



## CHARACTERISTICS AND ASSOCIATIONS OF ULCERATIVE COLITIS IN PAKISTANI POPULATION.

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**ABSTRACT... Objectives:** To determine the prevalence of ulcerative colitis, extent and associations of disease with age, gender, indication of the procedure and coexisting disorders in patients who underwent sigmoidoscopy at Liver Clinic, Lahore, Pakistan. **Study Design:** Retrospective study. **Setting:** Liver Clinic, Lahore. **Period:** February 2010 to July 2017. **Material & Methods:** Group of ulcerative colitis patients was compared with group without ulcerative colitis among who underwent sigmoidoscopy from genders, age groups, indication for sigmoidoscopy, and presence of ulcerative colitis were the qualitative variables, while age of the patients was the only quantitative variable. **Results:** Out of total of 998 patients who underwent sigmoidoscopy, 115 (11.52%) had ulcerative colitis. The mean age of ulcerative colitis patients was  $37.87 \pm 14.23$  years while mean age of patients not suffering ulcerative colitis was  $44.42 \pm 15.29$  years. Among ulcerative colitis suffering cohort, 6.1% were children, 41.7% young adults, 44.3% middle aged adults and 7.8% were older adults. Out of 115 patients, 22 (19.1%) had ulcerative proctitis, 25 (21.7%) ulcerative proctosigmoiditis and in remaining 68 (59.1%) patients had colitis throughout visualized tract. 29 (25.2%) ulcerative colitis patients had supplementary associated disorders: 11 (37.9%) had superimposed pseudomembranous colitis, 8 (27.6%) had pseudopolyps formation, 7 (24.1%) had solitary benign polyps, 2 (6.9%) had internal hemorrhoids and 1 (3.4%) had malignant growth as well. The ulcerative colitis was more prevalent in female gender ( $p < 0.01$ ), younger age group ( $p < 0.01$ ) and where bloody diarrhea was presenting complaint ( $p < 0.01$ ). **Conclusion:** Ulcerative colitis is prevalent in all age groups and female gender is more affected in our population. Majority patients have disease not limited to only rectum and sigmoid colon, rather possess aggressive disease pattern associated with more risks and hazards.

**Key words:** Proctocolitis, Sigmoidoscopy, Ulcerative Colitis, Polyes.

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## INTRODUCTION

Ulcerative colitis is a long-lasting inflammation of the mucosa of rectum and colon.<sup>1</sup> It is an idiopathic disease that has relapsing and remitting course.<sup>2</sup> In Asia, the prevalence of ulcerative colitis is variable and ranges from 5.3 to 63.6 per 100000 population.<sup>3,4</sup> The disease is relatively less prevalent among the children and most cases are being diagnosed at age between 30 to 40 years.<sup>5</sup> The gender wide distribution of the ulcerative colitis varies in different countries.<sup>6,7</sup> The presentation of the disease is usually bloody diarrhea.<sup>8</sup> Truelove and Witt's criteria;<sup>9</sup> explains the clinical severity of the disease while Montreal classification<sup>10</sup>, elaborates the endoscopic extent of the disease. Based on the endoscopic

extent, ulcerative colitis can be classified as proctitis, proctosigmoiditis, left sided colitis and extensive colitis. The differentiation between the last two categories is the splenic flexure. More than 6 bloody stools per day with fever, anemia, tachycardia and ESR more than 30 states severe ulcerative colitis.<sup>11</sup>

The extent of ulcerative colitis controls the prognosis as well as the clinical course of the disease. Therefore, extensive colitis likely needs more rigorous therapies or even colectomy<sup>12,13</sup> Similarly, the patients with extensive colitis are at higher risk for development of colorectal cancer; whereas patients with ulcerative proctitis has no such risk.<sup>14</sup>

The objective of this study was to determine the prevalence of ulcerative colitis, extent and associations of disease with age, gender, indication of the procedure and coexisting disorders in patients who underwent sigmoidoscopy at Liver Clinic, Lahore, Pakistan.

## MATERIAL & METHODS

This retrospective analysis was carried out on patients who underwent sigmoidoscopy from February 2010 to July 2017 at Liver clinic, 250 Shadman Lahore. The patients who were diagnosed as suffering ulcerative colitis and who had no ulcerative colitis finding on sigmoidoscopy were categorized into two cohorts. Based on age, the patients were distributed into four groups: child had age less than 19 years, young adults 19-35 years, middle age adults 36-55 years and older adults had age > 55 years.<sup>15</sup>

Based on the sigmoidoscopic findings, extent of the ulcerative colitis was grouped as follow: The disease restricted to rectum was labelled as ulcerative proctitis, while disease including both rectum and sigmoid colon was called as ulcerative proctosigmoiditis. The involvement throughout visualized gut tract till splenic flexure was a third category, which was further advised complete colonoscopy to differentiate left-sided colitis from extensive colitis. All the additional findings like superimposed, pseudopolyps formation, malignant growth, and pseudomembranous colitis etc. were also noted. The symptoms for which the sigmoidoscopy was performed were grouped into two categories: one with bloody diarrhea while second one without bloody diarrhea.

The age groups, genders, indication for sigmoidoscopy, and presence of ulcerative colitis were the qualitative variables, while age of the patients was the only quantitative variable. Statistical Package for Social Science (SPSS), version 25 was used. Means with standard deviations were computed of quantitative variables, and frequencies-percentages for qualitative variables. Chi-square test for independence and Independent sample T test were used for

qualitative and quantitative variables respectively to determine their significant association with presence of ulcerative colitis. The p values were taken statistically significant if < 0.05. Moreover, odds ratio along with their 95% confidence interval (CI) were also calculated for each association.

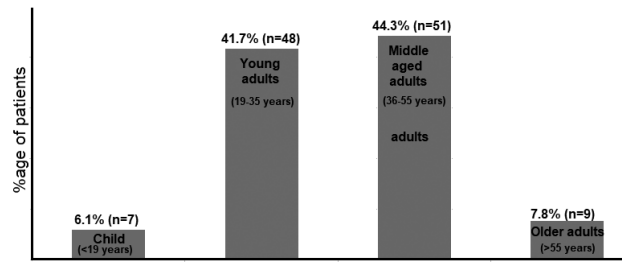
## RESULTS

Out of total of 998 patients who had sigmoidoscopy, 115 (11.52%) were diagnosed as suffering ulcerative colitis. The mean age of these ulcerative colitis patients was 37.87 + 14.23 years. The distribution of ulcerative colitis in different age groups was as follow: 6.1% were children, 41.7% young adults, 44.3% middle aged adults and 7.8% were older adults among who were suffering ulcerative colitis. (Figure-1). Out of 115 patients, 22 (19.1%) patients had ulcerative proctitis, 25 (21.7%) ulcerative proctosigmoiditis and in remaining 68 (59.1%) patients ulcerative colitis was seen throughout visualized tract from rectum till splenic flexure (Table-I). This last group included 2 categories i.e. left sided colitis as well as extensive colitis. For differentiation, these patients were asked for complete colonoscopic examination.

29 (25.2%) patients with ulcerative colitis had supplementary associated disorders. 11 (37.9%) ulcerative colitis patients had superimposed pseudomembranous colitis, 8 (27.6%) colitis patients had pseudopolyps formation, 7 (24.1%) had solitary benign polyps, 2 (6.9%) had internal hemorrhoids and 1 (3.4%) patient had malignant growth as well. (Table-II)

The ulcerative colitis was more prevalent in female gender ( $p < 0.01$ ), where among 115 ulcerative colitis suffering patients, 40.9% ( $n = 47$ ) were female while among 1083 patients not suffering Ulcerative colitis, only 28% were female while 72% were male. Similarly, ulcerative colitis suffering patients were younger than who not having ulcerative colitis ( $p < 0.01$ ). The mean age of ulcerative colitis patient was 37.87 + 14.34 years while mean age of patients not suffering ulcerative colitis was 44.42 + 15.29 years. Among patients diagnosed having ulcerative colitis, 87.8% underwent sigmoidoscopic

procedure for the indication of bloody diarrhea while among patients with diagnosed as having no ulcerative colitis, 40.7% presented with bloody diarrhea. The association of bloody diarrhea as indication of sigmoidoscopy with diagnosis of ulcerative colitis was also statistically significant ( $p < 0.01$ ). (Table-III) Hence, younger age, female gender with bloody diarrhea as chief symptom for sigmoidoscopic procedure predicts the likely diagnosis would be ulcerative colitis.



Picture 1: Distribution of Ulcerative colitis in different age groups (n=115/998)

Figure-1. Distribution of Ulcerative colitis in different age groups (n=115/998)

	Frequency (Percent)
Ulcerative proctitis	22 (19.1%)
Ulcerative proctosigmoiditis	25 (21.7%)
Ulcerative colitis, involving rectum till splenic flexure	68 (59.1%)

Table-I. Sigmoidoscopic extent classification of ulcerative colitis (n = 115/998).

Associated disorders with ulcerative colitis	Frequency (Percent)
Ulcerative colitis with superimposed Pseudomembranous colitis	11 (37.9%)
Ulcerative colitis with Pseudopolyps formation	8 (27.6%)
Ulcerative colitis with Solitary benign polyps	7 (24.1%)
Ulcerative colitis with Internal hemorrhoids	2 (6.9%)
Ulcerative colitis with malignant growth	1 (3.4%)

Table-II. Disorders associated with Ulcerative colitis (n = 29/115).

Parameters /Categories*	Ulcerative colitis		Total	p-value	Odd ratio with 95% Confidence interval
	Yes	No			
<b>Gender</b>					
Male	68 (59.1%)	636 (72%)	704	<0.01	1.78 (1.19-2.65)
Female	47 (40.9%)	247 (28%)	294		
<b>Mean Age (Years)</b>	37.87 ± 14.34	44.42 ± 15.29	998	<0.01	1.51 (-9.505 - -3.60)
<b>Indication of sigmoidoscopy</b>					
Bloody diarrhea	101 (87.8%)	359 (40.7%)	460	<0.01	10.53 (5.93 – 18.71)
Others	14 (12.2%)	524 (59.3%)	538		

Table-III. Association of Ulcerative colitis with different parameters (n = 115/1004).

\*Chi-square test for independence was used for parameter no 1&3, &Independent sample T-test was used for parameter no 2

## DISCUSSION

Ulcerative colitis and crohn's disease both are included in inflammatory bowel disease, where first one is relatively more common in Asia.<sup>16</sup> According to Siew C. Ng work done in 2016, in Asia, the incidence of ulcerative colitis is 1 per 100,000 people while that of crohn's disease is about 0.5 per 100,000 persons.<sup>17</sup> In the study from Ireland<sup>18</sup>, the rate of ulcerative colitis among patients who had sigmoidoscopic examination was only 2%. In our findings, 115 patients among 998 i.e. 11.52% had ulcerative colitis among all those who underwent sigmoidoscopy. International data suggests that ulcerative colitis is less prevalent in children and the age at the time of diagnosis of the disease is usually between 30 and 40 years in majority ulcerative colitis patients.<sup>5</sup> The recent data is directing towards increasing incidence of paediatric inflammatory bowel disease.<sup>19,20</sup> Our study disclosed that distribution of ulcerative colitis in our population in different age groups has a decremental pattern with more prevalence in children and least in older adults. This a appoint to be worried because higher frequency of ulcerative colitis patients at endoscopy suite (2% vs 11.52%) and more prevalence at child age group favors high disease burden in our population. A large sample size Asian study on extent of ulcerative colitis<sup>21</sup> concluded that the commonest subcategory was proctitis (proctitis: 37%; distal colitis: 32%; extensive colitis: 31%). However, in our studied population, it was found in reverse i.e. (proctitis: 19.1%; proctosigmoiditis: 21.7%; Involvement till visualizing splenic flexure: 59.1%). This finding points towards more extensive engrossment by disease in our population. Further studies are required to elaborate this hypothesis.

American study of 35404 patients of ulcerative colitis testified and concluded that ulcerative colitis is more prevalent among female gender<sup>7</sup>, while previously in Asia male predominance was observed.<sup>6</sup> However, our study showed significant proportion of females ( $p < 0.01$ ) suffering ulcerative colitis. In another study from Pakistan<sup>22</sup>, the predominant presenting symptom among ulcerative colitis patients was mucous diarrhea in 90.7% ( $n = 49$ ), while in our study, the

chief presenting symptom was bloody diarrhea in studied population of ulcerative colitis (87.8%;  $n = 101$ ).

The prevalence of pseudomembranous colitis in our study (9.56%, 11 out of 115 patients) was more than double in comparison to available US data (3.7%).<sup>23</sup> This stresses to improve hygienic conditions and avoidance of undue antibiotics in ulcerative colitis patients in our people. However larger studies are required to further validate these findings.

## CONCLUSION

Ulcerative colitis is prevalent in all age groups, being female gender more affected in our population. Majority patients have disease not limited to only rectum and sigmoid colon, rather possess aggressive disease pattern associated with more risks and hazards. Ulcerative colitis usually presents with bloody diarrhea in our people. There are multiple coexisting disorders, where higher prevalence of pseudomembranous colitis demands avoidance of undue antibiotics and better hygiene in our patients bearing ulcerative colitis.

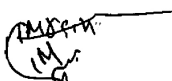
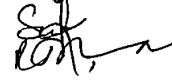
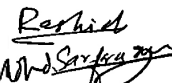
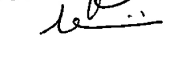
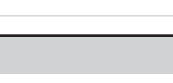
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2	Sadaf Yousaf	Literature search and outlining of the paper.	
3	Touseef Anwar	Planning & write up.	
4	Muhammad Rashid Ali	Write up.	
5	Muhammad Sarfraz	Proof reading & revision.	
6	Aftab Mohsin	Consultation, supervision & proof reading.	