

Original Articles

CLINICAL MANIFESTATIONS OF ABDOMINAL TUBERCULOSIS*

(FROM SURGICAL ASPECT)

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THIS paper is based on the observations of 30 cases of abdominal tuberculosis admitted in the surgical wards of the Medical College Hospitals during the last 2 years, 1946 and 1947. Two cases from the Eden Hospital are included. Cases of genito-urinary tuberculosis including tubal tuberculosis and ano-rectal tuberculosis have not been included in this paper.

Diagnoses of these cases were made mainly on clinical observations, some of them being aided by radiology. The best means of confirmation, of course, is by operation when tubercles are visible or by histological examination of a piece of tissue removed at operation, e.g. from great omentum, etc., or at autopsy. I must mention that all cases were not operated upon, nor autopsy was possible on those who died without operation, for reasons well known to all.

Before going into the clinical manifestation it will be useful to mention in brief the pathological varieties of abdominal tuberculosis encountered, with a view to facilitating interpretation of signs and symptoms.

FIVE GROUPS

The pathological varieties are classified in five groups.

TABLE I

Abdominal tuberculosis

Pathological forms :	
I. Intestinal tuberculosis—	
(1) Ulcerative type ..	1
(2) Hypertrophic or hyperplastic type ..	14
	} 15
II. Tuberculous peritonitis—	
(1) Ascitic type ..	7
(2) Adhesive type ..	3
	} 10
III. General miliary tuberculosis (acute) ..	
	1
IV. Tabes mesenterica ..	
	2
V. Complications of intestinal tuberculosis (ulcerative)—	
(1) Stricture of intestine ..	1
(2) Fæcal fistula ..	1
(3) Hæmorrhage ..	1
	(found in 1 of the cases mentioned above)
(4) Perforation ..	0

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I. INTESTINAL TUBERCULOSIS

(1) *Ulcerative type*.—This is by far the most frequent form of intestinal tuberculosis though not so frequent in a surgical ward. Its commonest sites are ileum, cæcum and colon, but no part of the intestine is immune. The lesion begins in the lymph follicles of the intestinal mucosa, and goes through all the stages of tuberculous process, e.g. tubercle formation, caseation, ulceration and fibrosis. This affection rarely occurs in the idiopathic form except during the first years of life. It is commonly the consequence of pulmonary tuberculosis, and in the majority of cases takes place after the latter has attained the suppurative or exudative stage. Consequently this variety is more often seen by physicians than by surgeons. In my series only one case of this type was met with.

(2) *Hypertrophic or hyperplastic type*.—This type of lesion is caused by tubercle bacilli of attenuated virulence. It forms an elongated lump, the size of which varies inversely with the virulence of the causative organism. This lesion usually develops in the cæcum and ascending colon; it is sometimes found in the other parts of the colon as well.

The essential change seems to be a proliferation of connective tissue involving all the bowel layers and extending completely around the gut. The intestinal wall eventually becomes stiffened and thick. The lumen may be narrowed until it is almost occluded. This type is very frequently not associated with pulmonary disease. Ulceration is not a feature. This type because of the presence of an abdominal lump and absence of pulmonary tuberculosis is more often seen by a surgeon. There were 14 cases of this type in my series, constituting 46 per cent of the total cases. This is the commonest type in my series.

II. TUBERCULOUS PERITONITIS

(1) *Ascitic type*.—The abdomen becomes distended by fluid of a yellowish colour with low fibrin content but free fibrin is rarely seen in this type of exudate. Visceral and parietal peritoneum are studded with millet seed-sized tubercles. The omentum is usually only moderately thickened. Seven cases of this type are recorded in my series constituting 23 per cent.

This is the second commonest type.

(2) *Adhesive type*.—Peritoneal adhesions begin with the precipitation of fibrin. Contiguous loops of bowel are fixed by plastic exudate. Kinking, angulation or even actual obstruction may occur. In this form discrete tubercles are less likely to be seen than in the ascitic form being obscured by fibrinous exudate and adhesions. Three cases of my series belong to this type.

III. GENERAL MILIARY TUBERCULOSIS (ACUTE)

In this form, the bowel is reddened and studded with myriads of discrete tubercles.

Exudate may be turbid indicating greater virulence. One case is recorded.

IV. TUBERCULOUS MESENTERIC LYMPH GLANDS OR TABES MESENTERICA

Mesenteric lymph glands are enlarged; sometimes one group of glands is more enlarged than others forming a localized lump in the abdomen. Two cases are recorded.

V. COMPLICATIONS AND SEQUELS OF ULCERATIVE INTESTINAL TUBERCULOSIS

(1) *Stricture of intestine.*—From cicatrix of healed ulcers which are often annular in shape. Strictures are more commonly multiple and more frequently found in the small bowel. One case of the series comes under this category.

(2) *Faecal fistula.*—It occurs more frequently in connection with the large bowel than the small bowel (3 : 1). One case of this variety has been found in my series, and three round-worms were noted to have emerged through the fistula.

(3) *Hæmorrhage.*—Severe or fatal hæmorrhage is rare, because as the ulcer progresses there is thickening of its base with endarteritis obliterans of the vessels in the neighbourhood. Macroscopic blood in the stools of patients with advanced intestinal tuberculosis is by no means common, but occult blood occurs even in many early cases where macroscopic blood is wanting. One of the cases in this series passed a fair amount of blood with clots in loose stool.

TABLE II
Analysis of 30 cases

Age :	Number of cases
Up to 10 years	1
10 to 20 years	8
20 to 30 years	12
30 to 40 years	8
40 to 50 years	1
Sex :	
Males	14
Females	16
Duration of symptoms as mentioned by patients :	
History of days	6
History of weeks	1
History of months :	
1 to 2 months	6
2 to 4 months	3
4 to 6 months	1
6 to 8 months	4
8 to 10 months	3
History of years :	
1 to 2 years	2
2 to 4 years	4

(4) *Perforation.*—Intestinal perforations are very uncommon considering the number of tuberculous ulcers. This is due to (i) thickening of the bases on deepening of the ulcer by inflammatory processes, (ii) occurrence of localized adhesive peritonitis, matting together loops of intestine and omentum, and (iii)

supervening of death from pulmonary tuberculosis before the ulceration extends through the wall. No case of perforation has been recorded in this series.

INCIDENCE

Age.—Abdominal tuberculosis is a disease of the young and of those in early middle life, the highest number, i.e. 12 of my series occurring between 20 and 30 years. Only one case was found below 10 years of age and one above 40 years.

Sex.—Practically equal incidence in both sexes.

DURATION OF SYMPTOMS AS MENTIONED BY THE PATIENT

In the large majority of cases the history is of months rather than of weeks or years. In some cases, 6 in number, the history is of days. All of them came with acute symptoms and I think that patients' attention was drawn by the acute exacerbation (50 per cent of these cases died). Under more detailed grouping regarding duration, it is found that the highest number of cases come with a history of 1 to 2 months.

COMPLAINTS

These are mentioned in order of frequency as complained of by the patients in my series.

(1) *Pain.*—This is the most frequent and most important of all symptoms. It was present in all the cases. The site of pain of course varies, the commonest site being the right iliac region, and the next in order being diffuse or generalized pain in the abdomen. Pain in the epigastrium or umbilicus is also found.

Character of the pain is also variable, the commonest type met with being colicky or cramping, and the next common being dull aching pain. Other types of pain are sometimes found. It is evident from above that the commonest variety is colicky pain in the right iliac region and the next common is generalized dull aching pain. Reasons are not difficult to understand, as the commonest lesion is hyperplastic tuberculosis in the cæcal region with tendency to narrowing of the lumen and the next in order is tuberculous peritonitis of the ascitic type which is more often generalized.

(2) *Vomiting.*—It has been noted in 16 cases. In some it occurred after meals whereas in others it had no relation to food. In one case there was coffee-grounds vomit. In that case the pyloric region of the stomach was invaded by a tuberculous mass from the transverse colon and the greater omentum. Rarely peptic ulcer may occur in stomach or duodenum as a complication of tuberculous entero-colitis, which may cause coffee-grounds vomit.

(3) *Fever.*—It has been observed in 16 cases, and in most of them it is present or marked in the evening.

(4) *Constipation*.—It has been found in 10 cases and can be accounted for by the fact that the common lesion is the hypertrophic type with tendency to narrowing of the lumen of the gut.

(5) *Diarrhoea*.—It has been observed in 7 cases.

It commonly occurs with intestinal ulcers but does also occur without ulcers. In my series diarrhoea was never severe and had no special time of appearance. It is believed that diarrhoea is common after meals or at night in intestinal tuberculosis. Diarrhoea is due to increased peristalsis or interference with absorption of water from intestinal contents.

(6) *Appreciable emaciation and loss of weight*.—Found in 8 cases.

TABLE III

Symptoms as described by patients

1. <i>Pain</i> :—		
(a) <i>Site</i> :		
Epigastrium ..	3	} 30
Right iliac region ..	11	
Generalized or diffuse ..	7	
Starts at umbilicus and then spreading all over ..	5	
Upper abdomen ..	2	
Lower abdomen ..	2	
(b) <i>Character</i> :		
Colicky or cramping ..	10	} 30
Dull aching ..	8	
Stabbing (sharp) ..	4	
Diffuse vague ..	1	
Burning ..	0	
Dragging ..	0	
No description ..	7	
2. <i>Vomiting</i> :—		
After food or no relation to food	16	
(Coffee-grounds vomit ..	1)	
3. <i>Fever</i> ..	16	
4. <i>Constipation</i> ..	10	
5. <i>Diarrhoea</i> :		
Mild ..	2	
Moderate ..	5	
Severe ..	0	
<i>Time of occurrence</i> :		
Night ..	0	
After meals ..	0	
No special time ..	7	
6. <i>Loss of appetite</i> ..	5	
7. <i>Acidity or acid eructation</i> ..	5	
8. <i>Menstrual disturbance</i> :		
Menorrhagia ..	1	
Amenorrhœa ..	4	
9. <i>Emaciation and loss of weight</i> ..	8	
10. <i>Cough</i> ..	4	
11. <i>Alternate diarrhoea and constipation</i> ..	3	
12. <i>Nausea</i> ..	1	
13. <i>Flatulence</i> ..	1	
14. <i>Discomfort after meals</i> ..	1	
15. <i>Bleeding per rectum</i> ..	1	
16. <i>Nervousness or irritability</i> ..	1	
17. <i>Headache</i> ..	1	
18. <i>Loss of energy and weakness</i> ..	2	
19. <i>Hæmoptysis</i> ..	2	
20. <i>Pain in chest</i> ..	1	
21. <i>Dysphagia</i> ..	1	
22. <i>Persistent sinus (leading later to fæcal fistula)</i> ..	1	

(7) *Loss of appetite*.—Not uncommon, found in 5 cases.

(8) *Acidity or acid eructation*.—Also found in 5 cases.

(9) *Menstrual disturbance*.—Amenorrhœa is common.

(10) *Cough (periodic)*.—Also noted in 4 cases.

(11) *Alternate diarrhoea and constipation*.—Found in 3 cases.

(12) *Flatulence*, (13) *nausea*, (14) *discomfort after meals*, (15) *loss of energy and weakness*, (16) *hæmoptysis*, (17) *headache*, (18) *hæmorrhage per rectum*, (19) *nervousness*, (20) *pain in chest*, (21) *fæcal fistula*, in one case, (22) *dysphagia* due to simultaneous enlargement of mediastinal lymph glands causing pressure on the œsophagus complete the list.

HISTORY

In my series, there has been history of fever, hæmoptysis, abdominal pain, dysentery and caries spine with cold abscesses (the only form of extra-pulmonary tuberculosis found).

SPECIAL SIGNS

(1) *Tenderness*.—This is the most frequent of all signs. It may be either localized or generalized. Localized tenderness in the right iliac region was noticed in 12 cases, and generalized tenderness in 9 cases. This is in conformity with our expectation as the commonest forms of disease are hyperplastic type in right iliac region or generalized tuberculous peritonitis. Occasionally, tenderness may be in other areas of the abdomen, which is due to either localized peritonitis or involvement of other parts of the bowel, e.g. hepatic flexure or transverse colon, or distension of small intestine.

(2) *Lump or mass*.—This is a very valuable and positive sign. It is most often found in the right iliac region as is expected from the greater frequency of the hypertrophic type. It is an elongated lump, movable except in advanced stage. Lumps are also felt in the epigastrium or near the umbilicus due to involvement of greater omentum, transverse colon or retroperitoneal or mesenteric lymph glands. These lumps are solid, feel firm or hard and do not alter in size during the course of examination. Sometimes there are localized swellings which are soft in feel and alter in size or even disappear or change their position during the course of examination. These are due to partial obstruction of coils of small intestine or stomach. Lumps in right iliac region were found in 12 cases.

(3) *Distension*.—It is fairly common and is due either to collection of fluid in the peritoneal cavity as in peritonitis of ascitic type or to gaseous distension of small intestine or stomach from obstruction by adhesive type or hypertrophic type.

(4) *Free fluid in the peritoneal cavity*.—It was found in seven cases, i.e. all the cases of

ascitic type of peritonitis. It is an important sign in tuberculous peritonitis.

(5) *Doughy feel of the abdomen.*—It is a very valuable sign in abdominal tuberculosis, and is found in early and less advanced cases. It is caused by thickening of the greater omentum and matting between the coils of small intestine. It was found in three cases of my series.

(6) *Visible peristalsis.*—Sometimes found although not very frequent. It indicates obstructive phenomenon of the gastro-intestinal tract from kink or adhesion in adhesive peritonitis or stenosis in intestinal tuberculosis. In my series there were three cases of visible peristalsis of the stomach, as noted by visible peristalsis in the epigastrium moving from left to right, and in two of these obstruction was caused by a hypertrophic mass in transverse colon and greater omentum invading the pyloric region of the stomach. All these cases manifested typical features of pyloric stenosis. Only one case showed visible peristalsis of small intestine.

(7) *Rigidity.*—It is sometimes found but is not common. In one case only it was found in the right iliac region and in four cases it was either generalized or in lower or upper abdomen. When found, it is of the mild or moderate degree and never very marked.

(8) *Palpable glands in the abdomen.*—They are found either primarily as in *tabes mesenterica* or in association with other forms of abdominal tuberculosis. As elsewhere they tend to be multiple and matted when big.

(9) *Absent peristaltic sounds (on auscultation).*—It is an uncommon feature in this disease, but was noted in two cases.

(10) *Liver and spleen.*—They were palpable in some cases, due probably to other causes.

(11) *Rectal examination.*—A mass felt in pelvis in one case which was continuous with that in right iliac fossa.

(12) *Vaginal examination.*—A mass felt in pelvis in two cases and in one of them a diagnosis of hydrosalpinx was made (subsequently disproved on the operation table).

(13) *Lungs.*—Evidence of pulmonary tuberculosis was detected clinically in one case only, and *x-ray* showed infiltration in three cases, thus showing the primary nature of the abdominal conditions as found in surgical wards.

(14) *Faecal fistula.*—It was found in one case and its tuberculous nature was proved by opening the abdomen when the ascending colon was found thickened and the terminal ileum showed some tubercles. The fistula was connected with ascending colon.

GENERAL SIGNS

(1) *Temperature.*—A rise of temperature was detected in the majority of cases, and in most of them it did not exceed 100°F.

(2) *Pulse.*—Often more than normal rate, majority between 80 and 120.

(3) *Anæmia.*—Commonly found.

- (4) *Blood pressure.*—Often low.
- (5) *Nourishment.*—Poor.
- (6) *Jaundice.*—Rare; detected in two cases.

TABLE IV

Signs

1. <i>Tenderness</i> :—		
(a) Localized :		
Right iliac region ..	12	} 25
Other areas of abdomen ..	4	
(b) Generalized .. 9		
2. Lump or mass :		
Right iliac region ..	12	} 18
Other areas of abdomen :		
Stationary in size ..	3	
Alteration in size ..	3	
3. Doughy feel ..	3	
4. Distension ..	11	
5. Rigidity :		
Right iliac region ..	1	
Generalized or lower or upper abdomen ..	4	
6. Visible peristalsis :		
In stomach ..	3	
Elsewhere (intestinal) ..	1	
7. Free fluid in peritoneal cavity (positive shifting dullness) ..		
(Fluid thrill) ..	2	
8. Absent peristaltic sounds ..	2	
9. Palpable glands in abdomen :		
Right iliac region ..	1	
Other areas of abdomen ..	4	
10. Liver palpable ..	4	
11. Spleen palpable ..	2	
12. Lungs :		
Clinical infiltration ..	1	
Bronchitis ..	7	
13. P. R. mass felt ..	1	
14. P. V. mass felt ..	2	
15. Anæmia (moderate and marked)	12	
16. Temperature :		
During admission—		
Above normal to 100°F. ..	11	
Above 100 to 102°F. ..	5	
Above 102°F. ..	2	
17. Pulse :		
During admission—		
74 to 80 ..	3	
80 to 100 ..	7	
100 to 120 ..	7	
120 upwards ..	5	
18. Tongue, dry and coated ..	6	
19. Nourishment poor ..	20	
20. B. P. low ..		
21. Jaundice ..	2	
22. Faecal fistula ..	1	

CONCLUSION

Patients from young to middle adult life with history of a few months, either having a tender elongated lump in the right iliac region with evening rise of temperature and occasional vomiting and tendency to constipation, or appearing with gradually increasing distension of abdomen with fluid and a doughy feel of the abdomen, should be looked upon as having abdominal tuberculosis. Some cases come as acute abdomen, whose true nature is discovered only after a laparotomy.