

Wounded in Action, 25 March 1945, by enemy landmine, near Livergnano, Italy

Admitted to 12th General Hospital, 9 April 1945, from 8th. Evac. Hosp.

Died, 18 April 1945, of toxic encephalitis, due to putrid empyema, as a result of his wounds.

This patient sustained (1) perforating wound of the right lower chest with laceration of lung, perforation of diaphragm, and laceration of the liver; (2) penetrating wound of the abdomen with wound of entrance above and on the right with foreign body lodged in the posterior pelvic wall. He was operated upon at 0830 hours, 26 March 1945, at the 8th. Evacuation Hospital as follows: (1) thoracotomy through bed of 8th rib, lung sutured, loose liver fragments removed, diaphragm closed, and chest closed without drainage. A subcostal drain from subphrenic space led out through separate incision; (2) right paramedian laparotomy - six perforations in small bowel were sutured, 12 inches of ileum were resected and end to end anastomosis done, perforated sigmoid repaired, and a loop colostomy made through separate incision. Sulfanilamide powder left in peritoneal cavity; (3) foreign body removed through a separate posterior incision.

Patient's postoperative course was dubiously satisfactory. The chest was aspirated before admission here, on several occasions, only once was fluid obtained because of clotted hemothorax. The abdomen gave no concern, colostomy functioned well. Temperature varied from 101 to 103 F.

On 11 April 1945, because of septic course the subphrenic area was explored through the stab drainage wound and only small cavity found. A foul, putrid, empyema was drained by rib resection. He seemed to improve after this. Chest drainage was profuse and foul smelling. X-ray showed the chest clearing. On 16 April 1945, the pulse became rapid and retained sputum required frequent aspiration. On 17 April 1945, the situation had become worse. The intratracheal secretion was much more profuse and required aspiration. The man became very drowsy, apathetic, and difficult to arouse. There was some suggestion of rigidity of the neck. There were never any localizing symptoms, but the impression gained was that of metastatic brain abscess, probably a diffuse, poorly localizing affair. He was not in condition for surgery particularly when there was not any localizing evidence.

Death occurred at 0745 hours, 18 April 1945.

The salient autopsy findings were:

" There is a recent right thoracotomy from which the tube has been removed. There is a stab wound in the right hypochondrium from which a large rubber tube protrudes.

The right lower lobe of the lung is atelectatic and partly covered by a plastic exudate several millimeters thick. The parenchyma on section contains numerous tiny areas from which pus may be expressed. The middle lobe is partly collapsed and shows essentially the same findings. The right upper lobe is well aerated. The left lung shows no abnormalities save basal congestion. The mediastinum is not deviated appreciably.

The liver weighs 1600 grams. The parenchyma is normal save in one section of the right lobe. Here there is a mass of necrotic liver tissue 4x3x2 cm in extent which adjoins the sutured rent in the right diaphragm.

The brain appears edematous, soft, and diffusely hyperemic. There is however, no evidence grossly of any exudate of the leptomeninges. Immediate repeated coronal sectioning fails to disclose any evidence of abscess. While a diffuse meningeal reaction may be present, I cannot so determine from gross inspection. Decision must await microscopic findings.

Kidney - 2 There is marked softening of tubular epithelium. An occasional distal convoluted tubule in the cortex shows marked epithelial hyperplasia, the cells forming a multilamellate mass which obstructs the tubule. In one section there is a large colloid cast in a distal tubule which has

provoked considerable reaction in the involved segment.

Lung - 3 All are essentially similar, revealing a plastic fibrinous pleuritis overlying generally atelectatic lung which is the site of a well-marked purulent bronchitis and bronchiolitis. The alveoli generally are free from pneumonic change and contain varying combinations of red cells, macrophages, and occasionally fibrin plugs. Bacterial colonies are not observed.

Brain - 3 <sup>Microscopic</sup> All vessels are hyperemic. In one section a few lymphocytic foci are noted just beneath the ependymal layer. Otherwise, inflammatory changes are lacking.

There is no histological reason why this patient should have died, a non-embarrassing fact which is easily admitted. In spite of the essentially negative cerebral findings, I am of the opinion that death was central in origin. To this the delirium and coma are clinical testimony, even if the sections at hand are not. We do know that patients who have a putrid empyema from coliform and anaerobes (as this man did through soilage from his bowel wounds) not uncommonly develop an acute encephalitis which carries them away, much in a manner similar to the present instance."

#### Clinical Diagnoses:

- (1) Toxic encephalitis.
- (2) Surgically sutured wounds of right chest, right lung, abdominal wall, ileum, and sigmoid.
- (3) Right thoracotomy with drainage.

#### Pathologic Diagnoses:

- (1) Empyema, drained, of right chest.
- (2) Rib resection, recent, right chest.
- (3) Atelectasis of lower and middle lobes of right lung.
- (4) Pleuritis, plastic, of right lung.
- (5) Surgical suture of right diaphragm.
- (6) Laceration, old of right lobe of liver.
- (7) Laparotomy incision, healed.
- (8) Colostomy.
- (9) Healed wound over coccyx.

#### Additional diagnoses (microscopic)

- (10) Purulent bronchiolitis, right lower lobe.
- (11) Diffuse pancreatitis with early cystic change.
- (12) Sulfonamide nephropathy, old, minimal.