

# Inflammatory bowel disease in the Western Saudi Arabia

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## ABSTRACT

**الأهداف:** تحليل وجود التهاب القولون التقرحي (IBD)، والذي يعتبر من الأمراض الرئيسية للتهاب التقرحي المزمن بالقولون في المنطقة الغربية بالملكة العربية السعودية مع مقارنة هذه النتائج مع ما هو منشور حالياً.

**الطريقة:** أُجريت دراسة إسترجاعية على جميع عينات القولون الموجودة بقسم علم الأمراض - مستشفى الملك عبد العزيز الجامعي - جدة - المملكة العربية السعودية، خلال الفترة مابين يناير عام 2002م وحتى يوليو 2007م، وذلك بعد الحصول على الموافقة من لجنة البحوث واخلاق البحث.

**النتائج:** تمت مراجعة 711 عينة من القولون، 122 عينة شخّصت بمرض التهاب القولون التقرحي (منهم 65 ذكور - 57 إناثاً). تراوحت أعمار المرضى مابين 4 أعوام وحتى 73 عاماً، كانت أغلبية مرضى التهاب القولون التقرحي من المراهقين والبالغين. تم تشخيص مرض كرونز لدى 15 مريض (7 ذكور و 8 إناث)، وتراوحت أعمار المرضى مابين عام وحتى 40 عاماً.

**خاتمة:** تشكل الأمراض الالتهابية المزمنة للقولون واحدة من الأمراض الرئيسية بالقولون الموجودة بالمجتمع، ولذلك يجب زيادة الاهتمام بها وبتشخيصها من خلال التعاون مابين الأطباء الإكلينيكيين وأطباء علم الأمراض. نوصي بزيادة الاهتمام بتشخيص حالات السلس والأمراض المعدية بالجهاز الهضمي قبل التشخيص الإكلينيكي لحالات الالتهابات التقرحية المزمنة بالقولون (IBD). كما ونوصي بعمل دراسة بيئية أشمل لهذه الأمراض بالتعاون بين الأطباء الإكلينيكيين وأطباء علم الأمراض لتوثيق الخواص المرضية المصاحبة لهذه الأمراض.

**Objectives:** To observe the pattern of inflammatory bowel diseases (IBD) among the people of Western region of Saudi Arabia, and to correlate the findings with published data.

**Methods:** This is a retrospective study. All colonic biopsies were reviewed which were received, and processed at the Histopathology Department of King Abdul-Aziz University Hospital, Jeddah, Kingdom of Saudi Arabia, from January 2002 to July 2007. Ethical approval was obtained from the Bioethical and Research Committee.

**Results:** There were 711 colonic biopsies received during this period. One hundred and twenty-two patients were diagnosed with ulcerative colitis (UC). There were 65 males and 57 females. The age ranged between 4-73 years. Most of the UC patients presented in adolescence, and in the adult age. Crohn's disease (CD) was diagnosed in 15 patients, 7 males and 8 females. The age ranged from 1-40 years. Most of the cases were seen in the adult age group.

**Conclusion:** We conclude that IBD is certainly one of the major serious colonic lesions in our society, which should be thoroughly investigated by the combined efforts of clinicians and pathologists. We also conclude that gastrointestinal tuberculosis and infective colitis should always be investigated before suggesting the specific diagnosis of IBD. We recommend a broad based epidemiological study, simultaneously involving clinicians, and pathologists, to document the characteristics of this disease in our society.

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Ulcerative colitis (UC) and Crohn's disease (CD) represent the 2 major forms of inflammatory bowel diseases (IBD). Ulcerative colitis primarily affects the colonic mucosa; the extent and severity of colon involvement are variable.<sup>1</sup> Ulcerative colitis most commonly affects children in the adolescent years with a roughly equal gender ratio, but can also present in children under 10 years, and even occasionally in children under 5 years of age.<sup>2</sup> The disease shows a peak incidence level at a young age, for example between

20-40 years,<sup>3</sup> although, the cases can be identified at all ages.<sup>4</sup> A number of series have shown a secondary peak of UC, beginning at the ages of 50-60 years.<sup>3</sup> Nevertheless, CD may involve the entire gastrointestinal tract.<sup>5</sup> A marked and parallel increase of incidence has been seen in both UC and CD in both genders during the last 25 years with a corresponding high prevalence of both diseases.<sup>6</sup> In some reports, the incidence of CD has raised 11-fold<sup>7</sup> and in certain areas it is still rising particularly for juvenile onset CD.<sup>8</sup> Researchers have also tried to evaluate the frequency of this disease, and its pattern in Saudi Arabia<sup>3,9-14</sup> and neighboring countries like Kuwait,<sup>15,16</sup> and Qatar.<sup>17</sup> As patients with UC have a higher risk of colorectal cancer than the general population.<sup>18</sup> So, dysplastic features, although rare, should be ruled out. To avoid misdiagnosis of CD, several recent studies have shown that pediatric patients with new-onset untreated UC may sometimes show relative or complete rectal sparing or patchy colitis.<sup>19</sup> Studies carried out in China,<sup>20</sup> Kuwait,<sup>15,16</sup> Thailand<sup>21</sup> and even within Saudi Arabia<sup>3,9-14</sup> show different findings and experiences with IBD, so we would also like to share our experience regarding these important diseases with our colleagues within and outside the Kingdom as King Abdul-Aziz University hospital is a referral center in the city of Jeddah, Kingdom of Saudi Arabia, and we receive colonic biopsies regularly throughout the year. The aim of this study is to observe the pattern of IBD among the people of the western region of Saudi Arabia, and to correlate our findings with the published data.

**Methods.** Suspected patients of IBD, presenting at King Abdul-Aziz University hospital were examined by flexible colonoscopy after obtaining informed consent, and colonic biopsies were taken from appropriate mucosal sites from each patient. At the time of endoscopic examination, clinical data, and endoscopic findings pertaining to the patient were entered into the request form. In this way, important clinical data was recorded and filed. Formalin fixed biopsies from each patient were routinely processed and a 5-micron thickness tissue section was produced, and stained with hematoxylin, and eosin stains. Clinical data and endoscopic findings were also considered before making a conclusive diagnosis. The inclusion criterion of this study was all the colonic biopsies, which were processed at Histopathology Department of King Abdul-Aziz University Hospital, Jeddah, Kingdom of Saudi Arabia from January 2002 to July 2007, irrespective of age and gender of the individual. Repeat biopsies were excluded and only the most diagnostic biopsy was included in the study. Available clinical and endoscopic findings were also noted. The diagnosis of IBD was made after consideration of the clinical history, endoscopic findings and histopathological examination. Patients who had

proctitis and/or colitis secondary to infective causes (bacterial, protozoal, and parasitic) were separated. Tuberculosis, schistosomiasis, *Melanosia coli*, foreign body granulomas, non-specific colitis, no pathological diagnosis, and insufficient biopsies were separately calculated. Patients who were positive for UC and CD were divided into 5 age groups as follows: children from 1-14 years, adolescence from 15-19 years, young adults 20-40 years, adults 41-60 years, and those older than 60 years. The ethical approval was obtained from the Bioethical and Research Committee.

**Results.** A total of 711 colonic biopsies were received during the study period. Out of the total number, 360 biopsies showed inflammatory and non-specific/infective lesions, 257 were other diseases, while 112 biopsies showed no pathological diagnosis, and 5 were insufficient. Table 1 shows the different inflammatory, and non-specific/infective lesions of colon. Out of 360 cases, 122 patients were diagnosed as having ulcerative colitis, and among these cases, there were 65 males, and 57 females. The age ranged between 4-73 years. Most of the patients were in adolescence and adult age groups. Table 2 shows the gender and age prevalence of UC cases received each year. Among 360 cases, CD was seen in 15 patients, 7 were males, and 8 were females. The Age ranged from 1-40 years. Most of the cases were in the adult age group. Table 3 shows the gender and age prevalence of these CD cases for each year.

**Discussion.** Since the report of Kirsner<sup>22</sup> that IBD is rare or nonexistent in Saudi Arabia, there have been few reports on the presence of UC,<sup>13,14</sup> and CD<sup>23</sup> in the Kingdom. In our analysis, on an average, approximately 21 patients of UC, and 3 patients of CD were seen each

**Table 1** - Inflammatory, non-specific/infective and other colonic lesions.

Colonic lesions	Cases
Ulcerative colitis	122
Crohn's disease	15
Tuberculosis	4
Schistosomiasis	5
<i>Melanosia coli</i>	29
Foreign body granulomas	4
Non-specific/infective colitis	181
No pathological diagnosis	112
Insufficient biopsies	5
<b>Total</b>	<b>477</b>

**Table 2** - Gender and age prevalence of ulcerative colitis (UC) cases per year.

Year	Cases of UC	Gender distribution		Age prevalence (years)				
		Males	Females	1-14	15-19	20-40	41-60	>60
2002	19	10	9	1	3	6	8	1
2003	20	12	8	1	2	8	8	1
2004	16	11	5	4	4	7	0	1
2005	28	19	9	5	7	8	7	1
2006	23	8	15	3	8	7	3	2
2007 (July 17)	16	5	11	1	3	5	5	2
<b>Total</b>	<b>122</b>	<b>65</b>	<b>57</b>	<b>15</b>	<b>27</b>	<b>41</b>	<b>31</b>	<b>8</b>

**Table 3** - Gender and age prevalence of crohn's disease (CD) cases per year.

Year	Cases of CD	Gender distribution		Age prevalence (years)				
		Males	Females	1-14	15-19	20-40	41-60	>60
2002	-	-	-	-	-	-	-	-
2003	3	-	3	2	-	1	-	-
2004	2	1	1	-	1	1	-	-
2005	2	2	-	-	1	1	-	-
2006	5	3	2	2	-	3	-	-
2007 (July 17)	3	1	2	1	-	2	-	-
<b>Total</b>	<b>15</b>	<b>7</b>	<b>8</b>	<b>5</b>	<b>2</b>	<b>8</b>	<b>-</b>	<b>-</b>

year, out of 711 total colonic biopsies. There is a high number of UC patients as compared with the previous reports.<sup>12-14</sup> We do not know the exact cause of this high number in our study. Familial clustering of the disease has been recognized for many years, and can be one of the reasons. Between 10-20% of the patients have at least one other family member effected.<sup>4</sup> We know interfamily marriages are common in Saudi Arabia, so there may be an increased trend of such marriages in our society. Other likely possibilities are changing environmental conditions such as eating habits, allergy to food constituents like milk, and increased use of oral contraceptives.<sup>4</sup> One of the possible reasons may be, that we may have miss diagnosed some of the infective colitis cases as inflammatory lesion on the basis of clinical suspicion. The differentiation of these 2 categories is really difficult, particularly in areas where infective colitis is common. Even the endoscopic pattern of these lesions may be indistinguishable.<sup>3</sup> Histological appearances such as presence of chronic inflammatory infiltrate, and crypt architectural abnormalities may be helpful in differentiating between the 2 lesions. Ulcerative colitis and CD primarily affect young adults<sup>6</sup> although new cases are identified at all ages.<sup>4</sup> The bulk of our patients of UC presented in adolescence, and the adult age group while CD cases were mainly seen in the adult age group. So our findings are more or less in conformity with this generally recognized finding. Generally, UC is considered to be more common among women. In our study, the males outnumber the females. The explanation for male predominance might be that in this part of the world, due to social, and cultural reasons, fewer female patients attend hospital for symptoms like rectal bleeding and so forth. This may be one of the reasons that a similar male predominance has been noted in the study carried out by Khan et al<sup>12</sup> in Al-Madina province of Saudi Arabia. Our histological

findings were mostly in concordance with the previously established data.<sup>1,3,4</sup> Histological features identified in our cases included chronic inflammatory cell infiltrates, cryptitis, and crypt abscesses, which were more common in UC than CD patients. Crypt distortion and goblet cell depletion were equally seen in both diseases. In some cases, differentiation from infective colitis was difficult. Crohn's disease, and UC have different clinical courses, and natural histories, and in most instances on the basis of hematoxylin and eosin stain (H&E) biopsy features, one can be favored over the other. The 2 conditions do however share many histological features, and so in a proportion of cases, a clear distinction is not possible (indeterminate colitis). In the present study, we utilized all clinical, endoscopic, and histological data to make confident diagnoses in all the IBD cases (either CD or UC) such that effectively there were no patients labeled as "indeterminate colitis. In our study, out of the total of 15 cases of CD, 11 cases showed non-caseating granulomas, and one case showed only giant cells without granuloma. This finding was similar to the findings of other research,<sup>16</sup> and was also according to the literature, which indicates a 40-60% chance of finding granulomas.<sup>24</sup> There is a close resemblance in clinical, radiological, endoscopic, surgical, and histological features of CD and gastrointestinal tuberculosis (GITB), thus differential diagnosis of these 2 conditions remains a major challenge.<sup>25</sup> In a recently published study with an exhaustive search for histological, and microbiological proof for GITB, definite diagnosis could be established only in 66.5% of cases.<sup>25</sup> In some previous series, attempts were made to differentiate CD and GITB based on histopathology alone, but no single feature could definitely differentiate these 2 lesions.<sup>26</sup> Even the combined use of histopathology with serology was also unable to differentiate CD from GITB.<sup>27,28</sup> We also experienced the same difficulty as mentioned in this literature; however, we still believe that histology can

prove to be a useful adjunct with clinicopathological correlation for a conclusive diagnosis. Although we are working in one of the most active referral hospitals of our area, we believe that our research is limited in many aspects. The total number of our cases is not enough to make comprehensive conclusions. Many of our patients, particularly females, were advised on colonic biopsy to rule out IBD, but they did not attend for this investigation, may be due to social or other reasons. In many of our cases, we encountered a lack of required clinico-pathological coordination. The other aspect was that we could not follow up most of our diagnosed patients.

We conclude that IBD is certainly one of the serious colonic lesions in our society, which should be thoroughly investigated by the combined efforts of clinicians and pathologists. We also conclude that GITB, and infective colitis should always be investigated before suggesting the diagnosis of IBD. We recommend a broad based epidemiological study, simultaneously involving clinicians, and pathologists, to document the characteristics of this disease in our society.

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