INFLAMMATORY BOWEL DISEASE **MEDICAL APPENDIX**

(including Ulcerative Colitis and Crohn's Disease)

DEFINITION

1. **Inflammatory bowel disease** is a term applied to a group of bowel disorders in which inflammation is a major feature but where there is no proven evidence that infection is the causative agent.

2. Rare forms of inflammatory bowel disease exist but the two main entities are **Ulcerative colitis** and **Crohn's disease**. There is evidence that these do not represent discrete conditions but rather are the same disease with shared aetiological factors. The different clinical manifestations may reflect the particular tissue involved or the affected individual's immunological and constitutional endowment.

3. Crohn's disease and ulcerative colitis have characteristic clinical and pathological patterns that emerge over a prolonged time course. A firm diagnosis can only be reached when the full disease pattern has emerged. Prior to this point the diagnosis can only be tentative. There is no feature of Crohn's disease or ulcerative colitis that is invariably present in one and absent in the other.

ULCERATIVE COLITIS

4. This usually starts in the rectum and may spread proximally to involve increasing lengths of the colon to the ileo caecal valve. The distal 10-30 cm of the ileum may rarely be involved but this arises from backwash through the ileo-caecal valve. Ulcerative colitis involves the mucosa where inflammatory changes predominate. During fulminating attacks the whole bowel wall may be involved.

CLINICAL MANIFESTATIONS

5. Ulcerative colitis may have its onset at any time from childhood to old age. In the extremes of life the clinical course tends to be more severe. The peak age of incidence is the fourth decade. It is common in the West and in towns rather than rural communities.

6. The disease may become manifest in a variety of ways and its onset may be acute or gradual. The two characteristic presenting features which exhibit a wide spectrum of severity are diarrhoea and the passage of blood per rectum.

7. Bleeding per rectum and diarrhoea lead to the systemic effects of the disease. These include acute blood loss, anaemia, profound electrolyte disturbance, weight loss, fever, tachycardia, leucocytosis and general malaise.

8. The clinical course of ulcerative colitis is variable. In some patients the disease has continuous low grade activity. However most patients experience a chronic intermittent disease pattern of relapse and remissions. In this group the causes of relapse are often unknown but they may relate to psychological stress, upper respiratory infection, coincidental mild gastrointestinal infection or the use of antibiotics for an unrelated condition. A third variant is chronic continuous severe ulcerative colitis which is seen where the management of the condition is less than optimum.

9. The complications may be local or remote. Local complications include the following:

    9.1. In an acute attack of ulcerative colitis, three life-threatening complications may occur, namely perforation of the bowel, acute massive haemorrhage of the colon and acute dilatation of the bowel (also called toxic megacolon). The last complication is a paralytic ileus of the colon probably resulting from hypokalaemia. Toxic megacolon may itself lead to perforation of the colon.

    9.2. The local complications of the chronic disease process are ischiorectal abscesses, fistula-in ano and recto-vaginal fistula.

    9.3. Other complications include pseudo of the colon, where mucosal out-pouchings form between ulcerated areas, fibrous stricture formation and cancer of the colon.

10. More remote complications include:

    10.1. **Skin** lesions which are common and may take many forms. Rashes may be morbilliform, erythematous or purpuric. In addition they may resemble erythema nodosum, erythema multiforme or urticaria. Reactions from drugs used in treating the disease are common.

    10.2. The skin condition **pyoderma granulosum** is a serious complication. In this condition flaccid bullae appear in the epidermis and become infected, burst and form ulcerated areas which may coalesce.

    10.3. **Eye** complications include episcleritis and uveitis.

    10.4. Aphthous ulceration and moniliasis of the **oral mucosa** can occur.

    10.5. The condition may be associated with **arthropathy**. This may be an acute monoarthropathy which is rheumatoid negative.

10.6. Ankylosing spondylitis may also be seen in patients suffering from ulcerative colitis. It has been suggested that this condition is a complication of the disease. In general, ulcerative colitis patients do not demonstrate any predilection for a particular HLA antigen. However where ulcerative colitis and ankylosing spondylitis coexist there is an increased incidence of HLA-B27. In the general population, ankylosing spondylitis is more common in the male, while in those in whom ulcerative colitis and ankylosing spondylitis co-exist, men and women are equally at risk. In these patients the clinical course of the two diseases is quite distinct and unrelated. It therefore appears that the two diseases are discrete entities which are associated in an individual patient for purely genetic reasons and that one is not a complication of the other.

10.7. **Liver and biliary disease** may occur. Acute ulcerative colitis may lead to fatty change in the liver which is reversible. Other changes including cholangitis and hepatitis are seen. Whether or not these processes lead to cirrhosis and its sequelae is unresolved. Two more specific biliary associations with ulcerative colitis are primary sclerosing cholangitis and carcinoma of the bile duct. Primary sclerosing cholangitis can progress to secondary biliary cirrhosis and portal hypertension.

AETIOLOGY

11. The precise aetiology of ulcerative colitis and inflammatory bowel disease in general is unknown. Extensive research has been carried out into factors including diet, infection, immunological defects, mucin production and genetic defects. Relatives of those with ulcerative colitis carry an increased risk of developing either ulcerative colitis or Crohn's disease. The evidence suggests a multifactorial origin with both genetic and environmental factors playing a part.

12. The possibility of an infective aetiology for ulcerative colitis has resulted in a vast amount of research involving bacteriological, immunological and histopathological techniques. This has produced a great many observations but no proof that an infective agent plays any part in the aetiology of ulcerative colitis. This is further borne out by the sporadic nature of the condition and the absence of case clustering.

13. Immunological studies have been performed but the preliminary observations have not been corroborated. Hypothesis linking the disease to cow's milk allergy, autoimmune disease, abnormalities in T and B cell lymphocyte numbers and functional capacity have now been discarded.

14. The effects of nutrition have also been explored. Diarrhoea may result from vitamin or other deficiencies. This observation led to interest in the possibility of a similar mechanism for the inflammatory bowel disorders. There is no convincing evidence that dietary deficiency is an aetiological factor in inflammatory bowel disease.

15. In the past inflammatory bowel disease was considered to be of psychosomatic origin. The current consensus among specialist gastroenterologists is that the condition is not caused by psychological disturbance. Many of the findings of the early studies cannot be reproduced today. There is however no doubt that in a patient with established disease psychological factors may cause clinical exacerbation.

CROHN'S DISEASE

16. Crohn's disease is characterised by granulomatous inflammation of the gastrointestinal tract. It may affect any part of the gut from the lips to the anus, not necessarily in continuity. Fistula formation is common.

17. Formerly the disease was considered as localised to the small bowel. It is now accepted that it might also occur in colon, anus and perianal skin. In addition there may be systemic manifestations.

CLINICAL MANIFESTATIONS

18. The epidemiology of Crohn's disease mirrors that of ulcerative colitis. It is a disease of civilisation, affecting younger people although not confined to any age group.

19. The clinical features are to a considerable extent dictated by the anatomical site of the disease. Diarrhoea, abdominal pain, weight loss and fever are common. If the colon is involved there may be rectal bleeding and frequently perianal disease.

20. Systemic symptoms occur but these are uncommon when the disease is confined to the ileum. Where the ileum is extensively involved there may be malabsorption and osteomalacia. Anaemia is common and this may be the sole presenting feature. It may result from iron, folate or vitamin B12 deficiency.

21. Physical signs include atrophic glossitis, aphthous ulcers, clubbing of the nails, tachycardia, palpable abdominal mass, anal tags, fissures and abscesses.

22. More usual complications include intestinal obstruction secondary to stricture formation and fistulae. Fistulae may occur between loops of bowel or between the bowel and vagina, bladder or ureters. There may be gross malabsorption and steatorrhoea.

23. As with ulcerative colitis, in patients whose colon is affected by Crohn's disease may suffer from perforation, toxic dilatation and massive haemorrhage.

24. There is an increased incidence of oxalate renal calculi.

25. Amyloid may occur, both locally in the bowel and more distantly in the spleen, liver and kidney. Carcinoma of the colon may occur and cases of small bowel carcinoma have also been reported.

26. The skin condition pyoderma granulosum may also occur in Crohn's disease.

AETIOLOGY

27. The aetiology of Crohn's disease is unknown, the evidence being that it is of multifactorial origin. It may be genetically predisposed, being up to 13 times more common in first degree relatives than in unrelated groups. It is a relatively modern disease and so may relate to changed dietary and other habits.

28. While ulcerative colitis has a lower incidence in smokers, Crohn's disease is more common in smokers and in those with a high refined sugar intake. Dietary manipulation such as an elemental diet may induce remission in Crohn's and some patients give a clear history of disease relapse on introduction of wheat or dairy products into their diet. No immunological defect has been consistently identified. Microbiological studies have failed to provide evidence of an infective aetiology. Clustering is not found.

29. As with ulcerative colitis, the evidence suggests a multifactorial origin with both genetic and environmental factors playing a part.

CONCLUSION

30. Inflammatory bowel disease comprises a group of bowel disorders characterised by inflammation in which evidence has not been found of an infective cause. The commonest conditions are ulcerative colitis and Crohn's disease, which may represent different spectra of the same disease. Although the aetiology is unknown, genetic factors are important and environmental factors may trigger the onset of the disease or an exacerbation.

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