use in cases of nasal deformity in which the cartilaginous septum has been destroyed. If the cartilage were entirely absorbed, at least no harm would result from the procedure.

At the outset there was this difficulty to be considered: In the presence of active suppuration, cartilage readily undergoes necrosis and dissolution, and consequently, if sepsis occurs in the locality to which it is transferred, with the formation of an abscess, rapid destruction of the cartilage takes place. A familiar instance of this destructibility is present in abscess of the septum. Unless the abscess is freely opened at an early stage, there is more or less necrosis of the quadrangular cartilage and a corresponding degree of external deformity. If the abscess is not drained, this cartilage may be entirely destroyed, with a resulting marked depression of the anterior part of the bridge of the nose. It is to be noted, however, that most of the damage is done when the pus is confined, and that free drainage of the abscess will often save the greater part of the cartilage even after the pus has dissected up the mucoperichondrium from both sides. It would, therefore, appear essential, considering the liability of a nasal wound to infection after operation, that drainage of the cavity containing the transplanted cartilage be provided for.

In the two cases which I wish to report this evening the deformity was the result of undrained abscess of the septum with almost complete destruction of the quadrangular cartilage. The problem was the replacement of the lost cartilage by cartilage freshly removed by submucous resection from the septum of another individual. An examination of the anatomy of the septum will show, approximately, the size and shape of the piece to be inserted. That part of the quadrangular cartilage which lies posterior to a line (*aa*) drawn from the tip of the nasal bones to the anterior end of the vomer is not needed in the support of the bridge. The part anterior to this line gives roughly the shape of the piece required for the work. The technic of the operation employed in my cases is as follows:

A vertical incision is made in one nostril on the septum just posterior to the muco-cutaneous junction, as in the usual submucous operation. Through this incision the two layers of mucous membrane which form the anterior part of the septum are separated by dissection. This dissection is much more difficult than in the submucous operation where the cartilaginous septum is present. A sharp tenotome used with great care to avoid perforation is necessary. The two layers

of membranous septum having been thus separated in the region in front of the incision as well as behind, the chamber for the reception of the cartilage is ready. A piece of cartilage which has been freshly removed from the septum of another case, washed and placed in sterile normal salt solution, is now trimmed with scissors into the required shape and placed in the chamber. The wound is then closed at its upper part by one or two catgut sutures, and both nostrils are lightly packed. In both of the cases in which this operation was done there was slight reaction, and the wound healed readily, as after the submucous operation.

The first patient, a boy of seven years, was operated upon two years ago. The improvement in his profile is noticeable, as shown in the photographs taken just before operation and two years after. This alteration in the contour exists in spite of the fact that the cartilage has, in the interval since operation, been apparently absorbed, since it cannot be felt.

The second case, a girl of eight, was operated upon two months ago and is here this evening. In her case the cartilage has not yet been absorbed and can be distinctly felt on pressing with the finger over the anterior part of the bridge of the nose. These two cases appear to demonstrate that cartilage may be transplanted in cases of destruction of the cartilaginous septum. Although it does not grow in the new locality, and becomes eventually absorbed, it has at least in children the value of preventing an increase in the deformity which, if left untreated, becomes more marked with age.

Clinical Department.

CASE OF MESENTERIC THROMBOSIS; RESECTION OF INTESTINE; END-TO-END ANASTOMOSIS. RECOVERY.*

BY E. A. CODMAN, M.D., BOSTON,

Assistant Visiting Surgeon, Massachusetts General Hospital.

Mr. H. S., age forty-five, married, white. Fireman for boiler. Born in Canada; lived in United States twenty-four years. Entered the accident room at the Massachusetts General Hospital at 2 P.M., Oct. 21, 1909. Recommended by Dr. Fuller, of Walpole.

He had been well, with the exception of children's diseases, and had had no previous pain in chest or abdomen. Micturition normal and no hernia. Moderate use of alcohol and tobacco.

The present trouble began gradually about three weeks ago with dull abdominal pain. Since then has had dull severe non-radiating pain in upper left abdomen, often with acute exacerbations of about one hour, which were severe enough to double him up. This pain has been made worse by exercise and often by eating. Gave up work four days after onset. In bed for past two weeks. Some headache. Slight fever. No chills, cough or diarrhea. Bowels moved every day until last three days. Stools not bloody. No loss of weight before present illness, but considerable since. Condition not greatly changed during past two weeks.

* Read at a clinical meeting of the Medical Board, Massachusetts General Hospital, Jan. 14, 1910.

Physical examination. — A spare, over-worked-looking individual; muscles flabby; face sallow; looks sick; pale, but mucous membranes of good color. Pupils small, slightly irregular, react sluggishly. Teeth poor; tongue bright red with slight white coat.

Heart normal in size and position; action regular, rather rapid. Soft blowing systolic murmur, loudest at apex; not transmitted. Pulse regular; brachials thickened and tortuous.

Lungs, relative dullness on left from inferior angle of scapula to base, with diminished to almost absent breathing.

Abdomen full, held somewhat rigidly; tympanitic throughout, no masses; some tenderness (not marked) just to left of navel. Knee jerks lively; no edema. Temperature, 99.2. Pulse, 108. Respiration, 24. Hemaglobin, 90%. Whites, 35,000. Urine normal, except for slightest possible trace of albumen and a large number of casts, fatty, hyaline and epithelial no blood or pus. Stool, no blood, pus or parasites. Blood culture from arm showed no growth.

He remained in the medical wards for two days, and the diagnoses of subacute pancreatitis, perforated ulcer and perinephric abscess were considered. On the second day the white count dropped to 22,000 and the temperature varied between 99 and 100. During the night of Oct. 21 and the day of Oct. 22 patient had three attacks of pain lasting five to ten minutes, localized in left upper quadrant near the navel. Pain not severe and relieved by hot-water bags. Persistent, moderate, general rigidity of abdominal wall. The left chest was tapped three times to rule out pus. All taps negative.

On the 22d he was seen by Dr. Harrington, who suspected a septic condition in the left chest and advised more tapping.

On the morning of Oct. 23 patient was given an enema. About three quarters of an hour later he had a sudden severe sharp pain in upper left quadrant near navel. This pain was constant, with violent paroxysms coming every ten to fifteen minutes, causing him to double up and writhe about. Stupes, hot-water bags, rectal tubes and one-third morphia gave no relief. Patient bathed in cold sweat. Abdomen was no more rigid than before. When this pain had persisted for about two hours patient was seen by me. About an hour before I saw him, Dr. Harrington was again consulted and advised exploratory operation.

I found the patient in agony, intensely pale, covered with profuse cold perspiration, with a rapid, thready pulse, and the general appearance one associates with severe shock. The abdomen had the rigidity characteristic of a peritonitis, and the whole picture suggested the diagnosis of perforation of some viscus into the general peritoneal cavity.

I thought that the previous pain during the three weeks might have been due to a subacute perforation at the cardiac end of the stomach, and the recent severe pain to the localized abscess breaking into the general cavity. I also considered torsion of some of the viscera, for the colicky character of the pain suggested intussusception or volvulus. However, since admission there had been several liquid movements. The high white count made perforation more probable.

Under ether, an indistinct mass could be felt to the left of the navel. A six-inch incision was made at this point, and on opening the abdomen a considerable amount of bloody fluid was found present. Directly beneath the incision were two coils of small intestine, dark red in color, and evidently in a condition of hemorrhagic gangrene. The rest of the intestine was searched for other areas of infarction, but none were found. The line of demarcation in the

hemorrhagic area was not perfectly distinct, so that it was necessary to take off about a foot of bowel of doubtful viability at each extremity of the affected gut. Considerable difficulty was experienced in tying off the mesentery, which was edematous and friable, about an inch in diameter and of a doughy consistency. A V-shaped section, with the apex below the large loops of blood vessels, was removed. As the affected gut was quite high in the jejunum it seemed to me better to do an immediate end-to-end anastomosis rather than to resect the gut and leave the open ends in the wound. An end-to-end union was accomplished with the aid of a Harrington ring. After the suture was made I broke up the segmented ring by manipulation because it apparently blocked the intestine too much. Dr. Harrington does not advise this procedure as it would certainly make the possibility of hemorrhage greater. It is better to leave the ring *in situ* until healing of the wound, and subsidence of the inflammation allows the peristalsis to break up the ring.

In spite of the severe shock, the patient pulled through the operation and for several days was in an extremely critical condition, with bad pulse, bloody diarrhea and vomiting blackish fluid. A typical acute gastro-mesenteric obstruction developed, which was relieved by lavage and change of position. The wound healed well, although for several weeks the welt of thickened mesentery beneath it, together with the inflammation about the site of the anastomosis, made a definite tumor palpable through the abdominal wall.

The presence of a leucocytosis was a marked feature before the operation. It had varied from twenty-two to thirty-five thousand and did not begin to diminish until ten days after the operation, when it fell during the next two weeks to nine thousand. In the meantime there was no considerable temperature, 99.8 being the highest. There were no chills or other evidence of sepsis.

The patient left the hospital on Nov. 24 weighing 124 lb. He has gained steadily since leaving and now weighs 140 lb. and feels able to go to work. He seems to me well in every respect, except that he is still pale and sallow looking, and the feeling of the abdomen suggests the presence of some ascites. During his whole convalescence there was apparently some free fluid in the abdomen, due, I suppose, to obstruction to the lymphatic circulation by the swollen mesentery.

The portion of the intestine removed showed that the thrombosis was in the veins. No microscopic examination was made. When hardened in formalin the excised portion was two feet in length, but when fresh was about twice as long. At the time of the operation about two feet were dark red.

This is the third case of mesenteric thrombosis which has recovered at this hospital. The other two were operated on by Dr. J. W. Elliot. A careful search of the literature in 1904 by Dr. Quimby showed only three other successful cases. A review of the articles in the *Index Medicus* since Jan. 1, 1904, shows at least two more.

The best article to be found in the literature of this subject is by Porter, Jackson and Quimby. It is founded on analyses of all the cases reported before their paper, 214 in all, 50 of which were operated on. They conclude that though the mortality of operation is very great, it offers much more life than expectant treatment. It is possible, however, that recovery may take place spontaneously by the establishment of a collateral

circulation. This is more likely if the acute condition is primarily due to a chronic disease of the vessels, in which case a partial collateral circulation may already have been established.

Apparently it makes little difference in prognosis whether the thrombosis is arterial or venous.

Diagnosis is almost impossible. According to Gerhardt, who is quoted in the above-mentioned paper, the diagnosis must rest on the following seven factors:

1. There must be present a source of the embolus.
2. There are present copious intestinal hemorrhages, unexplainable by disease of the gut wall or by hindrance to the portal circulation.
3. There is quick and marked fall of body temperature.
4. Colicky abdominal pains, which may be very severe.
5. Later distention of the abdomen and free fluid occur.
6. Emboli of other parts may have been present before or may occur simultaneously with closure of the mesenteric vessels.
7. There occurs sometimes a large, palpable blood tumor between the layers of the mesentery.

This is the third case which I have operated on. I have not made the diagnosis in any of them, nor do I expect to in the next.

The most recent mortality statistics are given by Haagn in an excellent article in the *Deutsche Zeitschrift für Chirurgie* for Feb. 6:

Arterial thrombosis, 125 cases, of which 26 were operated on, with 2 recoveries.

Venous thrombosis, 89 cases, of which 31 were operated on, with 6 recoveries.

The case herewith reported makes the ninth successful case, and of the 9 this hospital has the credit of 3.

Since the article by Jackson, Porter and Quimby there have been 6 fatal cases at this hospital, and I have had 1 in private practice which was never reported.

TUBERCULAR PERITONITIS WITH SYMPTOMS SIMULATING THE "ACUTE ABDOMEN."

BY W. P. COUES, M.D., BOSTON.

THAT the onset of tubercular peritonitis may at times be sudden and stormy is now a well-recognized fact. At the same time the following case presents such unusual symptoms that it seems of interest to report.

Clarence C., twenty, single, was seen during my service as accident ward surgeon, Massachusetts General Hospital, Nov. 17, 1905. The history was as follows: Occupation, waiter. Family history, not obtained. He had always been well, except for grippe last winter and urethritis six weeks ago. The patient said a doctor passed sounds for stricture (?) a few days before entrance. Four weeks ago he began to have pain in the epigastrium, but kept on working, though he felt pain below the umbilicus after eating. The bowels were not constipated and there was no vomiting.

He took to his bed Sunday night. The bowels moved Sunday and Monday three or four times. There was general abdominal pain, very severe for a time; it then lessened. There was no chill.

Examination showed a fairly well-developed and nourished man. The face was cyanotic and haggard, the tongue coated; the temperature, 101.8; pulse, 120, of poor quality. The examination of heart and lungs showed nothing abnormal. The extremities were cold. The man looked nearly *in extremis*. The abdomen was generally distended, the liver pushed up; there was tympanitic resonance on the right, duller to left side, with slight shifting dullness to left. The whole abdomen was very resistant, but not especially tender. There was no cake, and no masses were made out. Rectal examination showed marked tenderness on the right side. White count, 15,000.

No positive diagnosis was made, but the case seemed to be one of the "acute abdomen" class, either a typhoid perforation, appendix with diffuse peritonitis, or perforated gastric or duodenal ulcer.

I am indebted to the courtesy of Dr. W. A. Brooks, Jr., the operating surgeon, for permission to report this case and for the operative record. Operation showed coils of intestine everywhere adherent, the peritoneum studded with tubercles and free fluid in the abdominal cavity.

The man did well considering his desperate condition, convalesced slowly and was discharged relieved to go to his home in Nova Scotia.

Medical Progress.

PROGRESS IN HYGIENE.

BY WM. C. HANSON, M.D.,

AND

H. LINENTHAL, M.D., BOSTON.

SCHOOL HYGIENE.¹

IN England, where school hygiene is not a distinct specialty, but is an integral part of the system of public health administration, the school physicians have been invited to enjoy the full privileges of the fellowship of the Society of Medical Officers of Health. In order to promote the public health through the school, education authorities were advised to "use to the utmost extent the existing machinery of medical and sanitary administration," and the advice has been generally followed.

ROOM DISINFECTION.

Rickards² collected statistical information regarding disinfection as carried on in twenty-nine of the larger cities in the United States, and found that the striking feature was the diversity of methods, each city proceeding on a "go-as-you-please" policy. The writer, in reviewing the subject, stated that in many cases it was impossible to conceive that disease organisms were killed by disinfection as often practiced, and concluded, with Chapin, for this reason, that immunity from recurrent cases came because infection was not often conveyed that way, but came from direct contact.

Richards,³ in an article on the cleansing of schoolrooms, referring to two of the commonest and most serious diseases in schools, measles and