

- 2nd Lt, Mt. Inf. Regt.

Johnson (21)

Wounded in Action, 20 Feb. 1945, at Monte Belvedere, Italy

Admitted to 12th General Hospital, 27 Feb. 1945, from 32nd Field Hosp. (B Unit)

Died, 26 May 1945, from Oxygen deprivation, due to lack of adequate lung tissue due to his wounds.

This patient sustained a perforating thoraco-abdominal wound, right, involving the diaphragm and the right lobe of the liver, and fracturing ribs 6, 7, 8, 9, and 10. The wound of exit was large and antero-lateral; the wound of entry was small and located at the level of the 10th rib, six centimeters from the mid-line. A thoracotomy was performed at 2015 hours, 20 Feb. 1945, repairing the diaphragm, packing and draining the liver wound subcostally. Chest closure without drainage was followed by multiple thoracentesis, right. The patient was admitted to the 12th General Hospital, 27 Feb. 1945, general condition was good. Liver drains were in place and draining bile. There was moderate effusion remaining in the right which on thoracentesis revealed the presence of bile. The pleura was thereafter dry, the appearance of fluid seen on x-ray being due to a high diaphragm. The patient's fever was moderate. Circulating blood volume was up to normal. Bleeding began from the liver drains on 3 March 1945, hemorrhage becoming massive on 5 March 1945, but was controlled and the blood was replaced with satisfactory response. Escape of blood continued to recur in small to moderate amounts, being, however, replaced by transfusions. On 24 March 1945, the subphrenic space was opened subcostally and cleaned of necrotic liver. It was packed for control of hemorrhage. Blood was replaced by transfusion. Packing only partially controlled the bleeding but did so sufficiently to permit satisfactory replacement of blood volume. On 3 April 1945, dressings were changed and the space repacked without finding the bleeding point. The patient's general condition was surprisingly good, although he was still considered critically ill. He was icteric to varying degrees and his fever was moderate. On 6 April 1945, a severe hemorrhage recurred with profound shock. At operation a single bleeding point was located in the center of the liver bed at a distance of five inches from the lateral chest wall straight into the substance of the liver. The amount of liver estimated to have sloughed as a result of his wounding was approximately one-fifth of its total volume, and the bleeding point was located in a recess of liver which had sloughed further, coning down to the bleeding vessel (the thoracotomy wound and diaphragm had opened widely by this time, but the lung was held expanded as a result of pleural symphysis secured earlier by drying the pleura. One definite and probably another fistulous communication were present between a bronchus and the subphrenic space). The lower rib cage was cut across, connecting the subcostal and abdomino-thoracotomy wounds to permit access to this bleeding point. Bleeding was controlled by a plug of fibrin foam, secured under a pack of muscle, which was held in place by deeply placed mattress sutures in the liver bed. This bleeding point was a branch of the portal system, in all probability, since a biliary fistula was present and continued to drain under the muscle pack. From this time on no further hemorrhages occurred and the patient's hematocrit has consistently been 40 or over. He had required 26,000 cc. of whole blood up to this point, to control him and to establish his blood volume. Dressings were again changed in the operating room on 9 April 1945, without incident. On 12 April 1945, the patient developed pain, hemoptysis and friction rub of the left base, probably a pulmonary infarct. Up to this point nutrition had been maintained by intravenous electrolytes, glucose, plasma, blood, added vitamins, and a moderately satisfactory intake of food by mouth. The patient's appetite began to fail and interest in food was definitely lacking. This persisted despite all efforts at special diets, force tube feedings, special nurses, etc. The pulmonary infarct was followed by an effusion, requiring decompression. This fluid slowly became purulent, yielding a non-hemolytic Staphylococcus and Bacillus coli. On 10 May 1945, this empyema was drained intercostally with a moderate-sized tube. A bronchial fistula developed after draining. The left lung completely collapsed, there being only the extreme apical portion visible by x-ray. The course was definitely downhill with progressive malnutrition. During the past week of life there was definite inadequacy of vital capacity, the only functioning lung being the upper and middle lobes on the right, hampered by the presence of bronchial fistulae through the base. Symptoms were controlled by narcotics.

Death occurred at 1935 hours, 26 May 1945.

The salient autopsy findings were:

" The body is that of a severely emaciated young adult white male, measuring 6' in length and weighing an estimated 80 pounds. The degree of musculo-adipose wasting surpasses anything in the experience of the prosector, and defies adequate description. It is literally impossible to demonstrate any superficial muscle group, and the body resembles a skeleton with a thin covering of skin.

The scalp is intact. The face, resembling a skull with a thin taut covering of yellowish skin, is devoid of lesions. The eyes seem enormous, and are sunken in the orbits. There is an intercostal stab wound laterally on the left chest wall at the 8th interspace. The lower ribs laterally on the right have been resected. There is a gaping hole in the right hypochondrium. It easily admits both hands. The space is lined by granulation tissue, and the mesial wall thereof is about 5 inches from the thoracic parietes. The superior portion communicates directly with the right chest, that boundary being terminated by the few remnants of the right diaphragm of the right lung which is displaced upwards to the third rib and fixed by organizing adhesions.

The midline incision discloses essentially absent musculature and no fatty tissue whatsoever. The omentum is gone. All peritoneal surfaces are smooth and clean. The bowel loops are collapsed. Extensive adhesions surround the right lobe of the liver. About 1/3 of this lobe is missing, and the liver mass itself has retracted about five inches from the parietes. The right lobe is covered with a mass of granulating liver tissue in which a dimpled area, evidently the site of the surgically placed muscle patch, is evident. The bile ducts and gall bladder are normal.

The right chest is interesting. The lung, save for the upper lobe, is collapsed and retracted to the level of the third rib, where it is fixed by adhesions. A bronchopleural fistula is demonstrable in the lower lobe. There is no gross pneumonic change. The left chest contains about 200cc. of turbid gray-green pus. The lung here is likewise collapsed; another bronchopleural fistula is demonstrated in the inferior lobe. The lung on section does not appear consolidated; no evidence of an old infarct is discovered.

The gastrointestinal tract shows only one finding of interest, an apparently healed duodenal ulcer on the posterior wall of the first part of the duodenum, just distal to the pyloric ring.

Lungs - 2 A section through an area of consolidation in the right lung shows alveoli filled with cells, mainly lymphocytes with a few polymorphonuclears and pigment-filled macrophages. The air cells of the left lung are collapsed with cellular infiltration similar to that in the right lung. More pigmented macrophages are present in the left than in the right.

Liver - 4 These slides present a picture of wild confusion. Everything from scar and granulation tissue to near-normal liver topography is present. The salient features are: marked dilatation of the blood capillaries, central necrosis, many pigment-filled, large mononuclear phagocytes, and regeneration from bile capillaries. In some areas the picture of necrosis predominates; in others, regeneration. The scar tissue is, for the most part, wellvascularized.

Kidneys - 2 Excepting localized spots of hyperemia and precipitated albuminous material in some of the tubules, the kidneys appear to have been undamaged by the many blood transfusions.

Duodenum - 1 A crater devoid of mucosa 2mm deep by 12mm long (fixed specimen measurements) is present. There is little tissue reaction around it."