seen in all patients depending on the grade of activity of the disease. These changes included dense infiltration of inflammatory cells confined to mucosa, vascular congestion, much depletion of the goblet cells, and crypt abscess.

There are three infections, all relatively common, that can very closely mimic ulcerative colitis. These include campylobacter jejuni enteritis, Yersinia enterocolitica, and clostridium difficile. Stools in our



patients were routinely examined. None of our patients had any of the above mentioned organisms.

Treatment of children with mild ulcerative colitis restricted to rectum (29% of the total affected children in our series) consisted of analgesics, nutritional support, sulphasalazine and topical hydrocortisone. Two patients (75%) needed intravenous hyperalimentation, the rest were managed by oral diet (rich in protein and low in residues, and containing vitamins and iron). In our patients a dose of 0.5 gm sulphasalazine per 15 kg of body weight every 24 hours (up to a maximum of 4gm). All the children with mild ulcerative colitis in this series were given 100 mg hydrocortisone as an enema at bed time for a period of 6 weeks, nightly during the first three weeks of treatment and thereafter on alternative nights; and all responded to this regimen as evidenced by a disappearance of the symptoms (diarrhoea, abdominal pain, rectal bleeding, weight loss). Eighty five percent of respondents relapsed in the period of our study. None of the patients with mild ulcerative colitis needed surgical intervention.

## DISCUSSION

Ulcerative colitis (UC) was first described by Wilks and Moxan in 1875<sup>1</sup> and has since been recognised with increasing frequency, particularly in the past several decades. Wyllie et al reported the incidence of inflammatory bowel disease in children to be 2 to 5 per 100,000<sup>2</sup>. Twenty percent of cases manifest before the age of 20 years with a peak incidence between the ages of 10 and 19 years<sup>3</sup>. We had 26 affected children with UC. The age varied between 4-15 years. Six patients were below the age of 10 years while 20 patients were teenagers. No cases presented in the first three years of life. All the patients were born in the western province of Saudi Arabia. Ten patients were from tribal descendants. Twenty four patients of the 26 had early weaning with introduction of humanised milk. The change of milk occurred between the ages of 2 months to 13 months. In our area, in general, children were accustomed to ingestion of large quantities of sugar and cakes. Both artificial feeding and ingestion of sugar, cakes and pastries are factors which are known to increase the incidence of UC<sup>4</sup>.

Loss of weight was present in 84% of our patients. The cause for the weight loss in UC is probably multifactorial. Decreased nutrient intake, increased nutritional requirements, and drug therapy have all been suggested<sup>5</sup>. Dietary intake that is inadequate to meet nutritional demands has been documented in several previous studies and is considered the most important factor leading to weight abnormalities. Most studies have demonstrated that children with UC have normal basal energy expenditures. Protein synthesis, breakdown, and retention rates are also normal. Increased nutritional requirements may be associated with chronic inflammation and fever. Urinary

losses of vitamins and minerals may also be associated with inflammation. These problems are aggravated by anorexia associated chronic disease or cramps, which may occur with limited oral intake<sup>6</sup>. In other series<sup>7</sup>, weight loss was present in 62% and diarrhoea in 76% of the patient population. The bowel habit in our patients ranged from one or two loose motions per day to 15 or 30 explosive evacuations. Morning diarrhoea was usual. In other studies the frequency of diarrhoea ranged from 30-93%<sup>8</sup>. Rectal bleeding was present in 57% of our patients, while in literature this ranged from 23-90%<sup>9</sup>. Abdominal pain was present in 30% of our patients; in the literature this ranged from 15-17%<sup>10</sup>. Aphthous stomatitis was present in 19% of our patients.

Extraintestinal manifestations in our patients presented after the gastrointestinal manifestations. The commonest in our patients was the arthralgia, 19%. Arthritis in UC has been recognised for many years<sup>11</sup>. The characteristic arthropathy associated with inflammatory bowel disease affects large joints in an asymmetric migratory pattern. The knees are the most commonly affected, with hips, ankles, wrists and elbows following in decreasing frequency. In our patients the joint affection showed a self-limited course of 6-12 weeks duration. Therapy towards the primary disease led to control of the joint problem. Salicylates or mild analgesics may be needed<sup>12</sup>, and had been used routinely by us.

Iritis was present in 11% of our series. In UC, onset of iritis is acute and painful with blurred vision and headaches bringing the patient to medical attention. In other series it ranged from 0.5-13%<sup>13</sup>. Toxic megacolon due to UC ranged from 2-10%<sup>14,15</sup>. Our two patients with toxic megacolon had fever, dehydration and abdominal distension and were managed successfully with intravenous fluids, suction and antibiotics.

Haematological abnormalities in our patients included anaemia (38%), leucocytosis (23%), thrombocytopenia (7%) and elevated ESR (30%). These are similar to other studies<sup>9</sup>. Anaemia in UC results is due to several factors. Because of the significant blood loss in UC, the anaemia is usually associated with iron deficiency. We used only oral iron to treat our patients. Four out of the 9 children with anaemia needed blood transfusion in one or more occasions. Hepatic involvement in UC included chronic active hepatitis and sclerosing cholangitis, and is characterised by conjugated hyperbilirubinaemia and high alkaline phosphatase<sup>12</sup>. In our series 26% of patients had abnormal liver functions. These included raised transaminases and mild elevation of alkaline phosphatase. None of our patients had conjugated hyperbilirubinaemia.

Four patients had abnormal plain abdominal x-ray. Barium enema was done in all the patients. The radiological



features of UC on barium enema were present in 76% of the affected children, an incidence similar to what had been reported by others<sup>16,17</sup>.

Colonoscopy was done in all our patients. As a preparation we used fluid diets and enema. General anaesthesia was needed in 4 patients. The rest were managed by intramuscular chlorpromazine as a premedication, and intravenous diazepam and pethidine during the procedure. Colonoscopy consistently revealed the extent of the disease. In 54% of patients only the rectum and the sigmoid colon were involved, and in further 30% there was involvement of left colon as well. Total colitis was present in only 14%, which runs a similar pattern to other studies<sup>7</sup>.

Mild UC with pathology confined to the distal colon is characterised by diarrhoea, abdominal pain, minimal rectal bleeding and weight loss, as well as absence of fever, anaemia and hypoalbuminemia. Mild UC was present in 29% of our patients. All the children with mild UC were given 100 mg hydrocortisone or its equivalent as an enema, slowly at bed time for six weeks, nightly in the first three weeks, and then on alternate nights. If the patient deteriorated or did not improve, treatment with oral prednisone was tried, as it is used in moderate UC. All our patients with mild UC responded to medical treatment but they recorded the highest percentage of relapses, 85% within the period of our study which was 10 years. These findings are comparable to other studies<sup>18</sup>. Moderate UC was present in 57% of children in our series. Because UC is an inflammatory disease of unknown aetiology, ACTH and cortisone were empirically tried in the treatment of UC in the 1950s. Due to the intensity of these findings, corticosteroids are initially used to control the symptoms. Oral prednisone in doses of 2 mg/kg body weight per day is suggested, up to a massive daily dose of 50 mg. Occasionally with fulminant disease, the patient may be too ill to tolerate oral medication and will require an equivalent intravenous dose of hydrocortisone. Once started, a 3-4 month systemic medication should be given in a full dose for six weeks, then tapered by 5 mg daily each week. Administration of prednisone on alternate days may avoid suppression of the patient adrenals, but is usually inadequate to suppress the active disease. Rectal foam or enema may be added to promote healing<sup>20</sup>. All children with moderate UC, except two, responded to this medical regimen. The two patients who did not respond needed surgical intervention. 54% of the respondents relapsed within the period of our study, a situation which is comparable to other studies<sup>19</sup>.

The criteria for severe ulcerative colitis as described by Werlin et al, include grossly bloody diarrhoea, fever of a mean evening temperature of more than 99.5 F, tachycardia pulse of more than 90 beats per minute, anaemia with Hb less than 75% of the normal level and a

raised ESR of more than 30mm in the first hour<sup>21</sup>. Hospitalisation is important in severe UC because of systemic toxicity, marked abdominal tenderness, cramping, anaemia, fever and hypoalbuminemia. Careful and repeated physical examination is necessary to recognise early signs of toxic megacolon or perforation. Baseline abdominal films are mandatory to assess the diameter of the colon and should be repeated when there is any increase in abdominal tenderness, striking fever or other signs of deteriorating clinical course<sup>22</sup>. The main-stay of drug therapy is intravenous corticosteroids with either methylprednisolone (1.0-3 mg/kg body weight/day), or hydrocortisone (10 mg/kg body weight / day) in divided doses<sup>22</sup>. The majority of patients who will respond to this regimen do so within 12 days although a few improve later. We had 4 cases of severe UC (14%), only one responded to this medical regimen while 3 needed surgical intervention. This is similar to other studies<sup>22</sup>.

Of the total five patients who needed surgery (2 with moderate and 3 with severe disease) 2 had subtotal colectomy and ileostomy and 3 had proctocolectomy and ileostomy. These results coincide with the results in other series<sup>23</sup>.

## CONCLUSION

**UC is an important paediatric gastroenterology problem in the western region of Saudi Arabia. We think that physicians should add it to their differential diagnosis of chronic diarrhoea to avoid delay in the diagnosis.**

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Table 1

Ethnic Composition of Patients

Ethnicity	No.	%
Bahraini	110	64
Iranian	16	9
Jordanian	12	7
Indian	10	6
Syrian	9	5
Yemeni	6	4
Egyptian	3	2
Saudi	1	0.5
Kuwaiti	1	0.5
<b>Total</b>	<b>170</b>	<b>100</b>

Male infertility could be defined as the inability of the male to initiate pregnancy in a fertile female following a reasonable period of exposure to sexual intercourse. Over a one-year period, 170 male patients aged 18-51 (years) were reviewed in the clinic. Of these, the majority (64%) were Bahraini nationals, the remainder were from the Middle East and Far East (Table 1).

Various medications including Clomiphene citrate, androgens and steroids were used in treating various forms of infertility with encouraging results.

39 infertile males whose wives were pronounced gynaecologically normal were referred to the newly established assisted fertility programme which utilizes the gamete intra-fallopian tube transfer (GIFT) technique. The results are eagerly awaited.

Excessive impotence was diagnosed in 11 cases (6.5%) with variable aetiology, and treatment was initiated accordingly.

Male infertility and erectile impotence are problems which only recently have come to light in the Arabian Gulf region, and people are becoming increasingly aware of the possibility of treatment.

This is particularly significant in society where until recently infertility in the male was never recognised as a

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