side. Examination of the pus showed leucocytes and micrococci but no tubercle bacilli. I do not remember ever having seen them in the pus in the middle ear except once. This is a typical case except that it is rather unusual not to find any tuberculous lesions in the glands examined.

## CASE 9443

An American schoolboy of thirteen entered May 23, 1923, complaining of pain in the right abdomen, intermittent for three days, constant for two hours.

F. H. His father had been sick with a cough all his life and had to stop work from time to time for three weeks or so.

P. H. He had had mumps, pertussis, and pleurisy, for which he was strapped, last winter. For the past winter he had had occasional fleeting shooting pain in the epigastrium on running.

P. I. May 20, after feeling "sick at his stomach" for an hour, he had sharp, colicky, crampy pain in the epigastrium, which lasted two hours. The nausea persisted throughout the night without vomiting or defecation. The next morning he felt well and went to see a doctor. He remained without symptoms until May 22, when about noon the nausea returned. He had a watery movement. After three hours of nausea he came to Boston to see a doctor, and again felt well until the following morning, when the nausea returned and he vomited material possibly streaked with blood, relieving the nausea. Since morning his throat had been sore. He ate dinner and had a loose bowel movement. Late in the afternoon he had an attack of sudden intermittent cramp-like pain in the epigastrium, shifting at the end of half an hour into the right lower quadrant. The pain persisted until just before he arrived at the hospital at half past eight.

P. E. A well-built, well-nourished, sick-looking boy with flushed skin. Throat and tonsils injected. Cervical glands enlarged. *Heart, lungs, abdomen, genitals, extremities, pupils,* and *reflexes* normal. *Rectal examination.* Tenderness high up on both sides equally.

Before operation *T.* 100.2°, *P., R.,* and *urine* not recorded, *leucocytes* 30,000.

Operation was done the day after admission. The patient made a good recovery from anesthesia and seemed to feel better the following morning. May 26, however, he was not so well. The temperature and pulse had risen to 103.4° and 140 respectively, the respirations to 40. A medical consultant excluded the respiratory tract and the heart. The abdomen was tense, the wound apparently not infected. Rectal examination showed tenderness on both sides as before. A stomach wash showed dilatation. That evening the temperature was 105.4°, the pulse not countable. He was given a subpectoral, sips of fluid and morphia. That evening he died.

### Discussion

BY DR. EDWARD L. YOUNG, JR.

If every symptom that we meet in our work could at once call to mind all the possible causes for such a symptom the diagnosis would often be very much easier. In this particular case pain in the right abdomen of course can be any one of a great many things. In a boy of thirteen, where it is of acute onset, as this is, we of course think of appendicitis first. When we find in the family history that he has a father who may be afflicted with chronic phthisis we think that the boy is the age when tabes mesenterica is frequently seen. When we find from his past history that he had what was called a pleurisy that diagnosis certainly ought to intrude itself, with further thought of tuberculosis.

The story of the present illness covers three days. I do not think we ought to put much weight on the occasional shooting pains in the epigastrium which had appeared for the past year on running. Almost always the appendix pain which comes on following exertion and is merely a mild appendicular colic is in the right lower quadrant only. The symptoms as described might well be due to an acute appendicitis. The vomiting of material possibly streaked with blood and the sore throat can be and often are the result of vomiting. The thing that is most conclusive is the fact that this severe pain started in the epigastrium and then shifted to the right lower quadrant. That is always extremely suggestive of acute appendicitis.

The examination does not help us very much except that the enlarged cervical glands again suggest tuberculosis. The temperature and leucocytosis are consistent with acute appendicitis In spite of the lack of record I am sure that the urine was done and was negative, as it is a routine to do it. Likewise of course the abdominal examination was done, and it would of course help us to know what it was, but a faulty record leaves us to do the best we can without it.

It seems to me on the story we have it is acute appendicitis and should be operated on at once. Of course something in the examination which has not been put down may have justified delay. I do not think we are justified in saying anything other than acute appendicitis. Whether

or not it is perforated I think we are unable to say because of the lack of record of the abdominal examination, but at this length of time I should think it well may be perforated. Nevertheless with a temperature of only 100.2° abscess formation if present should be well localized.

Is it possible that any condition above the diaphragm is responsible for this picture? It is true that a pneumonia can simulate an abdominal condition, but it is very rare that it should give such a definite picture as this, and it seems to me here we can rule it out even without knowing what the abdomen showed. I think we have got to say acute appendicitis on the chance, and operation was the only treatment.

DR. YOUNG'S PRE-OPERATIVE DIAGNOSIS

Acute appendicitis.

PRE-OPERATIVE DIAGNOSIS

Acute appendicitis with abscess.

OPERATION

Local novocain; gas-oxygen. Lower rectus muscle-splitting incision. The peritoneum was opened with the escape of a few drops of pale fluid. The appendix was found in the pelvis, very long, quite injected, but not thickened. No inflammatory membrane or lesion was found. The appendix was delivered in the wound and removed, the stump inverted. Further exploration of the pelvis and lower abdomen revealed no adhesions or pathology. The upper abdominal region was not explored.

PATHOLOGICAL REPORT

An appendix 11.5 cm. long. Its surface is covered with a vascular membrane. Its walls are not thickened. The mucosa is pale.

Chronic appendicitis.

H. F. HARTWELL.

FURTHER DISCUSSION

The surgeon who saw him apparently argued much as we have, but judging from what was found delay in operation may be explained on the lack of spasm and tenderness in the abdomen. Nothing was found to account for the temperature and leucocytosis. That throws us back to the question of pathology above the diaphragm. A medical consultant apparently believed there was nothing there. This opinion would seem to be borne out by the length of time after the onset of symptoms.

At his age peptic ulcer the perforation of which might have caused this picture would likewise seem to be unusual inasmuch as the presence of symptoms in the right lower quadrant would mean the presence of intestinal contents washing down to that point, which was not apparently the case. However, I do not think we can entirely rule that out. I assume that Meckel's diverticulum was absent, as that is one of the things necessary to look for at this age. The mesenteric glands almost certainly would have been recognized, so I think those also must be out of the picture.

Is it possible that the original condition was in fact explained by the appendix, and that the trauma of operation is now resulting in a thymus death? The picture as given here is not what we see in that condition. This seems like an acute spreading infection. It seems to me we have got to lay it to the original condition, because a peritonitis caused by faulty technique at operation would almost certainly not have gone so rapidly, and a peritonitis is apparently present. It seems to me that the only way of making a diagnosis is to ask Dr. Richardson what really was found. My diagnoses now are pure guesswork. I think I should put perforated ulcer first, and peritonitis of unknown origin next.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Subacute appendicitis.

DR. EDWARD L. YOUNG'S DIAGNOSIS

Peritonitis from perforated peptic ulcer? or of unknown origin?

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesion*

(Chronic appendicitis.)

2. *Secondary or terminal lesions*

General fibrinopurulent peritonitis.
Status lymphaticus.
Appendectomy.
Edema of the lungs.
Soft spleen.

3. *Historical landmarks*

Chronic tuberculosis of the mesenteric glands.
Slight chronic peritonitis.

DR. RICHARDSON: Much brownish-red, opaque fluid material flowed from the mouth.

The peritoneal cavity contained a moderate amount of purulent fluid material. The peritoneum generally was coated with a thin layer of fibrinopurulent exudate. This weakly bound the coils of the intestines together. In scattered places there were small pockets of pus. Two of

these were in the region of the pelvis, one on each side. The appendix was wanting. The stump was securely ligatured and water tight.

The small intestine was slightly distended and its walls intact. The mucosa was negative, except for considerable hyperplasia of the solitary and agminated follicles. The large intestine was negative except for hyperplasia of its follicles.

The mesenteric glands were enlarged up to two cm., and at least half a dozen of them showed much fibrocalcareous degeneration. In the region of these glands there were a few old adhesions which extended to the small intestine. These apparently produced no definite constriction. The retroperitoneal glands showed some enlargement, but otherwise were negative.

The thymus gland weighed 30 grams,—considerably enlarged. It measured over all 9 cm. by 4 cm. by 1½ cm. The tissue generally was pinkish gray-red and meaty.

Anatomically this case is one of general fibrinopurulent peritonitis associated with appendectomy. In the background is the condition known as status lymphaticus. There was chronic tuberculosis of several of the mesenteric glands with slight chronic peritonitis.

DR. YOUNG: No wonder we did not guess one condition accurately, because he had all of the conditions which we have discussed. His death was due to peritonitis plus status lymphaticus, and he did have the infected mesenteric glands which were discussed, although they presumably had nothing to do with the present picture. I think the confusion is justifiable in that the status lymphaticus death is not like this, and the average peritonitis death not so quick; but the combination apparently was very vicious.

# Current Literature Department

## ABSTRACTORS

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### SURGICAL TREATMENT OF UNILATERAL PULMONARY TUBERCULOSIS

ARCHIBALD, EDWARD (*Annals of Surgery*, June, 1923), discusses the surgical treatment of this condition briefly and reports the results from 15 personally operated cases with a mortality of three cases. He appends a note saying that he has since publication of this article operated on sixteen other patients with but one death. He believes that the surgical treatment of this condition is promising in well-selected cases. This article reviews a purely personal experience. [E. H. R.]

### CANCER OF THE RECTUM AND SIGMOID IN CHILDHOOD AND ADOLESCENCE

PHIFER, C. H. (*Annals of Surgery*, June, 1923), finds that these conditions are, contrary to general knowledge, rather common in the very young. He reports the finding of 49 cases of cancer of the rectum or sigmoid in children under 20 years old; one case at one year, no cases from one to five years, one case from six to ten years, twenty-two cases from eleven to fifteen years, and twenty-five cases from sixteen to twenty years. In children there is a marked predilection for the sigmoid. One is struck by the rapidity of the development of the disease in the young. The symptoms are generally obscure and diagnosis is made before operation rarely. Possibly this is so because in the young the idea of cancer is excluded. Metastases are rare. The treatment is surgical if discovered early enough. The mortality is over 50%. [E. H. R.]

### THE AFTER-EFFECTS OF PROLONGED FASTING ON THE BASAL METABOLIC RATE

KUNDE, M. M. (*Jour. Metabolic Research*, vol. 3, p. 399, March, 1923), devised a muzzle and method by which gas exchange of dogs can be determined. . . . Studied three dogs and two humans. . . . Found daily variations in the basal metabolic rate. . . . Pulse rate not always parallel to basal metabolic rate, and therefore not a reliable index. . . . During initial days of fasting the basal metabolic rate in man may be much higher than normal. A fast of 41 days in dogs and 15 days in man caused no appreciable lowering of the rate during the fast. . . . Dogs fasted until body weight reduced 40 per cent., then not only regained the loss, but gained further weight on the same diet which before fasting had merely maintained their weight constant, or they maintained normal weight on a lower calory intake; this indicates a more economical use of the food. . . . After prolonged fasting there is a temporary increase in the basal metabolic rate. . . . During the first four days of menstruation the rate is slightly subnormal. . . . There seem to be seasonal variations in the basal metabolic rate of man. [H. G.]

### SACCHARIN

CARLSON, ELDRIDGE, MARTIN, AND FORAN (*Jour. Metabolic Research*, vol. 3, p. 451, March, 1923), say if saccharine is permitted generally it will be ingested by old and young, for generations. There is no evidence that prolonged use would be harmless. It would seem wise to prohibit saccharin in foods and drinks, except as ordered in diabetes. Even then it should be avoided in the presence of duodenal ulcer or in certain neuroses with gastric complications. [H. G.]

### DIABETES INSIPIDUS

ALLEN AND SHERRILL (*Jour. Metabolic Research*, vol. 3, p. 479, March, 1923) state that pituitrin, s.c. or by nasal spray, reduces thirst and polyuria. . . . Restriction of protein and salt were valuable in the treatment of their four cases; both are not difficult to apply with proper culinary art, and the effort is well worth while. . . . Diet is only palliative, but is the most important practical treatment for the great majority of cases. [H. G.]