

ability," and familiar with institution requirements, and also empowered to employ experts, as they may be needed to give advice on all matters pertaining to the life and well-being of the institutions. Boards of managers with women representatives appointed for each institution by the governor. Advisory relations to exist between the supervising board and the managers. Stated conferences between the superintendents and the managers. Joint purchasing of supplies with such expert advice and laboratory tests as the supervising board may deem necessary. Under some such general scheme the state will maintain control over all expenditures, its interest in and direction of its charities will be attained with the smallest possible outlay. Individual civic responsibility to the state will be secured through volunteer workers. Public charities and correction will not be imperilled by partisan political interests. Efficiency, economy, continuity, and permanence of service will characterize the management of our state institutions.

THE PRE-OPERATIVE DIAGNOSIS OF TUBERCULAR MESENTERIC AND RETROPERITONEAL GLANDS.

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WITH the advent of greater perfection in the technic of the Roentgen ray examination and diagnosis of abdominal conditions there is still felt the need of greater refinement of diagnosis of the acute conditions, especially of the right lower quadrant.

The clinical investigation undertaken in this paper was stimulated by the recent occurrence in the author's practice of several cases strongly simulating appendicitis and distinctly of the operative type, but which on opening the abdomen, were found to be what I think we can properly term the acute fulminating type of retroperitoneal or mesenteric adenitis of tubercular origin.

The attempt is made in this paper through the analysis of a series of autopsy and clinical records to throw some additional light on the pre-operative diagnosis of this condition,—primary retroperitoneal and mesenteric tubercular adenitis.

The type of this disease, which is secondary to general or intestinal tuberculosis, is not considered in this paper, but only that type which has recently come to be recognized as a definite and separate clinical entity, but which so often simulates and is mistaken for the acute conditions occurring in the right lower quadrant of the abdomen.

This type of case occurs quite frequently in

both private and hospital practice, especially in children and young adults.

Clinical surgical experience shows that there are certain cases which present a definite picture of an acute right lower quadrant condition, most often simulating appendicitis, which on operation show a normal or slightly congested appendix and no other pathology than masses of retroperitoneal glands in various stages of enlargement and in which no other tubercular foci can be found anywhere in the body on most careful examination.

These isolated glands or groups of glands may occur anywhere in the mesentery, but are most commonly found in the ileo-cecal region.

Corner, who seems to have had considerable experience with this class of case, and to whose papers many references are made in the literature, thinks that there is a physiologic reason for this location in the comparative stasis of the products of digestion in a mildly alkaline medium at this site; a condition which favors the passage of tubercle bacilli through the intact mucous membrane of the bowel.

Corner also believes that tuberculous mesenteric glands are to be found in practically every child in which an abdominal operation is necessary. This great frequency and the fact that glandular (non-tubercular) enlargement is so common in other regions of the body in children coincident with any pathologic condition, makes the raising of the question of the tubercular nature of these glands in children a pointed one.

There are many reported instances in which the removal of an apparently normal or only slightly congested appendix was followed by the subsidence of all symptoms and even by the disappearance of glandular enlargements. And whether we grant that this mesenteric adenitis, in very young children, is of tubercular origin or whether it be a simple adenitis so common in all inflammatory or other conditions in young children, the facts still remain that this type of disease often does produce a chain of acute right lower abdominal symptoms of such a type as generally to demand surgical intervention. It seems arguable to the writer that as these glands are so commonly found in many conditions in young children, for which the abdomen is opened, and as these children ultimately go on to complete recovery from their surgical condition and do not suffer in the future from further enlargement of these glands, therefore we may believe that a mesenteric adenitis is a common condition in children, from which they recover spontaneously, also from which it is the exception rather than the rule to have symptoms; that these are probably more likely to be of inflammatory than tubercular origin and from which they may be expected to recover without further morbidity.

When we discuss this condition in adults, however, it seems reasonable to suppose that glands which have persisted since childhood or have developed recently are much more likely to

be tubercular in origin and that in them we may expect the clinical picture described in this paper.

Corner believes that milk and the bovine type of tubercle bacilli are the primary factors in the causation of this disease, and when the condition is in an advanced stage and there are many glands in the lymphatic chain Talbot has shown how the absorption of fat may be prevented by the blocking of the lymphatics by these glandular masses.

Three or four pertinent questions arise in the diagnosis and treatment of this class of case.

1. If the history, past and present, and the physical signs are carefully gone over, is there not a symptom-complex or certain more or less distinctive picture by which we can more accurately make the preoperative diagnosis?

2. How can this condition be differentiated from appendicitis?

3. What is the prognosis? With operation? Without operation?

A brief review of the essential facts to be noted in this type of infection is as follows:—

1. The disease is extremely common in infancy and childhood, but by no means confined to this period, being nearly as common in young adults. In fact, the highest percentage favors the years between 6 and 18. It is not uncommon in persons up to 40 years of age. One case in this series was 58 years old, but occurrence at such a late age is extremely rare.

2. Corner's attempt to divide the condition into an adult anatomical type which occurs in the region of the cecum and gives pain in the stage of caseation, usually diagnosed as appendicitis without palpable tumor, and a type peculiar to young children in which there are palpable glands usually in the free mesenteric edge of the small intestine, we believe should not be made, as numerous cases in this series and those reported by other writers show no difference in type assignable to age; both types being found in the very young and in the adult.

3. Two clinical types, however, are noticeable:

(a) Distinctly palpable masses of glands accompanied by none or only vague abdominal symptoms.

(b) Cases with alarming abdominal symptoms and signs developing suddenly when there are no palpable glands demonstrable.

It is a notable fact that unless the glands are sufficiently enlarged to form palpable masses there are probably no symptoms present which would suggest a tubercular infection, while when there are pronounced symptoms such as diarrhea, night sweats, temperature, etc., it is probable that there are other tubercular foci elsewhere in the body which are causing this train of symptoms and that they cannot be referable alone to the mesenteric involvement. On the other hand, primary mesenteric glandular tuberculosis may be the only underlying cause of a train of sudden acute right lower quadrant

symptoms demanding surgical relief. For this reason the diagnosis is often difficult or impossible.

Symptoms:—

(a) There may be none; even in the presence of palpable masses of gland.

(b) The condition may be discovered only at operation for some other condition; the glands being too small for palpation through the abdominal wall.

(c) Trivial symptoms such as fleeting and not severe right-sided or general abdominal pain with or without disturbance of digestion and bowel regularity, the general health being good or the patient being of the pale rather "sickly" type.

(d) More or less constant fairly well localized abdominal pain with generally a "soreness" referable to the region of the cecum; the most likely situation of the growth. Physical examination may or may not show the presence of resistance or an ill-defined glandular mass.

(e) Sudden (or gradual) onset of general, then localized abdominal pain confined to the right lower quadrant, rise in temperature up to 99, 100 or 101°, nausea and vomiting, constipation or diarrhea, and on physical examination, acute localized tenderness with spasm and resistance, a white count up to 12 or 15 thousand, and a very sick appearance. There may be distention, complete obstipation, severe vomiting and all the signs of obstruction. (This latter, however, is rarely present unless there is a real obstruction, which is due to extension of the tubercular process matting and binding intestines together.)

That the process is sometimes a fulminating one and that the glandular enlargement sometimes precedes a general tubercular peritonitis and may be cured by operation is shown in the following case of this series.

L. L. H., 9 years old, had lived in a country district, had had much out-of-doors' life, but had never been very robust. He was pale but considered healthy. He had had no previous illness. He was taken suddenly 48 hours before seen by the writer with sudden general abdominal pain, nausea and a few watery bowel movements followed by constipation. Castor oil, given by the local doctor, was vomited; the patient looked sick and had a slight fever. As no improvement took place in 48 hours he was transferred to the writer's care.

P. E. showed distended abdomen, general abdominal tenderness, no masses. Temp. 101°, W. C. 9000. A diagnosis of intestinal obstruction, probably due to intussusception, was made. At operation the lower ileum was found adherent to the side of the ascending colon near the cecum, and to a large ulcerated T.B. gland in the mesentery. Several smaller glands were found in the adjacent mesentery. Exploration of the rest of the abdomen failed to show any other pathology. The peritoneum was smooth and not injected. The convalescence progressed satisfactorily but slowly till the 11th day, when signs of further intestinal obstruction developed and the abdomen was again opened

and a few fresh adhesions freed, and to the great surprise of the operator and his assistants the whole peritoneum, both parietal and visceral, was found to be thickly studded with tubercles, several of which were excised and reported to be tuberculous. The convalescence from that time was uneventful. The patient has been seen four times since at intervals of a year apart, has gained in weight, there are no masses or fluid present. This case is of unusual interest in that the development of the tubercles took place so rapidly after the first operation. The patient has at present a hernia in scar, for which it is hoped he will seek operation later. The final condition of the abdomen can then be recorded.

It is evident, therefore, that we have in *tabes mesenterica* a condition which, like appendicitis, the lesion with which it is most often confused, has a variety of symptoms and signs, none of them distinctive in themselves and from the analysis of which we are seldom able to make an exact preoperative diagnosis.

If the patient is pale and "sickly," has had more or less localized right-sided abdominal pain and has a low fever and white count with palpable glands and is a child or young adult, the diagnosis is easy, the picture being clear. But in the absence of palpable glands and with an acute onset with high fever and white count the condition is naturally diagnosed as appendicitis.

With the idea of perhaps shedding some light on the question, especially of symptomatology and past history in these cases all the autopsy records of the Massachusetts General Hospital have been gone over and these cases analyzed from a pathological as well as from a clinical point of view.

In 65 cases in which one or more retroperitoneal or mesenteric obsolete or active tubercular glands were found at autopsy, the clinical record of each case was looked up, especially from the point of view of past history, previous health, and attacks of abdominal pain. And in so far as hospital records show or are of value in determining this point, none of these 65 cases had anything in their past history which could be interpreted as referable to the presence of tuberculous retro-peritoneal or mesenteric glands.

These cases of course do not include those cases operated on for this condition, but only cases in which a diagnosis was *not* made before death, and one or more glands were found incidental to other conditions at autopsy. This seems to indicate that very many people harbor obsolete or quiescent tubercular glands of even considerable size without ever having any symptoms referable to them.

This is well illustrated by the fact that in 4 cases the glands were adherent to the intestines, in 3 there was ulceration present, in 5 there were great numbers of glands and in 5 masses the size of the fist or larger were present, and yet no symptoms resulted.

These masses are variously described by the pathologist as follows: Obsolete tubercular mesenteric glands, large masses of obsolete tuber-

cular glands adherent to wall of the intestine, many retroperitoneal glands along the wall of the aorta, mass size of an egg caseous and calcareous, soft tubercular mesenteric glands, adherent tubercular nodes in the mesentery, retroperitoneal and in the omentum, soft and caseous glands, slightly ulcerated at base, large fibroid calcareous mass near the cecal valve; and yet no symptoms could be found in the past or present history referable to these masses, the patients dying of such conditions as broken compensation, pneumonia, typhoid, brain abscess, septicemia, glioma of brain, aortic regurgitation, pyonephrosis, appendicitis, empyema, etc.

It is fortunate that there is never much question as to the treatment in the acute cases. The condition is an acute adominal one and demands surgical relief.

Adhesions may be found with true ileus, ulcerated or necrotic glandular masses may demand removal or drainage, or large masses of glands producing pain may also demand removal. This latter circumstance is well illustrated by a case reported by Newbott in which appendicitis was diagnosed but only a few calcareous glands found in the mesentery of the lower ileum at operation. These were not disturbed, the appendix only being removed. After operation the patient complained of the same pain as before operation; six months later the abdomen was reopened and the glands removed, with prompt relief of symptoms.

The indication seems, therefore, to be for the removal, in the absence of other pathology, of plainly palpable glands which evidently cause symptoms.

In view of the fact that cases of tubercular mesenteric adenitis get well from the mere opening of the abdomen, as tubercular peritonitis cases recover after the same procedure, and that this is the testimony of many surgeons seeing numbers of these cases, it seems reasonable to state that when there is no indication for drainage and the masses do not readily lend themselves to enucleation, good results may be expected from non-interference and proper after-care.

The much mooted question of why cases of tubercular peritonitis so often recover after simple exploratory laparotomy, seems to find its answer in this type of case. We have learned the pathology by our exploratory operation. The patient is then put under the best hygienic conditions to combat his tubercular tendency, he has proper care, his symptom responds to treatment and he overcomes an infection which in many people lies dormant for years without causing symptoms at all. It is not the fact that the abdomen has been opened to fresh air or sunlight that effects a cure, but the fact that the patient from then on has proper care, based on an accurate diagnosis.

An analysis of 30 cases operated on at the Massachusetts General Hospital for some more or less acute abdominal condition, and in which

definite mesenteric or retroperitoneal glands were found at operation, show some points of value.

There were only 3 cases in which the glands were retroperitoneal, the mesentery about the cecum being the common situation.

It is interesting to note and pertinent to the purpose of this paper that in only 3 of these 30 cases was the diagnosis of *tabes mesenterica* made previous to operation.

Other preoperative diagnoses were: appendicitis 10 cases, ileus 3 cases, abdominal tumor 4 cases, pelvic 3 cases, while in the remaining 7 cases the record does not state what diagnosis was made, but as symptoms and physical examinations were described it is evident that the appendix was the organ suspected. In the 30 cases the tuberculous glands were found to be undoubtedly the cause of the symptoms complained of in 17, or a little over half of the cases; in 4 cases it was an open question as to whether they alone could have caused the symptoms, although it was probable, because of their enlarged condition, that they must have been a contributing factor; while in the remaining 9 cases they were small in size and were undoubtedly only secondary to other coincident and more pronounced lesions.

When we try to gather information which will aid in making a correct preoperative diagnosis we are not greatly helped, for only symptoms commonly complained of by those suffering from chronic or recurrent appendicitis are obtainable. For instance, 13 cases had previous similar attacks; of these 8 had general abdominal pain, while 13 (or all the cases) had localized pain either in the previous or present attack.

Of course the physical sign which would be of most value in making a differential diagnosis would be the presence of palpable masses. In 12 cases such masses were demonstrable before operation and in 3 others were discovered when the abdominal wall was relaxed under ether before operation. In 12 cases the history definitely states that no masses were to be palpated. It is here of interest to note that in spite of the fact that masses were palpable in these 12 cases, yet the diagnosis of *tabes mesenterica* was made in only 3. The masses generally being diagnosed as, abdominal tumor in 4 cases, appendix abscess, pus tubes and in one case floating kidney. This fact certainly shows that unless distinct chains of glands are to be felt, the history is not distinctive enough to suggest a condition of *tabes* in preference to some more common condition.

The rapidity with which such a process may develop is illustrated by a case in which an appendectomy was done in 1910 and no glands were noticed, although the abdomen was thoroughly explored in routine. In 1913 the case was operated for acute intestinal obstruction and a mass of matted tubercular glands found binding the intestines together. The case recovered. The recurrence of other extra-abdom-

inal tubercular glands coincident with the mesenteric glands seems to be rare. In two cases of this series, glands were present in the neck and groins.

In no case did the white blood count exceed 15,000 except in one in which there was a coincident appendicitis and pelvic abscess. We can, therefore, expect little aid in diagnosis from the blood count.

Operative methods employed have been as follows: Exploratory laparotomy only, recovery one case; 7 cases were curetted and drained; in four cases the masses were too extensive for any operative removal. In two cases the glands were shelled out. The remaining glands were too small or inaccessible or considered too far removed as a cause of symptoms to warrant attempts at removal.

The mortality in this series was 2 cases, or 15%, both cases dying from postoperative pneumonia and not as a result of extension of the process or general miliary tuberculosis.

Two cases were discharged from the hospital with a sinus, but others which were opened and drained, curetted or swabbed out with iodine, completely healed and now show no sinus. In these 30 cases, five have been complete recoveries. In four there is some mass still present, but the patients have no symptoms. Two cases have had similar attacks since operation but consider themselves well. The remaining cases have failed to report up to the present time.

SUMMARY AND CONCLUSIONS.

1. *Tabes mesenterica* is often a primary disease with sometimes a fairly distinct clinical history and signs. It most often simulates acute appendicitis, and when in this stage should demand surgical intervention.

2. In the absence of palpable glands, however, it is impossible to make a correct preoperative diagnosis in many cases, there being no symptom-complex distinctive enough of this condition.

3. A great many people harbor tubercular mesenteric glands in various stages of activity without symptoms.

4. The disease has two clinical types: (a) a slowly progressing one, generally with palpable glands; (b) an acute fulminating type, most often simulating and impossible generally to differentiate from appendicitis.

5. The prognosis in the subacute stage is good without operation. In the acute stage exploratory laparotomy should be done, but the glands not removed unless there are definite indications either from adhesions, ulceration or size of mass producing pain or mechanical obstruction.

6. In children and young adults with a history of right-sided abdominal pain, with or without palpable masses, *tabes mesenterica* should always be considered as a possibility.

I wish here to express my thanks to the surgical staff of the Massachusetts General Hospital

for permission to analyze the records of cases operated on in looking up this subject.

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A LOCALIZED, SUBACUTE FORM OF BRONCHO-PNEUMONIA.

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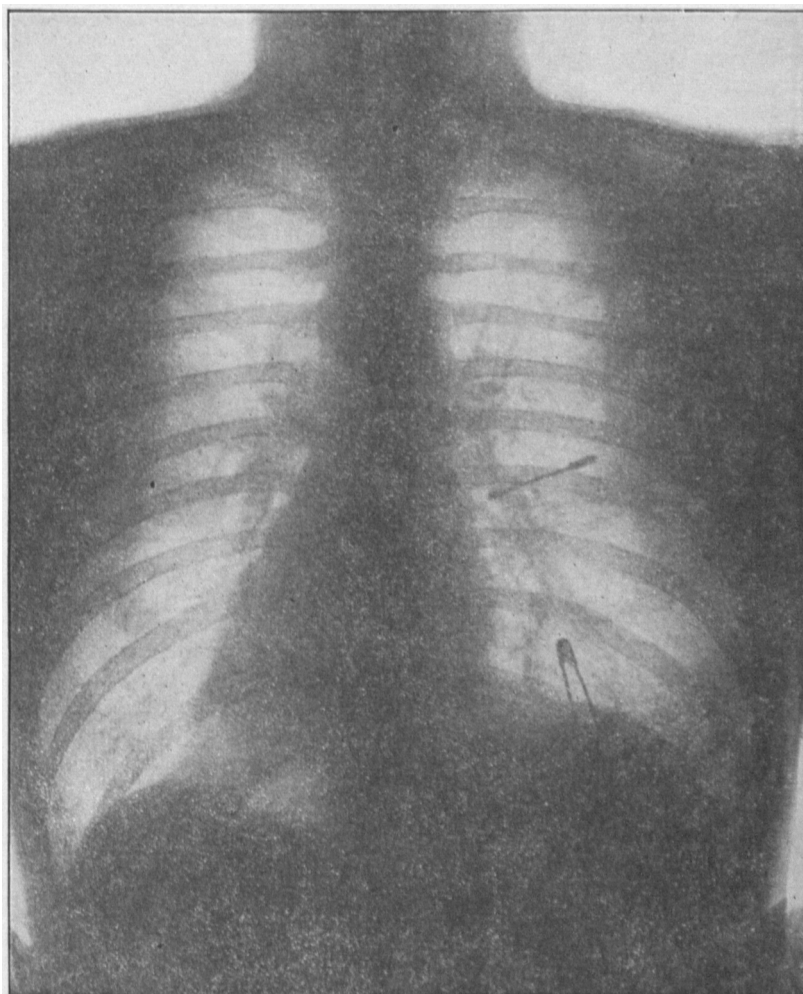
W. J. P., a male nurse, age 46, was admitted to the City Hospital on August 4, 1913. He had always been well. About ten or fifteen days before admission he began to cough; this symptom being at first mild, and later only moderately severe. The expectoration was abundant and was stated to have shown slight streaking with blood before admission. He had no pain and was just about sick

enough to stay in bed. He stated that, before entering the hospital, his temperature had been as high as 102.2°, but the highest record thereafter was 100°. It ran a low, irregular course and did not remain normal till after the thirteenth day in the hospital, its total duration being three or four weeks. There was nothing like a crisis.

In the lower half of the right back there were numerous, coarse, moist râles. At first there was no dulness and no change in the voice or breathing sounds. Later the râles became finer, and there was more or less dulness and diminution of sounds. Consolidation was never recognizable by physical examination.

The leucocytes were 24,200 on admission, later counts being 19,800, 10,000, 9,600, 11,500 and 15,200, the two latter being obtained after convalescence appeared to be well under way. The x-ray showed a slight, but definite shadow in the lower, outer portion of the right lung, occupying in the plate merely the corner of the lung outside the swell of the diaphragm. There was also some increase in the intensity of the markings, usually considered to be due to the blood vessels or bronchi.

The sputum was examined for influenza bacilli and several times for tubercle bacilli, always with negative results.



W. P. Age 46.

Broncho-pneumonia at right base. The normal markings in the lung are somewhat exaggerated. There is a distinct shadow just outside the swell of the diaphragm.