Barring hemorrhage, early death after the accident is not from shock but sepsis; because,

Finally, this is seen only when the fatal extravasation takes place.

THREE CASES OF LAPAROTOMY FOR PENETRATING WOUNDS OF THE ABDOMEN,

WITH A REPORT OF 56 CASES OF PERFORATING ABDOMINAL WOUNDS OTHER THAN GUNSHOT WOUNDS.¹

BY CHARLES L. SCUDDER, M.D.

[The 56 cases have been tabulated from literature since the tables of Morton and Markoe, including the past five years; and I wish to thank Dr. H. A. Lothrop for the collecting of material on which this tabulation is based.]

CASE I. A woman, twenty-five years old, entered the Massachusetts General Hospital two hours after having been stabbed in the abdomen. Her general condition was excellent, but for considerable shock. Examination found a wound one and one-half inches long, four and one-half inches below the umbilicus and three and one-half inches from the anterior superior spine of the left ileum. Six inches of omentum were protruding from the wound. The omentum was tied off with a double silk ligature, and the part external to the peritoneum was removed. The stump of the omentum was returned to the abdominal cavity, having been previously cleansed with boiled water.

A careful examination of the neighboring coils of intestine found no injury. A sponge carried well into either loin returned dry. No irrigation was used. The wound was closed with interrupted sutures of silkworm gut. The woman made an uninterrupted recovery.

About six weeks after the operation, and after apparent recovery, having been discharged from the hospital, she returned to the hospital presenting a tender mass in the left side of the abdomen; walking slightly bent over to the left side and with a temperature of 102° F. Rest in bed and the application of poultices resulted in a fall of the temperature to normal and the subsidence of the pain. The mass diminished in size, but remained present when the patient was again discharged, since which time she has not been seen.

This case is interesting in that it occasionally happens that after ligature of a portion of the omentum and its removal, one finds inflammatory disturbances in connection with the omentum stump. Dr. Bull,² of New York, has reported cases in which he has had similar experiences following partial excision of the omentum in cases of hernia, and has emphasized the importance of a recognition of this condition.

CASE II. A man, twenty-two years old, entered the Massachusetts General Hospital shortly after having been stabbed in the left hypochondrium, three fingers' breadth from the umbilicus. The wound, as indicated by the probe, passed obliquely through the abdominal wall. The man was in good condition, and presented no marked constitutional disturbance. The wound was carefully explored and enlarged. The epigastric artery was found cut and bleeding, and the opening into the peritoneum was one inch in length. No blood was found in the abdominal cavity. The left belly of the rectus abdominis was nearly divided.

The epigastric artery was ligated. No irrigation was used, and the abdominal wound was closed with silkworm-gut sutures. The man made a good recovery.

CASE III. A woman, twenty-eight years old, entered the Massachusetts General Hospital three-quarters of an hour after having been stabbed by a stiletto, four fingers' breadth from the ensiform cartilage, from the umbilicus and the left costal cartilages. The wound was half an inch in length. There was considerable shock and evidences of intra-abdominal hemorrhage. The wound was carefully explored and enlarged. The omentum was found intact. The bowel was found intact. The abdomen contained considerable blood, so that it was difficult to determine the source of the hemorrhage. The abdomen was irrigated with warm, sterile water until the return water came nearly clear. It was then found that the left lobe of the liver had been wounded. This was the source of the hemorrhage, which now had ceased. The liver wound was cleaved and sutured. The abdominal wound was closed with interrupted silkworm sutures. The woman made an uninterrupted recovery.

In Morton's group of 79 cases, the liver was wounded nine times; and of these nine cases in which the liver was wounded, four died. There are three methods of treatment of wounds of the liver in vogue, each directed to checking hemorrhage: The use of the actual cautery, the use of sutures, the use of a tampon.

Of the 56 cases of perforating wounds of the abdomen here tabulated, 9 cases died and 47 cases recovered, making a mortality of 16 per cent. Morton reports 79 cases with 31 deaths, a mortality of 39 per cent. Markoe reports 54 cases with 8 deaths; a mortality of 14.8 per cent. Such mortality-rates are of very little importance or interest unless the individual cases are carefully studied.

The causes of death in the cases tabulated were as follows:

A wound of the colon, not detected; death from peritonitis.

Wounds of the small intestine, not detected; death from peritonitis.

Peritonitis due to infection from a hernia of two feet of bowel through the perforated abdominal wall.

Wound of the liver, the kidney and the chest wall; peritonitis.

Two cases of wound of the spleen, death from hemorrhage.

Gangrenous hernia through the abdominal wall; peritonitis.

Stab in a pregnant woman; hernia of the bowel, great shock, abortion, peritonitis.

Secondary infection from an abscess forming in the track of a pitchfork handle which entered the scrotum, followed the abdominal wall and entered the peritoneum in the hypochondrium.

The table shows a second case of empalement on the handle of a pitchfork, which entered the scrotum, passed up the abdominal wall and entered the general abdominal cavity. Recovery resulted in this case because of the early interference by thorough cleansing of the entire wound, which was found to be septic.

From a study of the cases here tabulated, the following would seem to be reasonable conclusions:

Given an abdominal wound, proof of penetration through the peritoneum should be sought. This is

¹ Read before the Surgical Section of the Suffolk District Medical Society, May 1, 1895.

² *Annals of Surgery*, vol. xvii.

best accomplished by enlargement and careful investigation of the original wound.

Penetration having been found, immediate enlargement of the wound should be made for careful exploration of the abdominal contents.

Irrigation with warm salt solution should be employed if there is any soiling of the peritoneum, and if there is much blood present.

The use of the probe to determine penetration is often misleading and may give a false sense of security.

The absence of shock does not prove the presence of grave intra-peritoneal lesions.

A small parietal wound is not incompatible with grave intra-peritoneal injuries, as is evidenced by Case 47.

The possibility of intra-peritoneal strangulation through the wounded omentum must be kept in mind. Dennis, Morton and Markoe each report a case of intra-peritoneal strangulation associated with the conditions resulting from a stab.

The objects of a laparotomy following intra-peritoneal stab wounds of the abdomen are, to discover (if present) and check intra-abdominal hemorrhage, to close perforations of viscera, to prevent peritonitis and sepsis.

Clinical Department.

PYELO-NEPHRITIS; NEPHRECTOMY; RECOVERY.¹

BY S. VALE GOLDTHWAITE, M.D., BOSTON.

SOME of the special points of interest in the following case pertain to the widely differing opinions of several most able and experienced men relative to diagnosis, as the history of the patient will demonstrate, thus exemplifying how easily the best among us are sometimes misled.

I think, also, the history of the case would seem to suggest a greater dependence and reliance on surgical measures — more promptly applied — than on medical, dietetic, hygienic or any other mode of treatment.

Mrs. R., age thirty-eight. Four children. On Labor Day, September, 1892, felt sudden pains in left side, extending across the back; great soreness, tenderness and stiffness over the latero-dorsal region; muscles contracted; body curved inward laterally; could not lie down. Was very sick, and confined to bed two months. Pain more or less constant, and demanding morphine. During this time the patient lost much in flesh, but regained her usual weight during the following summer while in the country.

Her attending physician — a very able practitioner — diagnosed inflammation of the bowels, with typhoid fever. Patient continued in a fair degree of health, with occasional recurrence of pain in the side and back for one year.

In March, 1894, began to notice a gray sediment in the urine — most probably pus, according to later developments. Was much alarmed and troubled over this symptom — though in no pain or otherwise disturbed health — and consulted another most excellent physician, who diagnosed cystitis due to a cold. He

treated her accordingly for one month. His diagnosis was wholly favorable.

Not improving, the patient then saw another doctor — the third — who treated her for congestion of the kidney, and prognosed a cure in a few weeks.

In June she visited a very eminent surgeon, who attributed her symptoms to some suppurative disease of the pelvic organs, and advised an operation for their removal.

I saw the patient on the 3d of August, 1894. The symptoms had by this time become so typical of pyelitis with renal calculus, that I had no difficulty in forming a diagnosis to that effect.

Naturally, after so many different opinions from wholly competent medical men, the patient was now in a sad state of nervous distress — I may say distrust — and it was with difficulty that she was persuaded to again undertake treatment or advice.

It is especially noteworthy, that through all the later period of her sickness, the patient's chief complaint referred to the altered condition of her water; she did *not* complain of pain or any other physical discomfort.

Her urine contained about one-sixth, by volume, of pus; which was constant, though varying slightly in degree.

A very slight fulness was discovered — though ill-defined and painless — on the left side.

No improvement following treatment, and feeling that there were indications for a more strictly surgical consideration of the case, I asked Dr. Maurice H. Richardson to see the patient in consultation. He very promptly recognized the exact nature of the trouble, but advised the continuance of medical treatment for a short time, pending a microscopical examination of the urine, although expressing a fear that surgical measures would be demanded later.

The urine was submitted to a thoroughly able expert, who reported a diagnosis in favor of cystitis rather than pyelitis.

Patient failed slowly in flesh and strength up to January 15, 1895, when the pus suddenly ceased to appear in the urine. At once the patient began to improve in every possible manner, eating and sleeping well and in the best and happiest spirits during four weeks.

Being called again soon after, I found beginning evidence of general sepsis — alternating chills and fever, a thready and rapid pulse, with a general, vague restlessness, mental and physical.

Dr. Richardson again kindly saw the patient, and had no hesitation in advising immediate removal of the kidney. Subsequently the attending physician of another branch of the family was called, who promptly concurred in every particular with the surgical advice already given.

Operation was done on February 27, 1895, under the kindly and most valued supervision of Dr. Maurice H. Richardson. Chloroform anesthesia, most skilfully administered by F. P. Batchelder; assistant, Dr. F. A. King. Also present, Dr. Brewster, Dr. Bond, Dr. Miles and Dr. Hill. Incision from lower border of rib to iliac crest, corresponding very nearly to the so-called Langenbeck, that being found to extend over the most prominent aspect of the tumor.

No difficulty was experienced in quickly reaching and exposing the kidney, which was found much enlarged: Length, six inches; width, five inches;

¹ Read before the Surgical Section of the Suffolk District Medical Society, May 1, 1895.