

Pfc. [redacted] Arm'd. Regt. S.W.
Injured: 19 Sept. 1943 by dive into shallow water near Ain-el-turck,
Algeria.

Admitted: 19 Sept. 1943 - direct.

Died: 21 Sept. 1943 - of respiratory failure from high cord damage/

This 22 year old soldier fractured the 4th cervical vertebra and was immediately completely paralysed and asensitive below level of 5th cervical segment. There were abrasive wounds of scalp, elbow, chest and abdomen. Critchfield tongs and 25 pounds traction were applied. Xray showed compression of 4th cervical vertebra with displacement of fragments 5 to 6cm posteriorly into canal. He died completely quadriplegic 2 days after injury.

Autopsy: 4, 6.

A. The cervical spine is exposed and a laminectomy performed. The 4th cervical vertebrae is fractured in four places in the body and three places in the arch. There is some posterior displacement of the arch, and the underlying cord had been nearly transected anatomically thereby. There is a considerable herniation of the cord through the dura on the right side in this region, and some hemorrhage into the cord substance has occurred.

B. Removal of the calvarium fails to disclose evidence of fracture, either in the vault or in the base. The brain shows no changes, other than a questionable congestion of the dura covering the cerebral hemispheres.

C. Spinal cord (2 blks; 2 sec); There is extensive hemorrhage throughout the cord substance, which shows marked degenerative change. The anterior horn cells have disappeared.

D. This patient died of respiratory failure two days after an nearly complete anatomical (and complete physiological) transection of his spinal cord at the level of C4.

E. It is not remarkable that he died in so short a time, but rather that the patient was able to breathe at all, inasmuch as all muscles of respiration, including the diaphragm, were completely paralyzed. If anyone can explain the mechanism that this patient managed to establish, I should be glad to know about it.

Diagnoses:

CLINICAL DIAGNOSES

- (1) Fractured 4th cervical vertebra
- (2) Spinal cord injury at level of 4th cervical vertebra
- (3) Flaccid quadriplegia; with loss of all sensory modalities below the level of the clavicles.

PATHOLOGIC DIAGNOSES

- (1) Respiratory system: Bilateral pulmonary atelectasis, partial; bilateral hydrothorax.
- (2) Liver: Proliferation of the Kupffer cells
- (3) Pancreas: Fatty infiltration, moderate
- (4) Genitourinary system: Hemorrhage, submucosal, recent, of left kidney pelvis.
- (5) Central Nervous system: Nearly complete anatomical transection of cervical cord at the level of the 4th cervical vertebra; partial herniation of right side of cord through dura at that level; extensive hemorrhage into cord, extending down to C6 and up to C2.
- (6) Bones and Joints: Fracture-dislocation (posterior) of 4th cervical vertebra, with four fractures in the body and three in

(cont.)

(7) Miscellaneous: Recently-shaven skull; bilateral skull tong marks in parietal bones; irregular 7cm laceration of scalp over vertex (non-infected); surgically removed appendix; ancient appendectomy scar.

CLINICAL HISTORY

- (1) Fractured 4th cervical vertebra
- (2) Skull fracture at level of 4th cervical vertebra
- (3) Fractured mandible; loss of all sensory modalities below the level of the fracture

PATHOLOGIC DISCUSSION

- (1) Respiratory system: Bilateral pulmonary atelectasis; bilateral pneumonia
- (2) Liver: Fatty liver; loss of the Kupfer cells
- (3) Pancreas: Fatty pancreas; loss of the acinar cells
- (4) Gastrointestinal system: Hemorrhagic, submucosal, necrotic ulcer of the stomach
- (5) Central nervous system: Heavily congested; nearly complete anatomical preservation of the spinal cord at the level of the fracture