

Granulomatous Lesions of the Colon

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ABSTRACT

The study consists of an analysis of 39 cases of all kinds of granulomatous lesions in the colon observed at our X-ray department during 3 year period between Jan. 1960. and the end of 1962. Of these 39, 13 cases were Crohn's disease of the colon and 15 cases were tuberculous colitis. The remaining 11 cases were due to ulcerative colitis 3, amoebic colitis 4, and non-specific pericolicitis 4.

17 males and 22 females were seen and, the peak incidence was from 40 to 49 years of age.

The diagnosis of each granulomatous lesion was confirmed by tissue examination obtained by exploratory celiotomy or by biopsy.

Crohn's disease and tuberculous colitis were more frequently encountered in the large bowel rather than in the ileo-cecal region.

Granulomatous lesions in the colon must be differentiated from a number of causes of large bowel pathology e. g. carcinoma or lymphoma. The diseases with which it is more commonly confused are ulcerative colitis, tuberculous colitis, Crohn's disease and amoebic colitis. X-ray features of each of these granulomatous lesions are presented in detail and the points of differential diagnosis are discussed.

INTRODUCTION

The term granuloma is used to describe tumor masses which arises as the result of the continuous action of an irritant which produces an excessive amount of inflammatory tissue in the absence of actual tumor cells. Granulomatous lesions may occur anywhere in the gastrointestinal tract including the large bowel.

Granulomas are usually divided two groups: (Bockus, 1944).

1) Specific granulomas due to a known infective

agent such as the tuberculous bacilli, *Entamoeba histolytica* or *spirochetta pallidum*.

2) A group designated as non-specific infective granuloma.

In spite of their varied origin many features are common to all granulomas. In most of cases, a tumor mass is present. For many years these tumors were described as having the gross appearance and producing a clinical picture suggestive of malignant tumor but pathologically consisted of inflammatory tissue only.

Bockus said that an important in the development of any kind of granulomatous lesion is the presence of some source of continual irritation. Almost any organism, foreign body or chemicals can be a common cause of irritation. (Bockus, 1944)

Localized areas of inflammation and ulceration in the large bowel are probably not too rare and may frequently act as a locus for the development of granulomatous lesions. Since the treatment and prognosis of granulomatous lesions in the large bowel are distinctly different according to their etiology, the importance of an accurate understanding of pathology involved and points of differential diagnosis should be appreciated.

It is well known fact that communicable diseases e. g. tuberculosis or amoebiasis, are common in this country and has long been suspected that the incidence of granulomatous lesions may not be low.

The more barium enema examination are made the more granulomatous lesions in the colon are diagnosed at our X-ray department, and it is of special interest that the Crohn's disease and tuberculous granuloma are more frequently observed in the colon than in the ileo-cecal region. The present study is an analysis of 39 cases of granulomatous lesions of the large bowel that were observed by barium enema examinations for a years period between Jan. 1960 and December 1962.

OBSERVATIONS

13 cases of Crohn's disease of the colon, 3 cases of ulcerative colitis, 15 cases of tuberculous colitis, 4 cases of amoebic colitis and 4 cases of non-specific pericollitis were observed during this period. Age and sex distribution according to each granulomatous lesion are as follows (Table 1).

In the Crohn's disease, 4 male and 9 female patients were seen. Two out of 3 ulcerative colitis patients were male, 9 out of 15 tuberculous colitis patients were male. All 4 cases of non-specific pericollitis were seen in female patients. The peak incidence of the entire group of granulomatous lesions occurred in the fourth decade and the third decade was next in order, but the lowest incidence was in patients under the age of 20 (Table 2).

Table 1. Granulomatous lesions of the colon

Disease	Number of case	Sex	
		Male	Female
Crohn's disease	13	4	9
Ulcerative colitis	3	2	1
Tuberculous colitis	15	9	6
Amoebic colitis	4	2	2
Non-specific pericollitis	4	0	4
Total	39	17	22

Table 2. Age distribution

	10-20	20-29	30-39	40-49	50-59	60-69	Total
Crohn's disease		2	5	3	1	2	13
Ulcerative colitis				1	2		3
Tuberculous colitis	2	3	2	5		3	15
Amoebic colitis			2	2			4
Non-specific pericollitis			2	1	1		4
Total	2	5	11	12	4	5	39

DISCUSSION

Crohn's disease

Numerous term have been used to describe this Crohn's disease namely, regional ileitis, segmental colitis and right sided ulcerative colitis. Starting with the basic contribution of Crohn, Ginzberg and Oppenheimer in 1932, the chief site of occurrence

appeared to be terminal ileum (Sutcliffe, 1960). However, it soon became apparent that the disease was wide spread in any portion of the gastrointestinal tract. At our X-ray department, the Crohn's disease is more frequently observed in the colon than in the ileo-cecal region.

Of the thirteen cases of Crohn's disease, five patients had ileo-cecal involvement, and the other 9 patients had the disease process located some where between in the cecum and rectum.

Involvement in the cecum and the descending colon was noted in one patient, while involvement of the ascending colon and of the entire colon was noted in three patients. Two of the three patients who had the entire colon affected had scattered lesions throughout colon.

Radiologically, there was narrowing, shortning and rigidity of the affected area with marked changes in the mucosal relief pattern in the ulcerated segment. Rounded and oval areas of diminished density in the barium shadows may produce a cobble stone appearance. When the filling defect is extensive, there was a thin, irregular stringy shadow due to the very small amount of contrast medium which had passed through the stenotic opening. The chief X-ray findings of Crohn's disease were skip areas, longitudinal ulceration, transverse fissures, cobble stone patterns, the string sign and narrowing of the intestinal lumen.

The differentiation from ulcerative colitis is sometimes difficult radiologically, but consideration of clinical aspects helps.

Case I was 27 year old male who had noticed pain and a palpable mass in the right lower quadrant for one year. On physical examination, tenderness was present.

On barium examination, a stenosis of cecum was noted and also a skip lesion which involved hepatic flexure and the sigmoid colon. At operation, extensive fibrosis and acute inflammatory changes in the colon were noted for which a right hemi-colectomy was performed. Crohn's disease was reported on microscopic examination of the tissue (Fig. 1).

Case 2: 37 year old male had intermittent pain in the right lower quadrant for three months.

Physical examination revealed a palpable mass in the right lower quadrant. Barium enema study sho-

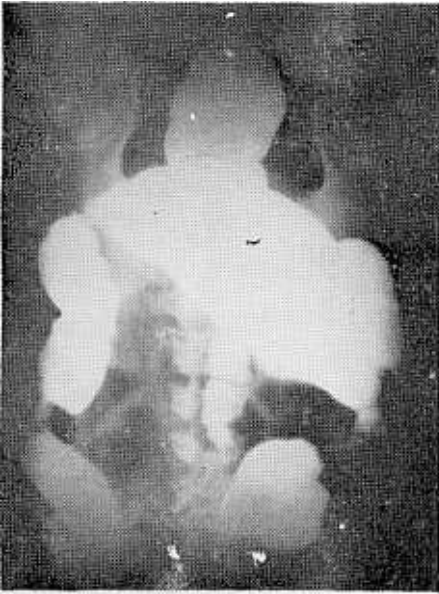


Fig. 1. Crohn's disease.

27 year old male with pain in the right lower quadrant. Barium enema showed segmental narrowing and skip areas involving hepatic flexure, splenic flexure and sigmoid colon.

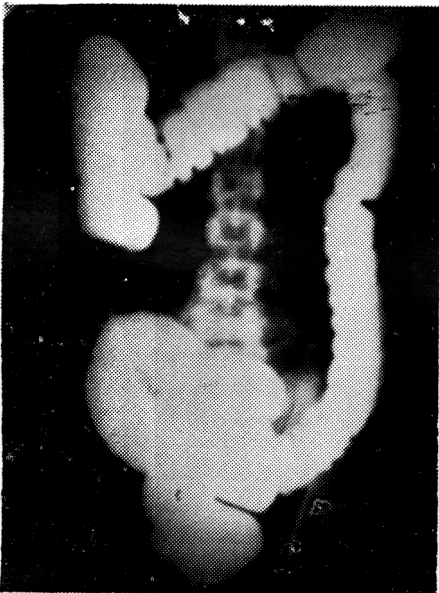


Fig. 2. Crohn's disease.

37 year old male with a palpable mass in the right lower quadrant and intermittent colic pain in the lower abdomen. Barium enema showed mucosal alteration with spasm and irritability of the cecum including part of the ascending colon.



Fig. 3. Crohn's disease.

Lateral view of the barium enema showed narrowing of the distal portion of the descending colon and sigmoid with mucosal changes and spasm.

wed mucosal alterations with spasm and irritability in the cecum and proximal ascending colon. At operation a large mass along the cecum and also proximal to the ileo-cecal valve was found and was resected (resection of the cecum and terminal ileum). On microscopic examination, Crohn's disease was reported in the removed specimen (Fig. 2).

Case 3: A 29 year old female had occasional chills and fever and profuse leukorrhea for four months.

Physical examination showed small palpable mass in the left lower quadrant.

Operation disclosed an edematous, thickened and hard sigmoid and upper rectum measuring about 20cm in length and attached to the cervix and adnexa. A segmental colectomy was done, and Crohn's disease was reported in the removed specimen (Fig. 3).

Tuberculous colitis

Tuberculous colitis usually involves the cecum. However, the disease extends also to the ascending portion of the large bowel. Most cases of tuberculous colitis may be found in persons with active pulmonary tuberculosis. In some cases there were no demonstrable signs of pulmonary tuberculosis.

Of 15 cases of tuberculous colitis, 10 patients had

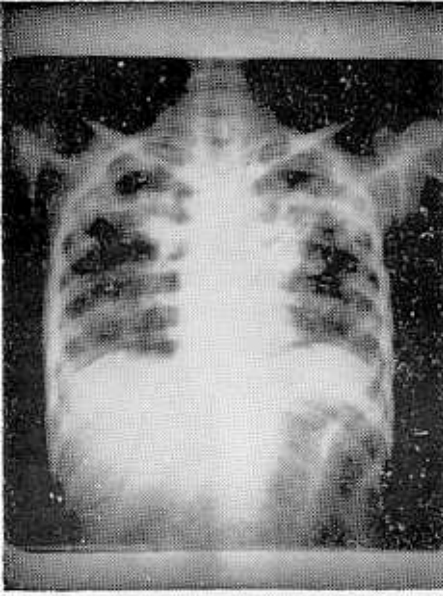


Fig. 4

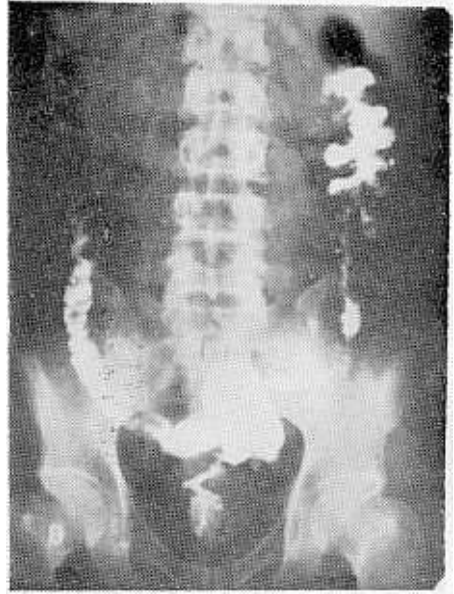


Fig. 5

37 year old male had tuberculous colitis with pulmonary tuberculosis. Barium enema showed marked irritability in distal portion of the descending colon and narrowing of the ascending colon. P-A chest showed homogenous increased density in the both upper lung fields suggestive of moderately advanced T. B..

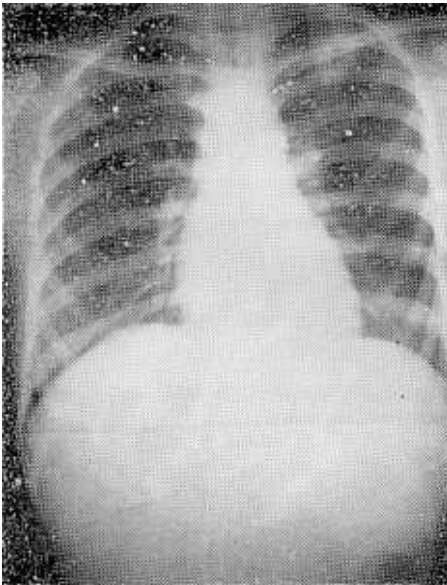


Fig. 6



Fig. 7

30 year old female with generalized abdominal pain. Barium enema showed narrowing and irregularity of the mucosal pattern in the entire colon. Chest P-A showed a hazy increased density with a small cavitation in the left upper lung field suggestive of moderately advanced T. B..

the lesion in the ileo-cecal area, while five patients had the lesion in another part of the colon.

Of these five cases, one patient had a lesion from the hepatic flexure to the rectum.

3 patients had entire colon affected and in the other one patient a lesion was observed between the cecum and the ascending colon. Roentgenologically, the terminal ileum was occasionally normal but more often it was found to be narrowed and rigid, especially in its preterminal segment, which was usually much shorter than that found in the other types of granulomatous colitis. Irritability and spasticity are important in this disease. The involved segment could be outlined by opaque material. In other instance, there was a gradual narrowing with a spindle shaped defect at the site of lesion.

Case 4: A 37 year old male had the signs and symptoms of chronic peritonitis for one month. Physical examination revealed tenderness, rebound tenderness and rigidity in the right lower quadrant. Chest X-ray showed moderately advanced tuberculosis. Barium enema study showed irritability of the distal portion of the descending colon and narrowing of the ascending colon (Fig. 4, 5).



Fig. 8. Ulcerative colitis.

41 year old female with ulcerative colitis. Barium enema study shows a moderately shortened and narrowed colon with distortion of the mucosal folds and pseudopolyps.

Case 5: A 30 year old female had generalized abdominal pain with marked distention of the abdomen. Radiologically, chest P-A showed moderately advanced tuberculosis. Barium enema showed narrowing, irregularity of the mucosal patterns in the entire colon.

At the operation an annular constricting mass at the hepatic flexure was found and adhesions were presented between the mass and the major omentum. Pathological diagnosis was tuberculous colitis (Fig 6, 7).

Ulcerative colitis

4 cases of ulcerative colitis were observed and later proven by tissue examination. 2 patients had diffuse involvement of the colon and one patient had a lesion between the splenic flexure and rectum. The etiology of ulcerative colitis is known, radiologically, the barium enema examination is the favored method for diagnosis of ulcerative colitis. In ulcerative colitis, the process usually begins in the rectum and extends rapidly upward to involve the entire large bowel. The earlier the onset the more marked were the subsequent pathological changes.

With extensive ulceration, a shortening of the

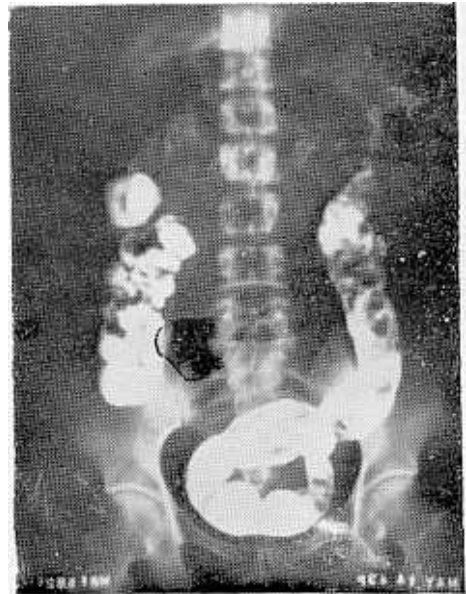


Fig. 9. Ulcerative colitis.

35 year old female with ulcerative colitis. Barium enema showed shortening and narrowing of the transverse colon and extensive pseudopolyps.

bowel appears, the colon becomes tubular, smoothened, and ultimately quite rigid. Erosion of the mucosa leaves areas of relatively intact membrane, forming pseudopolyps interspersed with a shaggy, irregular mucosal lining. In contrast to Crohn's disease, the early stage of ulcerative colitis shows marked irritability and obliteration of the normal haustral pattern. Eccentric, localized, intramural thickenings and skip areas do not occur.

Case 6: A 41 year old female had high fever and an occasional bloody stool for several weeks. Physical examination revealed marked abdominal tenderness with diminished bowel sounds. Barium enema showed a markedly shortened and narrowed colon with distortion of the mucosal folds and pseudopolyposis throughout the entire colon. A total colectomy and ileostomy were performed (Fig. 8).

Case 7: A 35 year old female had intermittent bloody diarrhea and abdominal distress for 2 weeks. Physical examination revealed her to be seriously ill and to have abdominal distension. Chest X-ray film was negative for tuberculosis. The diagnosis of ulcerative colitis was established by rectal biopsy and barium enema study. At operation, a total colectomy and ileostomy were performed (Fig. 9).

Amoebic colitis

Amoebic dysentery is a manifestation of amoebiasis produced by the *Entamoeba histolytica*. The amoebae penetrate the bowel and produce ulceration and induration of the cecum, appendix, ascending colon and rectosigmoid.

Of the 4 cases having amoebic colitis, 2 had cecal involvement and ileo-cecal involvement was noted in the third patient. The 4th patient had a lesion in the ascending colon.

Radiologically, the normal smooth, rounded appearance of cecum was replaced by a gradual narrowing and the cecum became cone shaped and irregular in contour. A persistent spasm occurs in any segment of the colon. There was a filling defect which closely simulated carcinoma. Antiamoebic therapy had often caused the lesion to shrink or disappear. The radiologic diagnosis of amoebic colitis was difficult. In making the differentiation the following factors enter into consideration; clinical history, age of patient, duration of symptoms, presence of

Entamoeba histolytica and response to anti amoebic therapy, situation of the lesion which usually does not involve the terminal ileum.

Case 8: A 34 year old female who had vague abdominal complaints and alternating diarrhea and constipation. Physical examination showed slight tenderness in the right lower quadrant. The barium enema revealed a smooth, and round appearance of the cecum with a cone shaped irregular contour of the ascending colon.

Specimen of the stool showed *Entamoeba histolytica* (Fig. 10).

Non-specific Pericolicitis

Serosal inflammatory changes may reflect disease or the adjacent organs. These are seen mostly in the distal third of the large bowel. Adnexal disease, Particularly pelvic inflammatory disease, frequently involved adjacent colon. Occasionally, cancerous tissue may have a very similar appearance. Radiologically, the affected area of the colon was tubular, thin and smooth walled. In some cases, an irregular narrowing of the colon was present. 3 patients had involvement of the sigmoid and in one patient the lesion was located between the cecum and ascending colon.



Fig. 10. Amoebic colitis.

34 year old female with amoebic colitis. Barium enema study showed smooth, round appearance of the cecum with a cone shaped and irregular contour.

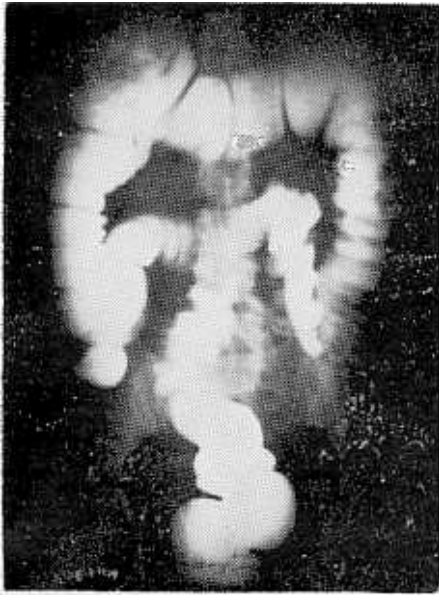


Fig. 11. Non-specific pericolicitis.

49 year old female with pericolicitis. Barium enema showed slight displacement of the sigmoid colon with irregularity of the mucosal folds of the descending colon.

Case 9: A 49 year old female had severe generalized lower abdominal pain for 2 months. Physical examination showed tenderness in the left lower abdomen. Radiologically, barium enema study revealed slight displacement of the sigmoid colon with narrowing and irregular mucosal pattern in the descending colon. At operation, an organizing inflammation of fibro-adipose tissue with fibrosis was found which was adhered to the small bowel, descending colon and sigmoid colon (Fig. 11).

Differential Diagnosis

Granulomatous lesions of the colon must be differentiated from a number of conditions. The diseases with which they are commonly confused are; ordinary ulcerative colitis, tuberculous colitis, Crohn's disease and amoebic colitis.

There are both clinical and radiological differences between Crohn's disease and ulcerative colitis. A period of freedom from symptoms, lasting a month or more, is usual in ulcerative colitis but not in Crohn's disease. Peri-anal fistulae, fissures, ulceration, string sign, cobble stone patterns are characteristic features of Crohn's disease. Pseudopolyp in

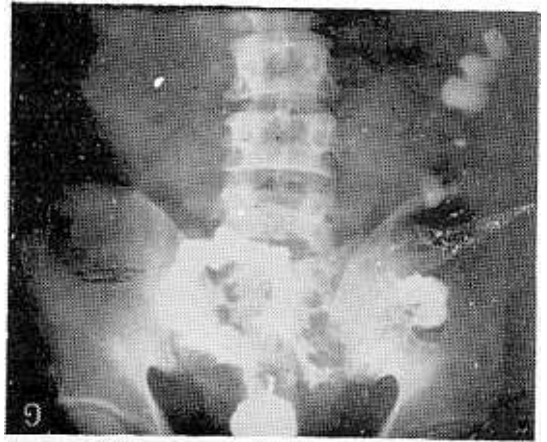


Fig. 12. Non-specific pericolicitis.

35 year old female with pericolicitis. Barium enema study showed narrowing and irregularity of the mucosal folds in the sigmoid and distal end of the descending colon.

formation is found more frequently in ulcerative colitis than Crohn's disease. Barger's study show that pseudopolyps develop in approximately 10% of cases of chronic ulcerative colitis. Deep penetrating ulceration are more likely to be found in Crohn's disease than in ulcerative colitis (Nicholas, 1958). Stricture formation, particularly if multiple, with normal intervening colon, indicate Crohn's disease. Tuberculous colitis can be excluded by a negative tuberculin test, a normal chest X-ray and, histologically, by the absence of caseation and tubercle bacilli in the tissue. The roentgen changes closely simulate those produced by a neoplasm. Stricture of the colon with relatively little irritability and spasticity is common. The narrowing of the lumen of the colon may be abrupt with an apparent shelf formation. In the differential diagnosis, in addition to tuberculous colitis, it is necessary also to consider chronic appendicitis, actinomycosis, amoebic colitis, sprue, and neoplasm of the large bowel.

Amoebic colitis is differentiated from chronic ulcerative colitis. Careful correlation of the clinical and radiologic evidence is essential. In patients with history of dysentery and residence in an endemic area, careful search for *Entamoeba histolytica* in the stool should be made. Anti-amoebic therapy is an important aid in differential diagnosis.

Pericolitis, occasionally a patient with peritonitis presents a somewhat similar picture.

Particularly when pelvic cellulitis is part of the disease, ulceration due to tuberculosis and Crohn's disease results in narrowing of the lumen much as in pericolitis.

SUMMARY

The clinical records and X-ray finding of 39 cases of granulomatous lesions of the colon during the 3 year period between 1960 and 1962 have been reviewed.

13 cases of the Crohn's disease in the colon, 3 cases of ulcerative colitis, 15 cases of tuberculous colitis, 4 cases of amoebic colitis, 4 cases of non-specific pericolitis were observed.

It is of interest to note that both Crohn's disease and tuberculous granuloma are more frequently encountered in the colon instead of as usually found in the ileo-cecal region.

X-ray features of each granulomatous lesion are presented in details and the points of differential

diagnosis are discussed and illustrated.

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