

~~Enlisted~~: Enlisted Man POW.

Wounded in action 7 July 1944 in Italy by American Artillery shell Frag.

Admitted to 12th Gen. Hosp. 13 July 1944 from 56th. Evac.

Died: 17 July 1944 Uremia due to incompatible transfusion.

This German soldier (age ?) received a severe thoracic-abdominal wound and wounds of both legs. The lung was sutured, diaphragm repaired, colon was exteriorized near splenic flexure and leg wounds debrided the same day at the 56th. Evac. Four blood transfusions were given and next day a mild icterus was noted. He arrived at the 12th Gen. Hosp., jaundiced, dehydrated, dyspneic and febrile, and he was given fluids and 1000cc of "AB" (type specific blood). The day following admission the open pneumothorax (left) was closed and the following day a left empyema was drained and an additional 500cc of "AB" blood given. The jaundice deepened, the patient became irrational and hemoptysis occurred. Breath sounds disappeared over the left chest, air leaked through the chest catheter and it seemed probable the lung wound had reopened. The fever was high. At this time another 1000cc of blood was ordered and although the patient's blood typed out "AB", agglutinated sharply on cross matching. Low titre "O" (less than 1:64) was sent to the ward but the patient died before it was given.

The salient Autopsy findings were: 3,4,5,6.

A. There is a recently sutured upper left lateral rectus incision. A loop of large bowel with a stoma protrudes from a stab wound in the left hypochondrium. Considerable partially digested blood clot hangs out of the opening in the exteriorized bowel.

B. There are multiple small wounds of both lower legs, all apparently non-infected and healing. Exploration dictated by the X-ray report shows a small fracture of the head of the right fibula, with good alignment of the fragments. The upper extremities bear numerous venepuncture wounds in the antecubital fossae.

C. The midline incision reveals a moderate amount of subcutaneous fat and muscle, the former canary-yellow in color. The serosal surfaces of the abdominal viscera contain scattered petechiae which never attain the size of an ecchymosis. The parietal peritoneum is clean. The small bowel and large bowel loops are dark purple in color from contained blood. The liver edge is down 3cm from the right costal border but lies beneath the xyphoid process in the midline. The spleen is rather large and soft.

D. The right pleural cavity contains a scanty amount of cloudy fluid. The left is sealed off with massive recent adhesions, and sharp dissection is necessary to free the lower lung from the diaphragm. The drain in the left chest is found in good position with respect to the lower lobe, and little evidence of pus free in the cavity is found.

E. The upper lobe of the left lung is well expanded. It is bound to the parietal pleura by recent, easily freed adhesions. On section the parenchyma shows nothing but a diffuse edema of moderate degree, tinged yellow from the excess bilirubin in the serum. The lower lobe, however, is inseparable with the diaphragm, collapsed, the site of nodular bronchopneumonic change, and bears a ragged, fibrin-choked tear about 10cm in extent on its antero-lateral surface. A probe can be passed from a secondary bronchus into the defect. The hilar nodes are swollen and soft. The stem bronchi of both lobes contain frothy material, that from the lower lobe being blood-tinged. No frank hemorrhage from the laceration can be demonstrated, however.

F. The liver weighs an estimated 2000 grams. The enlargement is confined to the right lobe, which has the general shape of a sugar loaf. The capsule is thin. On section the parenchymal markings are evident but seem accentuated. The parenchyma generally is bile-stained. From inspection of the cut surface, there is nothing to suggest an acute atrophy, but the texture of the liver is chamois-like. The gall bladder is thin and contains a few cc of ochre-colored bile. There are several moderately enlarged, succulent lymph nodes about the common duct.

G. The adrenals are autolyzed to an extent which makes them useless for further sectioning.

H. The kidneys are rather swollen and pale, bulging from their capsules. They aggregate about 400 grams. The parenchyma on section appears bloodless and pasty yellow grey in appearance. The pelves are not remarkable. The ureters are thin. The bladder mucosa is intact. The enclosed urine is icteric. No red cells are evident grossly or on microscopic of spun specimen. A Sahli hemoglobin is negative. The prostate and vesicle are not grossly abnormal.

I. Liver (4 sec): There is a well-marked acute passive congestion of the central spaces. In a few instances, polys are noted about a rare necrotic cell. There is an increase in periportal connective tissue which seems more apparent than real. A rare focus of parenchymal necrosis is encountered, none involving more than a few liver cells.

J. Adrenal (1 sec): There are no changes.

K. Kidney (2 sec): There is marked tubular degeneration. In the distal convoluted tubules of the cortex and in collecting tubules of the pyramid are occasional well-marked orange-staining granular casts which are peroxidase-positive. In addition, there are less frequent bluish to light brown cellular casts which are considered evidence of sulfonamide administration. These latter casts are few.

K. The cause of death in this patient was evidently uremia from transfusion in compatibility, to which the bronchopneumonia and general debility must be added as contributory causes.

L. The history indicates that the renal damage occurred on 7 July at the 56th Evacuation Hospital. On that date the patient was given four blood transfusions, and the surgeon noted the next day that the patient had a mild icterus not ascribable to the injuries. One cannot say whether the transfusions given here furthered the condition or not. The kidney does not show enough change to support the affirmative; it looks rather like one in which excretion of most of the casts had taken place. Such an occurrence does not prevent uremia, since that condition does not depend upon the persistence of the casts for its inception. The exact mechanism is, I Believe, not realized, but possibly vasospastic in nature.

M. There is no explanation for the failure to secure compatible "AB" blood for this patient later in his course here. He had received 1500cc of type-specific blood before the incompatibility was manifest. The low titre blood, as indicated in the clinical abstract, was never given. Although clinically the course was thought to be one of liver disease, in retrospect the symptoms fit as well with an acute uremia as they do with those of acute yellow atrophy.

The clinical and pathological diagnoses were:

CLINICAL DIAGNOSES

- (1) Wound, penetrating, chest left with involvement of lung, diaphragm and colon.
- (2) Lung wound, left, probably with fistula and pulmonary bleeding
- (3) Left empyema, early, acute
- (4) Right pleural effusion
- (5) Jaundice (? of acute yellow atrophy)
- (6) Abdominal wound with colostomy
- (7) Penetrating wounds, both lower legs
- (8) Fracture compound, fibula, left

PATHOLOGIC DIAGNOSES

- (1) Hemoglobinuric nephropathy
- (2) Uremic pneumonitis
- (3) Bronchopneumonia, early
- (4) Obliterative bronchiolitis
- (5) Wound, lacerated, infected, with traumatic infarction, of left lower lung
- (6) Pleuritis, left, extensive, severe
- (7) Bronchopleural fistula, left lower lobe
- (8) Empyema, left, early, drained
- (9) Wound, sutured, of left diaphragm
- (10) Traumatic infarct of spleen
- (11) Colostomy wound.
- (12) Swallowed blood (estimated 200cc) in stomach and small bowel
- (13) Laparotomy, sutured, recent
- (14) Thoracotomy wound, left chest
- (15) Penetrating wounds, non-infected, both lower legs
- (16) Fracture of head of right fibula
- (17) Pulmonary fat embolism, minimal
- (18) Icterus, generalized