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ORIGINAL RESEARCH

Clinico-Pathological Profile of Inflammatory Bowel Disease in Tertiary care Hospital

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ABSTRACT

Background: Inflammatory bowel disease (IBD), including ulcerative colitis (UC) and Crohn's disease, is increasingly being reported from India and other Asian countries. Both forms of IBD are associated with prominent extra-intestinal manifestations and an increased incidence of gastrointestinal cancer; in addition, both begin relatively early in life and persist for long periods, leading to decreased quality of life indices and a greater than two fold increase in mortality rate.

Methods: The present study was Hospital based study and was done in the Department of Pathology, Government Medical College, Srinagar to analyse the Clinical and Histopathological Profile of patients with Inflammatory Bowel Disease in Tertiary Care Hospital. This was a two year study extending from Ist Oct 2019 to 30 September 2021.The study included biopsies and resected specimen received from Department of Medical Gastroenterology and General Surgery of GMC Srinagar.

Result: During the two year study period in the Department of Pathology Government Medical College Srinagarfrom 1st October 2019 to 30th September 2021. Total of 98 cases were studied during the study period out of which majority of the cases 33(33.6%) were in the age group of 31-45. The age ranged from 1 to 80 years ,53 (54.08%) were male and 45 (45.9%) were female with male is to female ratio of 1.2:1.In our study psychosocial stress was present in 65 patients while as it was absent in 33 cases and this difference was statistically significant. History of junk food and fast food consumption was present in most of IBD patients however in our study no significant association was found between dietary habits and incidence of inflammatory bowel disease. Cryptitis, crypt abscess and mucodepletion were the most commonest findings in our study.

Conclusion: A total of 98 patients were studied in the study period.Psychosocial stress and dietary habits were found to have correlation with occurrence of disease. Thus life style modification with improvement in dietary habits including increased intake of dietary fibres, alleviation of psychosocial stress would possibly help in prevention of this group of diseases.

Key words: inflammatory bowel disease, ulcerative colitis, chrons disease

INTRODUCTION

Inflammatory Bowel Disease (IBD) is a chronic relapsing and remitting inflammatory condition of the gastrointestinal tract that manifests as one of two usually distinct but sometimes overlapping clinical entities, ulcerative colitis (UC) and Crohn disease (CD).[1] Ulcerative colitis affects the colon and is a superficial ulcerative disease, whereas CD is a transmural granulomatous disorder that affects any part of the gastrointestinal tract and has a predilection for the terminal ileum and colon.[1,2] Both forms of IBD are associated with prominent extra-intestinal manifestations and an increased incidence of gastrointestinal cancer; in addition, both begin relatively early in life and persist for long periods, leading to decreased quality of life indices and a greater than two fold increase in mortality rate.[1-4]

The peak age of onset for IBD is 15 to 30 years, although it may occur at any age. About 10% of cases occur in individuals 18 years old. Both UC and CD have a bimodal age distribution, with a second, smaller peak occurring in individuals aged 50 to 70 years.5-10 Ulcerative colitis is slightly more common in males, whereas CD is marginally more frequent in women (female-to-male ratio range, 1:1 to 1.8:1. Both diseases tend to occur in higher socioeconomic groups.[11-20]

There is an increased prevalence of IBD in first and second degree relatives and a Environmental factors smoking, helminths, childhood infections, dietary habits, and psychosocial factors have all been implicated in the etiopathogenesis of IBD. Persons belonging to populations with a low incidence of IBD, on migration to developed countries, show a higher incidence of IBD, suggesting that environmental factors are important in IBD.[8-20]

It was generally believed that chronic idiopathic ulcerative colitis (IUC) and Crohn's disease were rarely seen in underdeveloped nations, including Middle Eastern, Asian and African countries.[14-16]

The incidence of inflammatory bowel disease varies according to geographic location. Higher rates are typically found in the more developed countries of Scandinavia, Northern Europe, and North America, with lower rates in Asia, Africa, and South America.13 However, the incidence is increasing in the less- developed countries as they become more industrialised, implicating environment, diet, and cultural practices as potential risk factors.[13-21] Other epidemiological studies have shown that inflammatory bowel disease typically affects young people however, there is a bimodal incidence with a large peak in the second or third decade of life followed by a smaller peak later in life. The bimodal distribution is seen more consistently with ulcerative colitis than with Crohn’s disease.[13-21]

There are more than 1 million people with IBD in the United States with new cases diagnosed at a rate of 10 cases per 100,000 people. These diseases account for 700,000 physician visits per year and 100,000 hospitalisations per year in the United States.[21]

Studies seeking to link diet and IBD are generally inconclusive. There is some evidence that a higher intake of fatty acids increases the risk for IBD.[21-23] Similarly, some studies suggests that frequent fast-food intake confers a three to four fold greater risk for IBD.[21-23]

Numerous case-control studies have shown that current smoking is protective against UC (relative risk [RR], 40% of that of non smokers), with results that are consistent across diverse geographic regions.[19-24,73] The decreased risk for UC in smokers appears to be dose dependent.[19-24,73] Ex smokers also have a poorer disease course, with more frequent hospitalisation than current smokers; as a group they are twice as likely as current smokers and those who have never smoked to require colectomy.[19-24,45,73]

Patients with long-standing ulcerative colitis and Crohn’s disease of the colon are at an increased risk of developing colorectal neoplasia (dysplasia and colorectal carcinoma).[29,30] In inflammatory bowel disease (IBD) the development of colorectal carcinoma (CRC) occurs through an inflammation-dysplasia- carcinoma pathway.[30] In contrast to patients with

sporadic CRC, individuals with IBD-related CRC have an increased incidence of synchronous malignancies, an absence of adenomatous polyps preceding the development of carcinoma, and a more rapid rate of progression of colonic mucosa to dysplasia.[29-31]

METHODS

The present study was Hospital based study and was done in the Department of Pathology, Government Medical College, Srinagar to analyse the Clinical and Histopathological Profile of patients with Inflammatory Bowel Disease in Tertiary Care Hospital.This was a two year study extending from Ist Oct 2019 to 30 September 2021.The study included biopsies and respected specimen received from Department of Medical Gastroenterology and General Surgery of GMC Srinagar.

The specimen received in 10% formalin solution were processed and studied in detail using H&E stain and other special stains.

STUDY POPULATION

This study included total of 98 cases.All patients undergoing/undergone intestinal biopsy during the study period. All patients undergoing/undergone intestinal surgery (resections) during the study period were included. A baseline questionnaire was completed for each study participant, including age, gender and domicile of the participant, personal and family history, occupation and socio-economic status, year of onset, details of diagnostic methods, clinical characteristics and extent of disease at the time of diagnosis.

STATISTICAL ANALYSIS

All the data was entered in MS office excel sheets. SPSS 25.0 software were used to analyse the data. Descriptive statistics were used for summarising key variables.

RESULT

During the two year study period in the Department of Pathology Government Medical College Srinagarfrom 1st October 2019 to 30th September 2021. Total of 98 cases were studied during the study period out of which majority of the cases 33(33.6%) were in the age group of 31-45. The age ranged from 1 to 80 years,53 (54.08%) were male and 45 (45.9%) were female with male is to female ratio of 1.2:1.

DEMOGRAPHIC PROFILE

1. AGE

Out of 98 cases majority of cases 33(33.6%) were in the age group of 31-45. The age ranged from 1 to 80 years. The youngest patient was less than one year old and eldest patient was 80 year old. Mean age is 36.75 years and Standard deviation of 16.04 as depicted in Table 1

2. GENDER

Out of 98 cases, 53 (54.08%) were male and 45 (45.9%) were female with male is to female ratio of 1.2:1.Males were more affected than females in our study as depicted in Table 2

3. DOMICILE

In our study majority 56(57.14%) of cases of belong to urban areas as depicted in Table 3

4. DIVISION

Out of 98 cases 58(59.18%) cases were from Kashmir valley as depicted in Table 4

5. OCCUPATION

In present study 40(40.81%) were house wives, 21(21.4%) were businessmen and 15(15.30%) were students as depicted in Table 5

6. SOCIOECONOMIC STATUS

In present study large no of IBD cases 42(42.8%) belong to middle class followed by lower class 33(33.6%) as depicted in Table 6

7. PERSONAL HISTORY

Out of 98 cases studied, 43(43.18%) were the non smokers while as 55(56.12%) were smokers as depicted in Table 7

8. PSYCHOSOCIAL STRESS

Ulcerative colitis and Crohn's disease were initially considered examples of psychosomatic diseases in which psychological factors played a major role. However, as knowledge of the genetic, environmental, and molecular pathogenesis of IBD increased, the possible contribution to its aetiology of psychological stress was progressively neglected. Indeed, stress was often dismissed as a vague subjective concept, a view which some of the early and methodologically flawed studies of stress in relation to IBD did nothing to diminish

In our studies 65(66.32%) of cases were associated with psychosocial stress.In our study psychosocial stress was present in 65 patients while as it was absent in 33 cases and this difference was statistically significant as depicted in Table 8

9. DIETARY HISTORY

History of junk food and fast food consumption was present in most of IBD patients however in our study no significant association was found between dietary habits and incidence of inflammatory bowel disease.In present study majority of the cases 89(90.81%) were non vegetarian as depicted in Table 9

10. FAMILY HISTORY

Out of 98 cases 22(22.44%) of cases had positive family history as depicted in Table 10

DIAGNOSIS

In our study majority 78(79.59%) of cases were diagnosed as ulcerative colitis, 18(18.36%) of cases were diagnosed as crohn's disease and rest 2(2.04%) as Indeterminate colitis

ENDOSCOPIC FINDINGS

Haemorrhagic spot, ulceration, erythematous-friable area and loss of vascularity were the commonest endoscopic findings in our study as depicted in Table 12

MICROSCOPY

Dysplasia (synonyms: intraepithelial or non-invasive neoplasia) consists of unequivocally neoplastic epithelium confined to the basement membrane (no invasion of the lamina propria).It basically comprises two concurrent alterations, i.e. a disturbed architecture and cytological atypia.Theoretically, similar criteria should be applied consistently to the assessment of dysplasia in both sporadic polyps (adenomas) and IBD, but this is only partially true because the architectural criterion prevails when dysplasia is graded as part of a sporadic adenoma, whereas both cytology and architecture are involved in the assessment/grading of IBDassociated dysplastic lesions. Regardless of the endoscopic

appearance of a lesion (i.e. raised or flat), the histological criteria forassociated dysplastic lesions.

Cryptitis, crypt abscess and mucodepletion were the most commonest findings in our study as depicted in Table 13

Table 1: Age wise distribution of cases

Age distribution	Frequency	Percentage	P value
0-15	13	13.2	0.87
16-30	18	18.36	
31-45	33	33.6	
46-60	12	12.24	
Total	**98**	100.00	

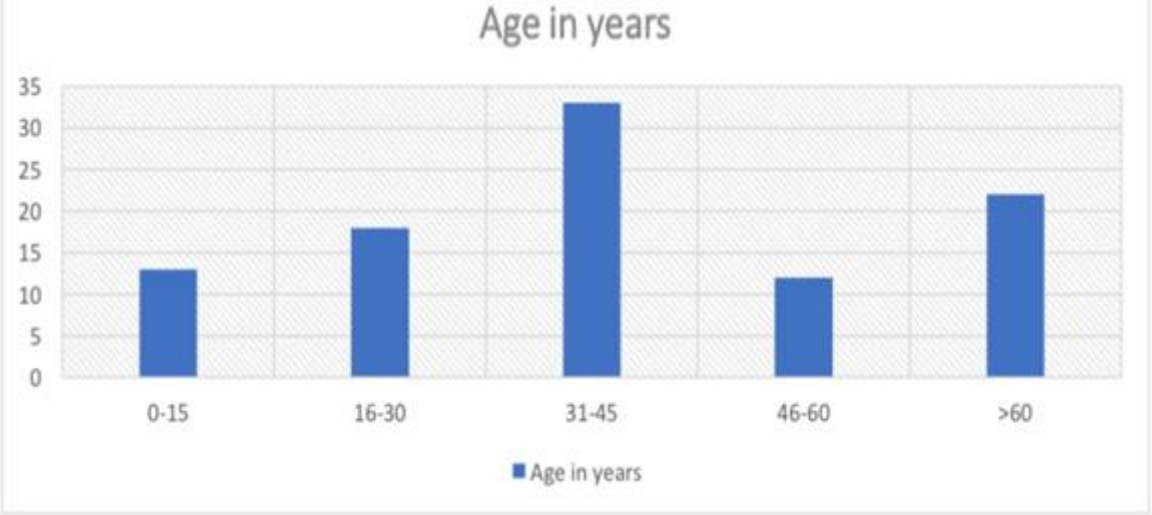


Table 2: Gender wise distribution of cases

Gender	Frequency	Percentage	P value
Male	53	54.08	0.987
Female	45	45.9	
Total	98	100.00	

Table 3: Domicile wise distribution of cases

Domicile	Frequency	Percentage	P value
Rural	42	42.85	0.87
Urban	56	57.14	
Total	**98**	**100.00**	

Table4: Regional distribution of cases

District	Frequency	Percentage
Kashmir valley	58	59.18
Jammu (Jammu, Udhampur, Samba, Kathua, Reasi)	11	11.22
PirPanjal (Rajouri, Poonch)	9	9.18
Chenab valley (Doda, Kishtwar, Bhaderwah)	10	10.20
Ladakh (Leh, Kargil)	10	10.20
Total	**98**	**100.00**

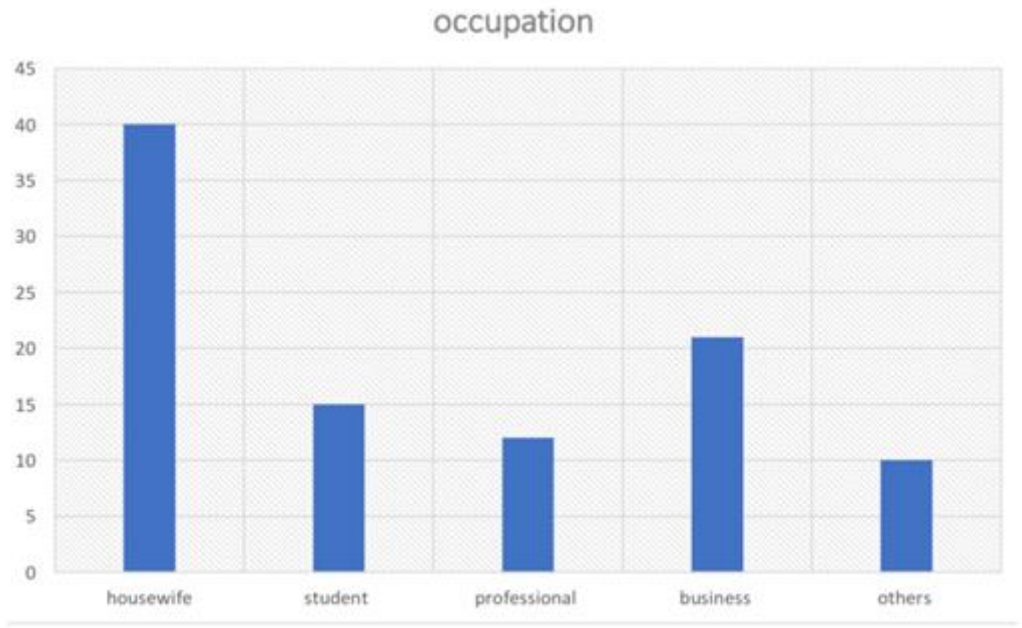


Figure 4: Occupation wise distribution of cases

Table 5: Occupation wise distribution of cases

Category	Frequency	Percentage
House wife	40	40.81
Student	15	15.30
Professional	12	12.24
Businessman	21	21.4
Others	10	10.20
Total	**98**	**100.00**

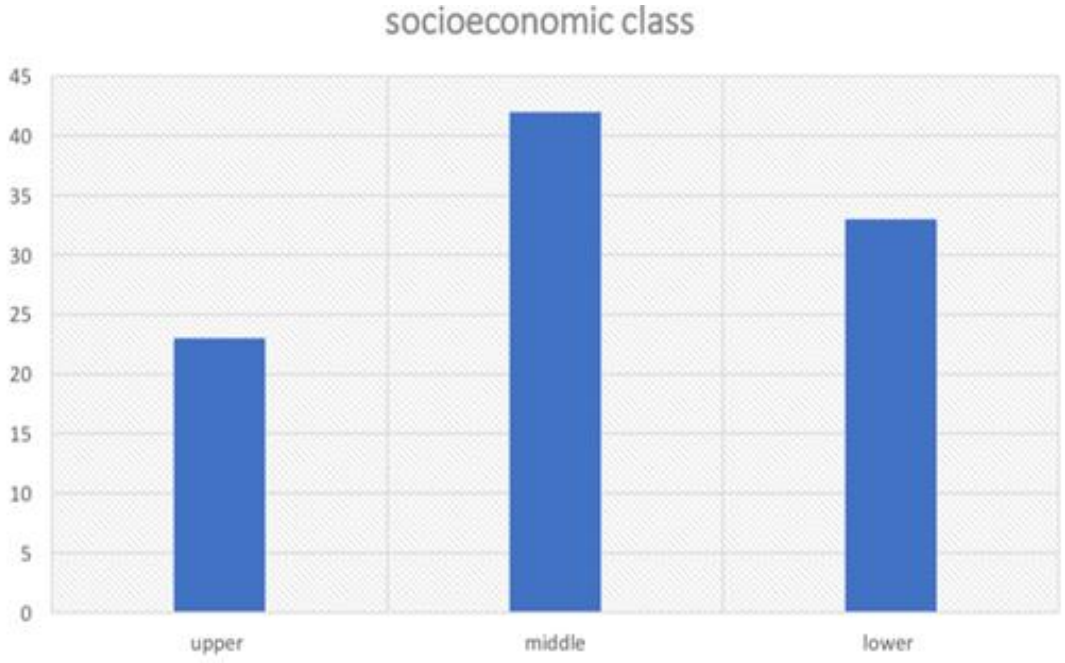


Table 6: Distribution of cases as per socioeconomic class

Class	Frequency	Percentage	P value
Upper class	23	23.46	0.0001
Middle class	42	42.85	
Lower class	33	33.67	
Total	**98**	**100.00**	

Table 7: Distribution of cases per smoking habit

Feature	Frequency	Percentage	P value
Non smoker	43	43.18	0.0001
Smoker	55	56.12	
Total	**98**	**100.00**	

Table 8: Distribution of cases per psychosocial stress

Psychosocial stress	Frequency	Percentage	P value
Present	65	66.32	0.0001
Absent	33	33.62	
Total	**98**	**100.00**	

Table 9: Distribution of cases as per family history

Family history	Frequency	Percentage	P value
Present	22	22.44	0.888
Absent	76	77.55	
Total	98	100.00	

Table 10: Diagnosis wise distribution of cases

Disease	Frequency	Percentage
Ulcerative colitis	78	79.59
Crohns disease	18	18.36
Indeterminate colitis	2	2.04
Total	**98**	100.00

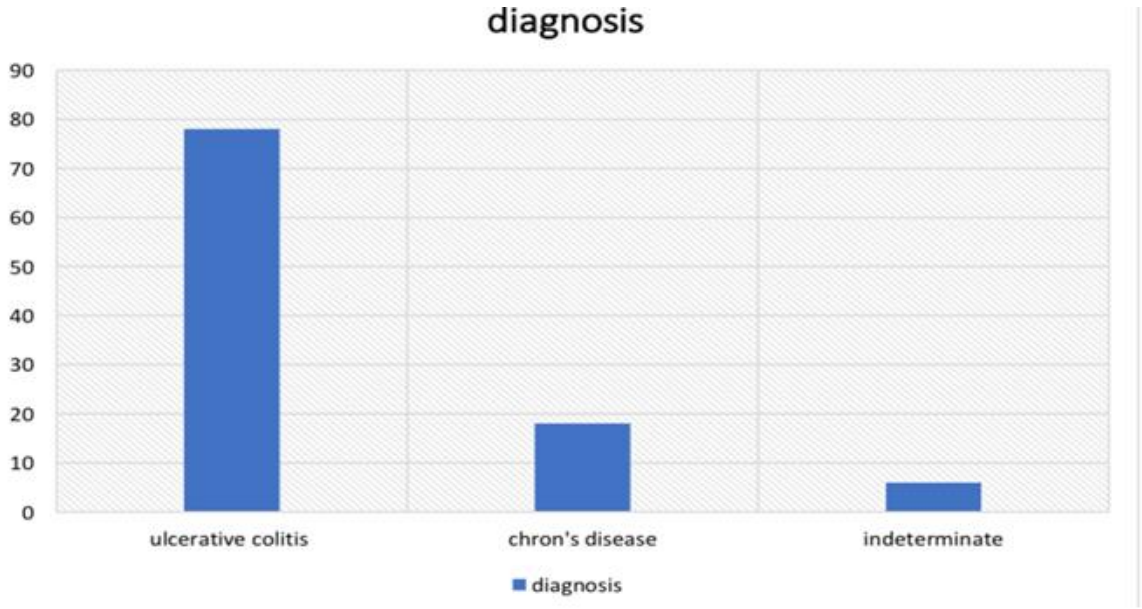


Table 11: Distribution of cases as per clinical presentation

Clinical feature	Frequency	Percentage
Pain abdomen	65	66.32
Rectal bleeding	21	21.42
Tenesmus	35	36.53
Urgency	22	22.44
Diarrhoea	66	67.03
Fever	8	8.01
Anorexia	12	12.22
Nausea vomiting	34	34.69
Weight loss	8	8.16

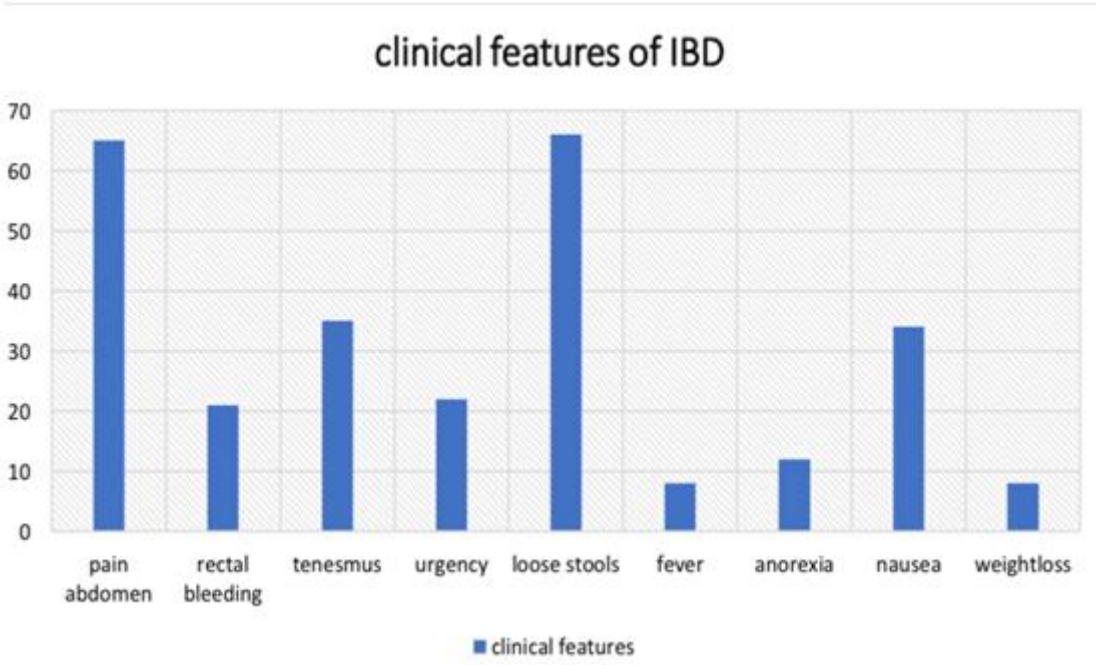


Table 12: Endoscopic findings

Endoscopic findings	Frequency	Percentage
Haemorrhagic spot	62	63.20%
Ulcerated area	60	61.22%
Erythematous and friable	58	60.95%
Loss of vascularity	54	55.10%
Oedema	49	50.00%
Loss of normal folds	20	20.04%
Apthous ulcer	19	19.38%
Polyp	8	8.1%
Skin lesion	4	4.08%
Pseudopolyp	4	4.08%

Table 13: Distribution of cases as per microscopic findings

Microscopic findings	Frequency	Percentage
Crypt distortion	70	71.42%
Crypt atrophy/ shortening	53	54.08%

Crypt branching	16	16.3%
Cryptitis	96	97.9%
Crypt abscess	75	76.5%
Mucodepletion	80	81.6%
Epithelial erosion/ ulcer	43	43.8%
Basal lymphoplasmacytosis	14	14.28%
Dysplasia	8	8.1%
Granuloma	14	14.28%
Inflammatory infiltrate	70	71.42%
Peneth cell metaplasia	1	1.02%

Image 1: cryptitis on 40x

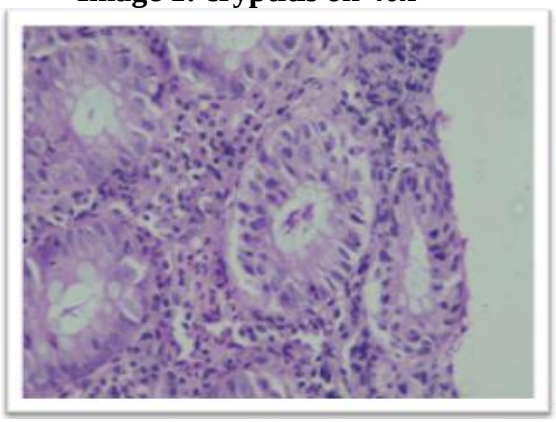


Image 2: crypt abscess on 20x

Image 3: Both cryptitis and crypt abscess on 40x

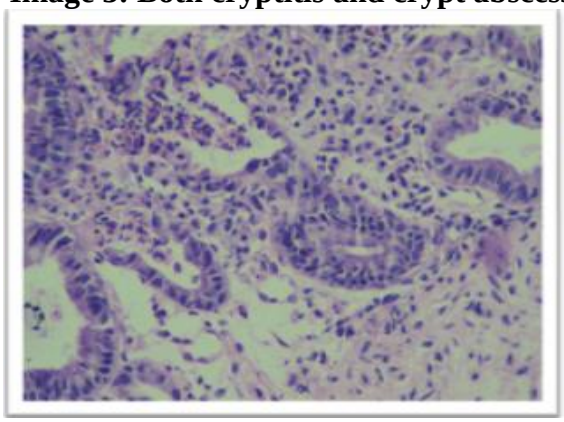


Image 4: crypt atrophy on 10x

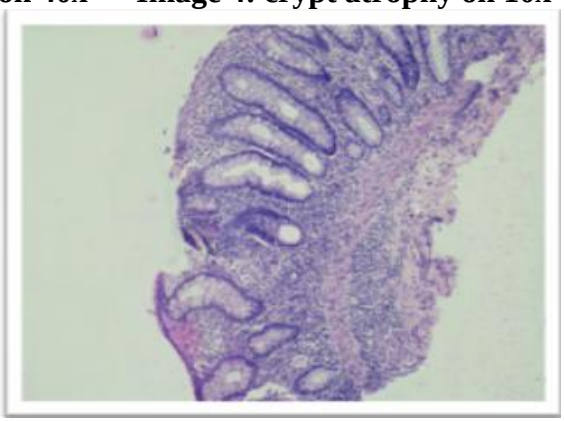


Image 5: Basal plasmacytosis on 40x

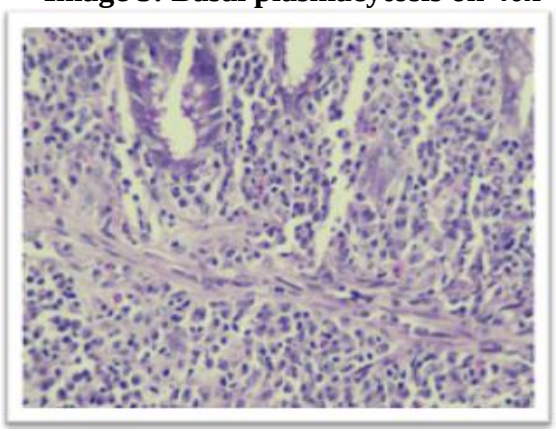


Image 6: crypt branching on 10x

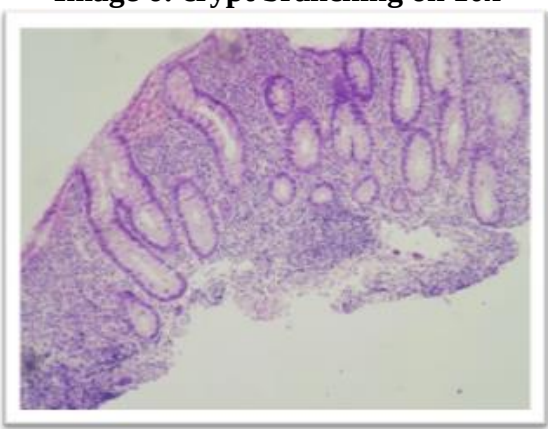


Image 7: Granuloma on 20x

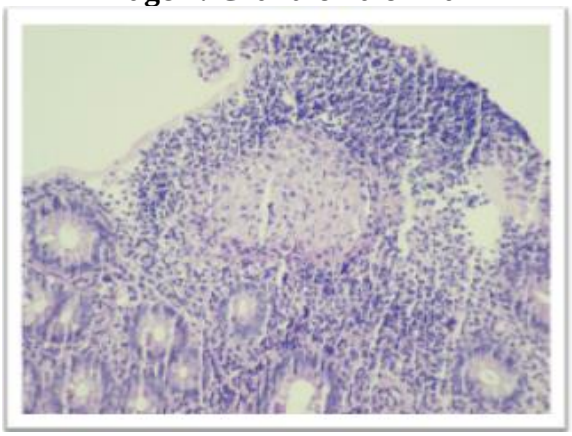


Image 8: surface epithelial erosion on 20x

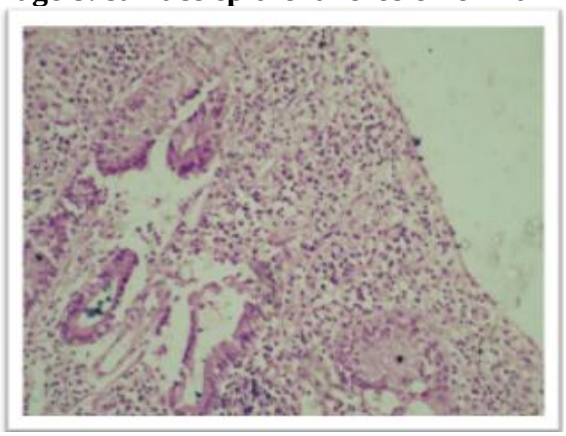


Image 9: peneth cell metaplasia on 40x

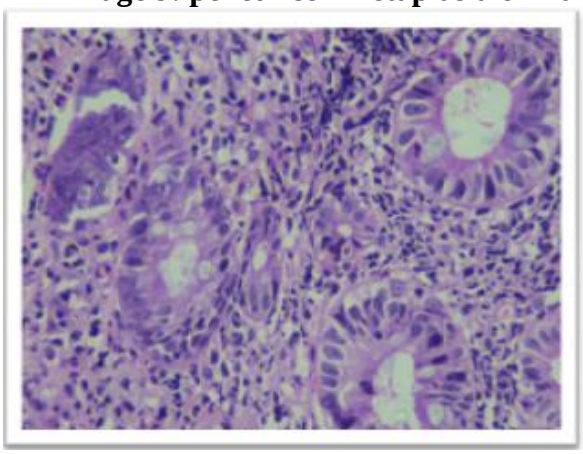
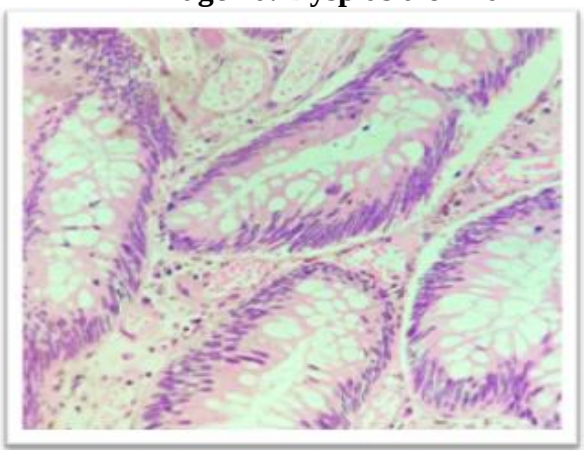


Image 10: Dysplasia on 40X



DISCUSSION

The present study was Hospital based study and was done in the Department of Pathology, Government Medical College, Srinagar to analyse the Clinical and Histopathological profile of inflammatory bowel disease in tertiary care Hospital. This was a two year study extending from 1st October 2019 to 30 September 2021.A total of 98 patients were studied in the study period. This hospital based study confirms the existence of both Ulcerative colitis and Crohn's disease in this geographical area. It appears that the current frequent encounter of IBD cases parallels the exponential growth in development and industrialisation, a tendency to more western dietary habits and exposure to more psychological stress associated with such a life.

There was a male preponderance, with the age group of 31-45 years, with a majority of cases belonging to urban area with associated smoking history and non vegetarian dietary habit. Pain abdomen was chief presenting complaint followed by diarrhoea. Ulcerative colitis was more common than Crohn's disease. Colon was the most common site of involvement.

Psychosocial stress has long been reported anecdotally to increase disease activity in inflammatory bowel disease, and recent well designed studies have confirmed that adverse life events, chronic stress and depression increase the likelihood of relapse in patients with quiescent IBD. The evidence is increasingly supported by studies of experimental stress in animal model of colitis. With evidence of psychoneuroimmunology, the mechanisms by which the nervous system can affect immune system can affect immune function at both systemic and gut mucosal levels are gradually becoming apparent. Recent data suggests stress induced alterations in gastrointestinal inflammation may be mediated through changes in hypothalamic-pituitary-adrenal axis function and alterations in bacterial mucosal interactions

and via mast cells and mediators such as corticotrophin releasing factor .Dietary habits were found to have correlation with occurrence of disease. Thus life style modification with improvement in dietary habits including increased intake of dietary fibres, alleviation of psychosocial stress would possibly help in prevention of this group of diseases.
Dysplasia was identified in a group of patients. Detection of dysplasia remains one of the most important aim of surveillance and follow up in these patients. This requires early detection and interventions in order to prevent disease associated morbidity and mortality.

CONCLUSION

A total of 98 patients were studied in the study period. There was a male preponderance, with the age group of 31-45 years, with a majority of cases belonging to urban area with associated smoking history and non vegetarian dietary habit. Pain abdomen was chief presenting complaint followed by diarrhoea. Ulcerative colitis was more common than Crohn's disease. Colon was the most common site of involvement.
Psychosocial stress and dietary habits were found to have correlation with occurrence of disease. Thus life style modification with improvement in dietary habits including increased intake of dietary fibres, alleviation of psychosocial stress would possibly help in prevention of this group of diseases.
Dysplasia was identified in a group of patients. Detection of dysplasia remains one of the most important aim of surveillance and follow up in these patients. This requires early detection and interventions in order to prevent disease associated morbidity and mortality.
In conclusion, IBD is a common disease which has shown an increasing trends over the years in both developed and developing countries. Thus, long term follow up and further studies would be crucial to understand this group of diseases which is multifactorial and multifaceted and of which we still need to explore a lot.

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