

ities with the typical lateral and rotatory components can result from the above-mentioned conditions. Breuss and Kolisko¹ publish in their book on the pathology of the pelvis an anatomical specimen, in which the asymmetry of a fifth lumbar vertebra with two arches and two transverse processes produced a spinal curvature, a specimen almost exactly corresponding to our case S.

At this point I wish to warn against comparing spinal curvatures seen in museum specimens and those seen by the x-ray. For anatomical specimens are not subject to muscular action and show the curves only as far as they are due to structural changes; they have furthermore gone through an artificial drying process. On the other hand, the x-ray shows us curvatures as they exist in living persons, due to structural changes as well as to muscular conditions. Although the above question cannot be definitely settled by my three cases, I believe that in these cases the malformation of the lumbo-sacral region is the exclusive and sufficient cause of the curves, and that these three cases represent true congenital deformities.

Few words may be allowed from a developmental point of view. In the development of the species man out from lower species "the ilium travels upward on the spine" (Dwight), a loss of vertebrae takes place gradually. From this standpoint human individuals which have six or five and one-half lumbar vertebrae would represent a lower type of human beings. According to this theory our patients would belong to this class and their deformities are of atavistic character.

The chief places of the spine where this loss or transformation of vertebrae takes place are, according to Rosenberg, the lower lumbar and the lower dorsal region. These places are also known as the primary places for juvenile spine deformities. Further examinations would have to show whether a connection exists between both these parts.

In conclusion I want to mention, in order to prevent any misunderstanding, that I do not claim that the above-mentioned congenital conditions, shown in the x-rays, represent the *exclusive* cause of all "lateral curvatures," not even of the primary lumbar curve. On the other hand, it does not seem to me that these conditions represent curiosities; but the fact that I found inside of one week these three cases seems to me very suggestive, that this cause of lateral curvature is not very uncommon.

Many other interesting points, for instance, the possible treatment, will be made the subject of an extensive report, following this preliminary one.

My best thanks are due to Drs. Goldthwait and Osgood for permission to use the cases.

It is stated that the *Maine Journal of Medicine and Science*, formerly the official organ of the Maine Academy of Medicine and Science, has discontinued publication.

¹ Schulthess in Joachimsthal Handbuch der Orthopäd. Chirurgie, 3. Lief., pp. 681, 710.

Clinical Department.

CONTUSIONS OF THE ABDOMEN.

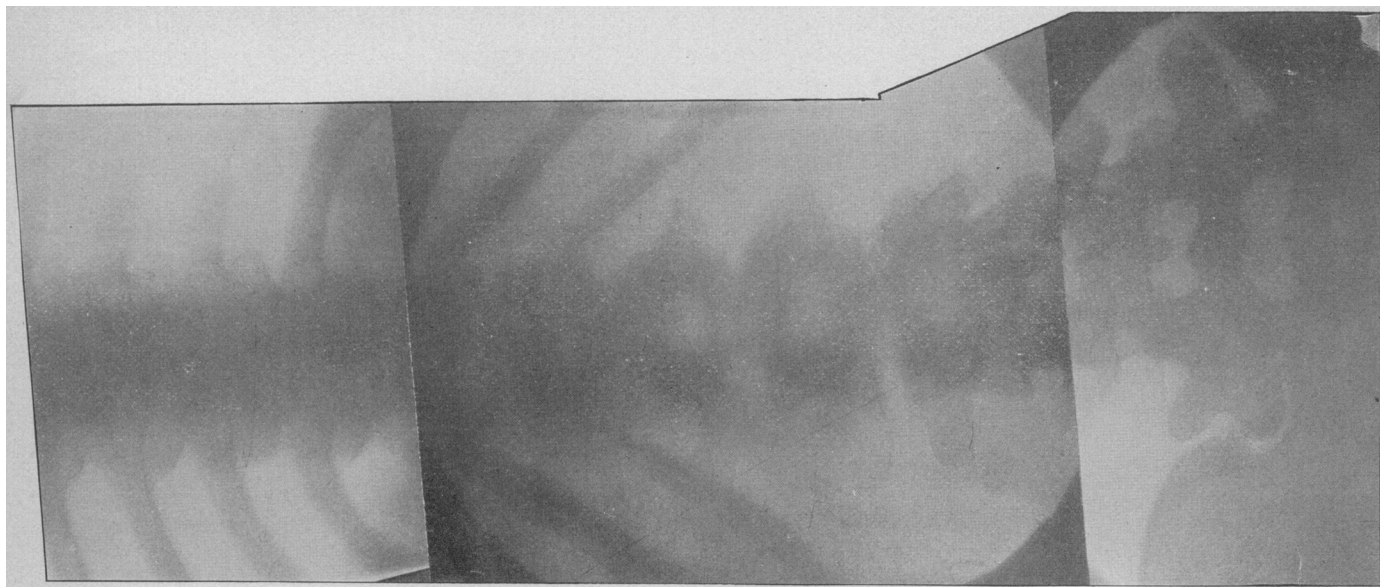
BY JOSHUA C. HUBBARD, M.D.,

Third Assistant Visiting Surgeon, Boston City Hospital; Physician to Out-Patients, Boston Lying-In Hospital.

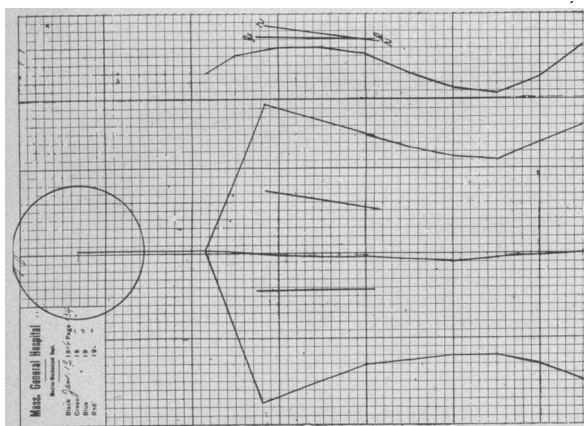
WITHIN a comparatively short time I have had the opportunity of seeing several patients whose condition has impressed me with the importance of the most careful observation in cases of contusion of the abdomen, and I wish now to report them, not to bring out anything new in the way of diagnosis or treatment, but simply to emphasize the great difference both in severity and kind of lesion which may be produced by blows upon the abdomen.

Although it is a well known fact it will bear repeating, that in such cases the extent of the lesion produced bears no relation to the severity of the trauma. Of by far more importance is the condition of the abdominal wall, whether relaxed or contracted, the state of the intestines, distended or empty, and the length of time elapsed since eating or emptying the bladder. No increasing scale of lesions can be made for each increase in the amount of force in the trauma. Blows of but slight force may produce the gravest intra-abdominal injuries in some patients, while others escape without any serious damage from the most severe accidents.

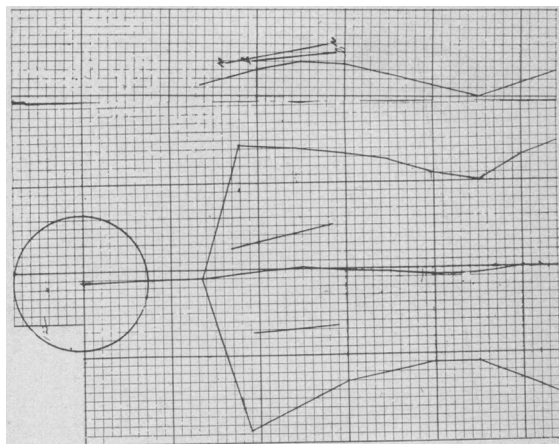
One of the most difficult problems a surgeon has to face is often met in these cases of abdominal trauma. To postpone necessary interference till the diagnosis is certain from evidences of peritonitis or hemorrhage is to be most strongly condemned for by so doing in many cases the life of the patient is simply thrown away. The prognosis depends, in the operative cases, one could almost say, entirely on the length of time elapsed from the receipt of the injury to the operation. For this reason all doubtful cases should be treated until diagnosed with great care even to the minutest detail, for, if the given case prove later operative, every moment spent in reaching a decision affects the prognosis. In most of the operative cases the exact diagnosis of the nature of the intra-abdominal lesion is not made till the operation, and in many of them it would be wrong to wait long enough to make such a diagnosis. The arguments for and against operation should be considered and that is all. When once the decision has been made that an operation is necessary, any time spent in trying to differentiate hemorrhage from rupture of the intestine, for instance, makes the prognosis just so much the worse. The practical differential diagnosis and the one on which the prognosis depends must then be made between contusion of the abdominal wall and injury to the abdominal contents, in other words, whether a given case demands operation or not. I do not wish it understood that I belittle the attempt to diagnose the exact nature of the intra-abdominal injury for that is not so. I simply make this exact diagnosis secondary to the general diagnosis of intra-abdominal trauma.



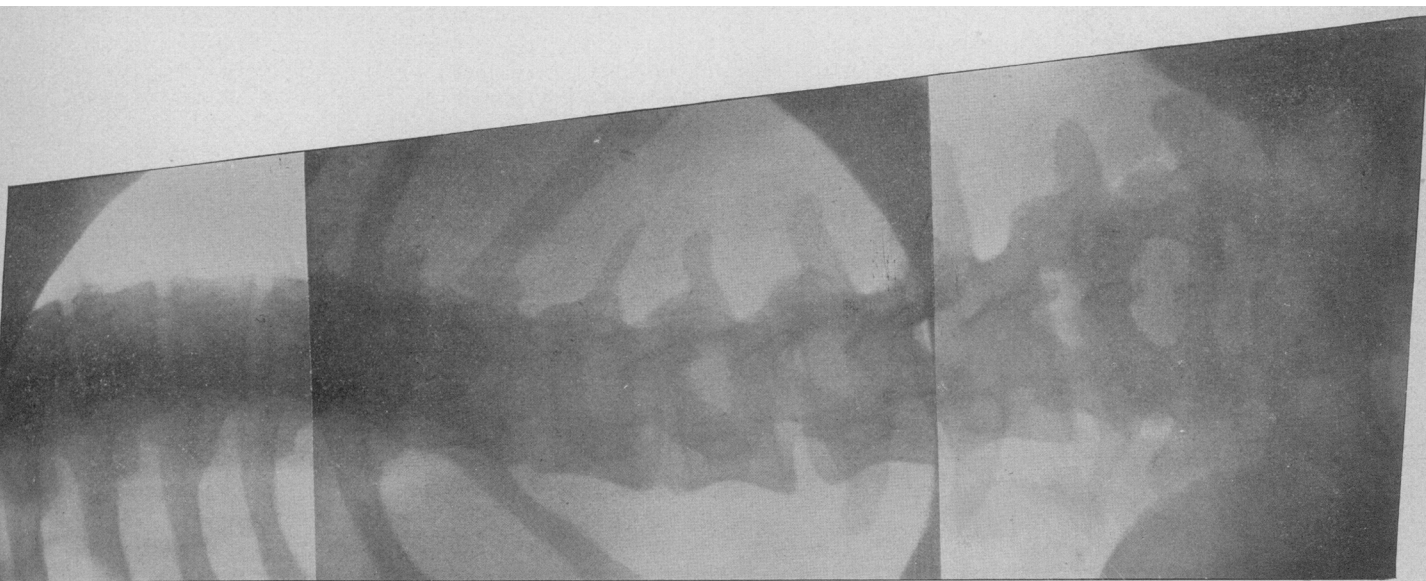
CASE J.



CASE J.



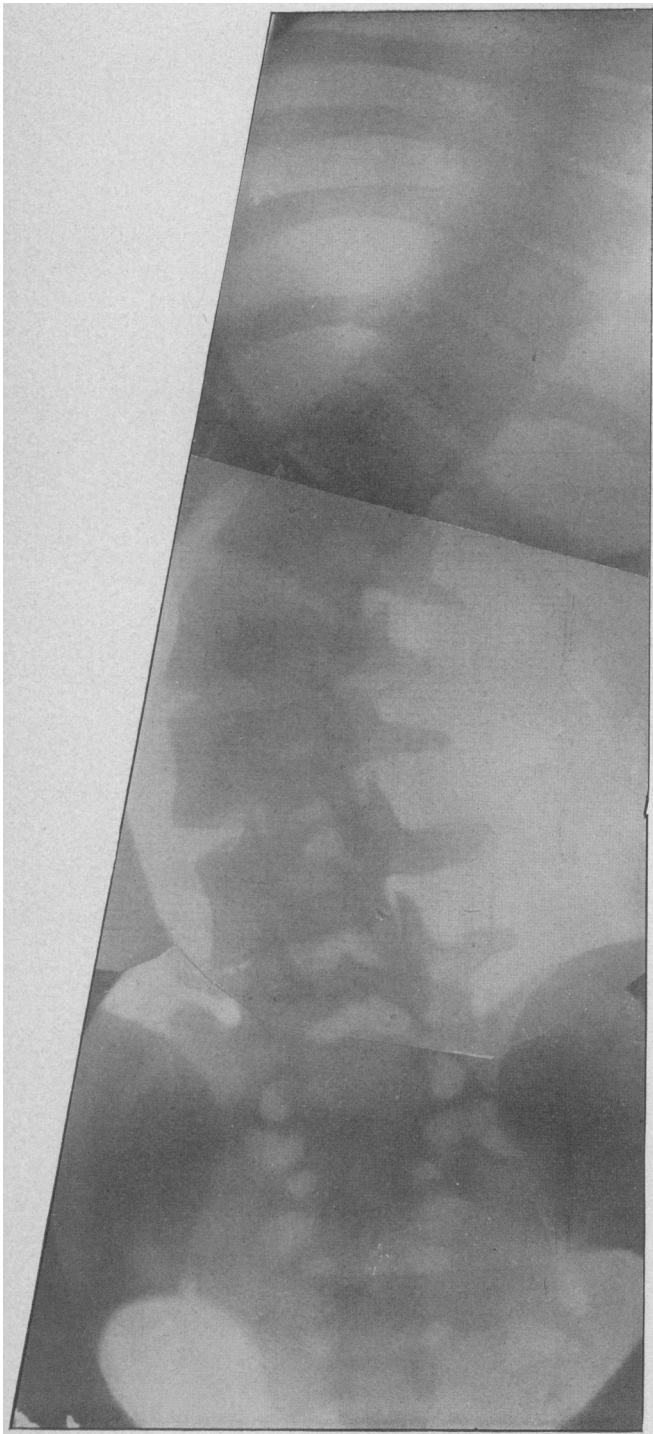
CASE S.



CASE S.

CASE J. 5th lumbar. On the left side a double transverse process and slight asymmetry in the height of the two sides, the *left* being the lower. The curve in the spine will be noticed to be very slight.

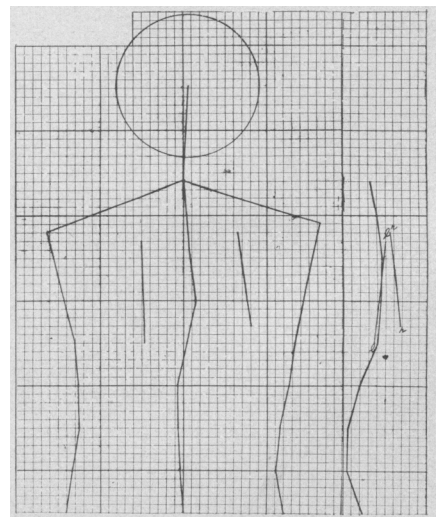
CASE S. Asymmetry of whole 5th lumbar vertebra. Evidence of a very well defined sacral arch and fusion to the sacrum (?).



CASE T.



CASE T.



CASE T.

CASE T. Striking asymmetry of last lumbar vertebra; probably additional presacral vertebra, showing left lumbar, right sacral character. On the left fusion to sacrum (?).

A working diagnosis of whether to operate or not cannot be made in a certain number of cases immediately. A given case may have to be observed for perhaps a half hour, perhaps two or three hours, or longer, and the changes in the physical condition noted by the surgeon on whom the responsibility of a decision is to rest. I repeat to emphasize that the one who is to operate must have the opportunity of seeing the patient early, and following the changes himself. No amount of description can ever take the place of a few passes of the hand over the abdomen.

As a last resort to aid in making a diagnosis in those cases whose condition is progressively becoming worse the abdomen should be explored. There is no question about such an exploratory laparotomy being justifiable. A surgeon failing to do so in the cases that become worse in spite of treatment and where the diagnosis can be made in no other way would be guilty of gross neglect.

The following brief report of cases, which are not picked but are taken as they came, shows the multiplicity of lesions which may be caused by a blow upon the abdomen as well as the frequent difficulty of immediately making a diagnosis.

CASE I. L. M., boy of twelve (?) years, was run over by a baker's wagon, both wheels going over his abdomen. When seen right after the accident he was in considerable pain. Physical examination: Pale, in condition of moderate shock. Pulse, 120. Pupils equal and reacted to light. Tongue protruded straight. Heart and lungs negative. No fractured ribs. Slight abrasions across upper abdomen and lower chest. Abdomen presents slight general tenderness and voluntary spasm. No shifting dullness in flanks. No localized tenderness. Urine by catheter, clear. No fracture of the pelvis. Hot flaxseed poultices were applied to his abdomen and his pulse rate recorded at frequent intervals.

The condition of shock and the abdominal spasm at entrance made a diagnosis of some intra-abdominal lesion seem quite probable. His condition, however, steadily improved under treatment and he was discharged from the hospital in three days.

CASE II. F. J., seven and one-half years; male; fell to the ground from the roof of a three-story building. Says he was at first senseless. Physical examination: Pupils equal and reacted. Facies normal. No Kernig or Babinski. Tongue protruded straight. Throat negative. Heart and lungs negative. Pulse rate about 120. Knee jerks normal on left, not sought on right. No ankle clonus. No fracture of the spine or ribs. Moderate general spasm of the abdomen, especially in the epigastrium and left upper quadrant where there is a little tenderness. Hot applications were applied to the abdomen and his pulse frequently recorded.

Rupture of the liver seemed a very probable diagnosis and was tentatively held for a few hours when it was found that the flax-seed poultices had done away entirely with all abdominal spasm. He was discharged from the hospital at the end of four days.

In both of these cases it was impossible to tell at once whether there was any intra-abdominal lesion or not. Especially was the diagnosis doubtful in the second case, for the spasm and tenderness were limited so closely to the region

of the liver that rupture of that organ seemed a very probable diagnosis. Both of these cases show how the application of heat to the abdomen by doing away with the spasm due to the contusion of the abdominal wall aids the surgeon greatly in determining for or against operation. The disappearance of the spasm considered together with a pulse rate which was not increasing made the diagnosis almost perfectly definite at once. Both boys received very severe blows and yet escaped serious injury.

CASE III. J. C., thirty-five years, an hour before entrance, fell off his wagon and the hind wheel passed over his chest. Physical examination: General condition fair. In some pain. Alcoholic odor to breath. Pulse, 84. Pupils equal and reacted. Tongue protruded straight. No signs of injury to head. Heart and lungs normal. Considerable tenderness to left lower side of chest. No fracture of ribs. Slight abrasion here of skin. Considerable tenderness all over the abdomen, most marked in splenic and suprapubic regions. Considerable involuntary spasm here. No dullness in flanks. Splenic and liver dullness not obscured. Shortly after entrance vomited two pints. Urine by catheter clear. When seen by me, two and a half hours later, pulse had risen to 120. He was nauseated and vomiting. Complained principally of pain in bladder region. Considerable spasm of abdominal muscles. No dullness in flanks. He was operated on as soon as the preparations could be made. Intestinal contents were scattered through the abdomen. A rupture of the colon was found at the splenic flexure. The patient died a few hours after the operation.

Here the accident was the same as in one of the previous cases but yet how different the result. The most marked feature of this case just before operation was the pain over the bladder with frequent desire to urinate. This was very misleading when an attempt was made to determine exactly the nature of the intra-abdominal lesion.

CASE IV. A. D., thirty-three years, female, had been kicked in the lower part of the chest on the left by her husband, twenty-four hours before entrance. The pain was slight at first, but by night prevented her from lying on the left side. Physical examination: Patient lay on right side with knees flexed. Considerable shock. Skin cold. Mucous membranes pale. Pupils contracted and reacted but slightly to light. Lungs normal. Heart sounds faint. No murmurs detected. Pulse at wrist counted as 90, but very weak, of poor volume and tension. Abdomen lax and protuberant. No muscular spasm. Tenderness in left upper quadrant where an indefinite mass was felt. Free fluid in the abdomen. Leucocyte count, 8,900. Patient was operated upon immediately. The spleen was found ruptured and the abdomen was full of blood. Splenectomy was done and the patient recovered. (Case reported in *BOSTON MEDICAL AND SURGICAL JOURNAL*, Oct. 20, 1904.)

CASE V. B. L., twenty-two years, male, fell off a cliff twenty-five feet. The fall was broken by a tree. Walked to the cars and came home. Later sent to the hospital. Physical examination: General condition not very good. Pulse small, about 100. Quality of pulse variable. Tongue protruded straight. Pupils equal and reacted. No signs of any cranial injury. Heart and lungs negative. No fracture of ribs.

Extremities normal. Abdomen shows considerable general tenderness, most marked in left upper quadrant. Considerable spasm on left. Dullness in left flank. Urine free from blood. A laparotomy was done at once and a fractured spleen removed. The abdomen was half full of blood. The patient made a satisfactory recovery.

One of these patients received a blow certainly of no greater severity than Case I or II and yet suffered a grave abdominal injury. The absence of any muscular spasm in this case (IV) is of interest and would easily at first throw the attending surgeon off his guard.

CASE VI. D. M. L., adult male, was stabbed in the abdomen about 8 P.M. Physical examination: 9 P.M., great shock. Very pale, anemic, perspiring freely. Skin cold and clammy. No signs of injury to head. Pupils equal and reacted to light. Tongue protruded straight. Mucous membranes very pale. Lungs not examined. Pulse, 76 to 80, poor volume and tension. Abdomen slightly distended. Slight dullness in both flanks, otherwise tympanic. No obliteration of liver dullness. Very slight general spasm. No localized tenderness. About one inch above umbilicus and one-quarter inch to left of median line a very small punctured wound. Extremities cold, reflexes normal. Patient refused operation. About 3 A.M. found in marked state of collapse. Pain throughout abdomen. Respiration difficult. Cold. Perspiring freely. Pulse, 140, irregular, poor volume and tension. Considerable abdominal spasm and general tenderness; increased dullness in both flanks. Patient then consented to operation. At operation it was found that the stab wound had not entered the abdominal cavity. An enormous amount of blood was found principally behind the posterior layer of the abdominal peritoneum. The source of hemorrhage could not be found and the patient died. At the autopsy the source of the bleeding could not be found till all of the intestines had been removed and then a hole was discovered in the interior cava large enough to admit the tip of the finger.

CASE VII. A. A., six years, male, was run over by a team, the wheel passing over the left thigh and pelvis. Physical examination: Skin and mucous membrane pale. Pupils equal and reacted. Tongue protruded straight. Very restless. Constantly asking for water. Grunting respiration. Heart and lungs negative. Abdomen moderately distended and somewhat tender throughout, especially on the left side. Dullness in left flank and in suprapubic region. Some spasm, especially on left side. Temperature normal. Pulse, 120. Fracture of left femur and some abrasions. Pulse rose to 140 and 150. Catheter withdrew a half ounce of bright red blood and later an ounce of bloody urine. Four ounces of boracic solution put into bladder and all returned blood tinged. Pulse 160. Abdomen had become distended and somewhat generally rigid. Change in the percussion note in the flanks when patient turned. Exploratory laparotomy was done. Intestines, bladder, kidneys, liver and spleen were all examined by sight or touch without finding any lesion. There was no retroperitoneal hematoma about the kidneys. The patient developed a bronchopneumonia the next morning and died. Before death, was very restless and thirsty. Urine by catheter was high colored, but contained no blood. A partial autopsy was done. The left kidney was ruptured and lay in the midst of a moderately large hematoma. The left lung showed evidences of the bronchopneumonia and also of trauma.

This case shows how, in a certain number of cases, the diagnosis can be made only by an exploratory incision. In this particular case the criticism may be justly made that had the boy not been operated upon he probably would have lived. Because of such dangers as pneumonia, resulting from an exploratory incision, which is usually considered of such slight severity, one should not operate indiscriminately to settle the diagnosis, but should reserve it for those cases which steadily grow worse in spite of treatment and then should not delay a moment.

From these few cases it is obvious that a patient who has received a blow upon the abdomen of any degree of force is in a critical condition and must be under careful observation, for on slight changes in the physical condition depend the diagnosis and often his life. The absence of muscular spasm does not rule out an intra-abdominal lesion while its presence makes such a condition the more probable. Hot applications should be applied to the abdomen and the pulse recorded at frequent intervals. The urine should be drawn by catheter, if the patient is unable to pass it. Should the pulse rate steadily rise even only slowly, or the abdominal spasm persist or the urine be bloody the case becomes distinctly surgical.

This short paper is not intended to point out when or when not to operate, but to insist on the severity of this class of cases and to make a plea for an early working diagnosis by a surgeon.

BRAIN ABSCESS. OPERATION, RECOVERY.*

BY PHILIP HAMMOND, M.D., BOSTON.

THAT the mortality in cases of brain abscess is heavy, we all know. A glance at the figures of two of our leading hospitals serves merely to emphasize this statement.

Harris¹ reports that for the ten years from 1895 to 1905, there were seven cases of brain abscess at the Manhattan Eye, Ear and Throat Hospital, all of which were fatal.

A careful examination of the records of the Massachusetts Charitable Eye and Ear Infirmary for the same period shows nineteen cases, with two recoveries. Of these nineteen cases, it has been my good fortune to operate upon five, and I am able to show you one of the patients this evening. The other successful case was reported by Dr. Jack recently.¹

J. K., laborer, married, forty-one years old, a resident of Haverhill, presented himself at the clinic of the Massachusetts Charitable Eye and Ear Infirmary, July 7, 1905, for relief from severe earache.

History. — Typhoid fever at nineteen. Said to have had a discharge from the right ear for six weeks about a year ago. Severe pain in the right ear during the last seven days. No otorrhea. Mastoid tenderness for three days. No vomiting or chills, and no dizziness.

Present condition. — Right drum membrane swollen and bulging; no perforation visible. Slight tenderness at the tip of the mastoid. The hearing for the spoken

*Read at a meeting of the New England Otological and Laryngological Society, Nov. 17, 1905.

¹ Laryngoscope, July, 1905.