SOME CASES OF PENETRATING STAB AND GUNSHOT WOUNDS OF THE ABDOMEN.[1]

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IN the subjoined cases are presented the histories of four cases of gunshot and two cases of stab-wounds of the abdomen, which have recently come under my care.

CASE I. *Penetrating Shot-Wound of Abdomen; Eight Holes in the Intestines; Laparotomy; Acute Pneumonitis; Recovery.*—J. K., colored, æt. 30, hod carrier, was admitted to the hospital August 11, 1890. One hour prior to admission he was shot at very close range by a 38 calibre pistol, the bullet entering the left costo iliac space about a half inch above the crest of the ilium, midway its convexity. The probe introduced readily took a course downward, forward and inward, passing well into the cavity. Pain was intense in the pelvic region, the muscles being well on guard, and the tenderness on pressure marked; dulness on percussion in left dorsal gutter; urine was drawn and found clear. Patient vomited during examination. There was total absence of shock; pulse 66, and of good volume; rectal temperature 99.6°F. respiration slightly accelerated and shallow.

From the direction taken by the probe, I judged that the ball had passed down into the left side of the pelvis. Believing this, I thought I could reach the injured parts better by opening the abdomen in the left linea semilunaris. A four inch incision was made at this point, when the descending colon readily came into view, revealing two large holes, the mucous membrane of which was greatly everted. The holes were closed with the Lembert continuous suture, small iron-

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dyed silk being used. The small intestine was now pulled out, and six other holes noted. As the cavity was full of fæces and blood it was thought best to make a median incision. This was done to the extent of seven inches. The holes were closed in the same manner as before and the cavity thoroughly irrigated with warm Thiersch's solution. A glass drainage tube was left in the lower angle of the wound, reaching to the bottom of the pelvis. Two large rubber tubes were put in the upper angle of the wound, draining either dorsal gutter.

Patient did remarkably well. His pulse never exceeded 100, save on two afternoons, and the temperature never rose above 102° F. On the fourth day acute pneumonitis of left lung developed. On the sixth day there was tubular breathing, and dulness on percussion, well marked over the entire lung. About this time a distressing hiccough developed which lasted several days. In spite of these complications patient made a complete recovery, and was discharged, well, September 29, 1890.

CASE II. *Gunshot Wound of Stomach; Laparotomy; Death.*—J. E., colored, æt. 23, a laborer, admitted June 9, 1889. Six hours prior to admission he was shot with a 38 calibre pistol at a distance of twelve feet. The bullet entered the sixth intercostal space two inches to the left of the sternum, passing downward and inward through the diaphragm into the belly cavity. His temperature was 102°F., pulse 110, respiration 32. He complained of intense pain in the epigastric region, which was greatly intensified by pressure. The abdomen was somewhat distended and tympanitic; liver resonance marked.

A median incision was made from the ensiform cartilage to two inches below the umbilicus. Two holes were found in the stomach—one two inches below the cardia on the anterior surface, the other a little posterior to the greater curvature, four inches below the cardia. A good deal of blood and food were found in the peritoneal cavity, which was washed out and the holes in the stomach closed by the Lembert suture. The abdomen was closed without drainage. Time of operation forty-five minutes.

Patient stood the operation well and did remarkably well for four days; in fact he seemed to be out of danger. The temperature, after the second day, had remained about 99.5° F. On that day, while turning over in a narrow bed during sleep, he fell to the floor, striking his abdomen. Severe pain developed at once. Pulse became rapid and weak, and extremities cold, evidencing well developed shock. This was followed in a few hours by a temperature of 104.5° F. The

condition continued to grow graver rapidly and death supervened 24 hours after the receipt of the injury.

The post-mortem showed that the anterior hole in the stomach had been torn open by the fall. There were several ounces of blood in the vicinity of the tear.

This case ought to be viewed as a successful one, for I think it will be admitted that the history shows that but for the untoward accident, recovery would almost undoubtedly have ensued.

CASE III. *Gunshot Wound of Liver; Excessive Hæmorrhage; Laparotomy; Recovery.*—T. H., æt. 19, laborer, a delicate looking boy; admitted October 6, 1890. Four hours before admission, in an attempt at suicide, he shot himself with a 44 calibre pistol, the bullet entering the seventh interspace in the right mammary line. His pulse was 112; temperature 102° F.; respiration, 40. Percussion gave dulness low down on both sides of the abdomen. There was tenderness on pressure over the epigastrium. The probe passed downward and forward.

The abdomen was opened from the ensiform cartilage to the umbilicus. A considerable amount of fluid and clotted blood was washed out, and a careful examination showed that the upper wound of the liver, even in the short space of four hours, had become adherent to the diaphragm. I made no effort to disturb it, as by breaking up the adhesions I would, doubtless, have re-opened the source of the hæmorrhage. The bullet passed through the right lobe of the liver. I was not able to see the lower hole, but determined its locality by the hæmorrhage. The bleeding showed no disposition to stop, hence I packed a handful of gauze under the organ, leaving the ends of the strips hanging from the upper angle of the wound.

Patient rallied well. The next morning his temperature was 101.5° F., pulse 120, respiration 36. He remained in about this condition for several days, after which he steadily improved. His temperature was never above 102° except on three occasions, when the thermometer registered 102.5° F. The gauze was removed on the third day and the wound closed. It healed by first intention. He was discharged, well, November 6, 1890.

CASE IV. *Gunshot Wound of Colon; Laparotomy; Recovery.*—W. C., æt. 26, a strong, stout man, five hours before admission was shot at close range by a 44 calibre pistol. When admitted, his pulse was 118 and weak; rectal temperature, 100.8° F., respiration 30. The

ball entered in the left lumbar region, and was discovered under the skin three inches to the left of the umbilicus.

An incision four inches in length was made in the left linea semilunaris. A single transverse hole was found in the colon. Some fæces and blood were noted in the vicinity. This was carefully sponged away, and the hole in the gut closed by the Lembert suture: the peritoneal holes of entrance and exit were closed in the same manner.

Patient recovered without an untoward symptom.

CASE V. *Penetrating Stab Wound of Abdomen; Laparotomy; Death.*—F. S., æt. 33, admitted October 12, 1890. Six hours before admission he was stabbed in the abdomen, after which he became sick at the stomach and vomited several times. A penetrating wound was found in the median line two inches below the umbilicus. This was enlarged and the intestines in the immediate vicinity examined and found intact. The omentum was cut to the extent of an inch, and one of the large vessels of the same was seen to be bleeding profusely. The vessel was tied, and the wound in the omentum closed. The blood was washed from the cavity, after which it was closed by interrupted silk sutures. A glass drain was left in the lower angle extending to the bottom of the pelvis.

As the tube ceased to drain on the second day it was removed, and gauze packed in the hole. Patient did well. The next day his temperature was 99.5°F., pulse 88, respiration 32. On the morning of the third day I found him very much worse. He had been vomiting for some hours, pulse was weak and rapid, and extremities cold. He was virtually in collapse. I removed the dressing and was astonished to find that about a foot of small intestine had escaped through the drainage hole. It was cold, quite dark, and greatly distended.

The opening was enlarged, the gut irrigated with hot sterilized water, and returned to the cavity. Patient did not rally and died in 24 hours, death being evidently due to shock.

The drainage tube used was half an inch in diameter. As I had never read or heard of such an accident I did not take its possibility into consideration. Recent teaching has been (and certainly my experience justifies the belief) that adhesions soon form around the drainage-tube. By the third day, at least, we have heretofore felt perfectly safe on that score. After removing the tube I should have closed the hole with a heavy silk suture.

CASE VI. *Stab Wound of Ileum; Laparotomy; Recovery.*—J. K.,

æt. 22, a roofer, was admitted March, 13, 1891, in a drunken, boisterous condition. From a policeman we learned that he had been stabbed three hours prior to admission. He vomited several times during examination of the wound, and did so frequently afterward. There was no shock; temperature, 98.6° F., pulse 98, respiration 20.

A penetrating wound was noted a half inch to the right of the umbilicus. An incision four inches long was made in the median line, and the gut examined in the vicinity of the wound. Two holes were found in the ileum, showing that the knife-blade had passed through and through the gut. One hole (the hole of entrance) was an inch in length in the long axis of the gut. The other was scarcely a quarter of an inch long, and on the opposite side of the gut, both being about three-quarters of an inch from the mesenteric attachment. A good deal of blood and some fæces were washed out and the holes in the gut closed by the Lembert suture. The abdomen was closed without drainage.

Patient made a rapid recovery. Temperature never exceeded 100°, save on one afternoon. The highest pulse rate, after the first day, was 98.

Remarks.

In the management of gunshot wounds of the abdomen there are four cardinal points to be constantly borne in mind, the strict observance of which I am firmly persuaded will affect the issue in the case.

1. Have everything in readiness, the patient thoroughly prepared, the abdomen thoroughly cleaned, and the surrounding surfaces covered with antiseptic cloths before an anæsthetic is administered. I have seen patients kept under an anæsthetic for ten or fifteen minutes while the operator and assistant were getting things ready. This materially lessens the chances for recovery, for it is well known that the shorter the period of anæsthesia the less the shock, etc.

2. After the abdomen shall have been opened the first business in hand should be to find the source of the hæmorrhage, if any, and check the same. I speak from sad experience on this point, for I believe I lost a patient from lack of the observance of this rule. While sewing up gunshot holes in the

small intestines, which were not bleeding, and the closing of which could just as well have been delayed, a fatal hæmorrhage was going on at another point.

3. As far as possible the intestines should be kept in the peritoneal cavity. I know, however, that this cannot always be done. All know that useless handling of the gut, and the dragging upon its mesentery, as well as the exposure to cold, etc., adds greatly to the shock.

4. To finish the operation at as early a moment as possible, consistent with the proper management of the same.

It is impossible to lay down hard and fast rules for the government of the surgeon in his dealings with these cases, as the difficulties in each must be surmounted as they arise.