A Complication of Dissecting Aneurysm of the Aorta

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With 3 Figures in the Text

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Neurological complications of dissecting aneurysm of the aorta are well known and comprise ischemic injuries to the brain, spinal cord and peripheral nerves (WEISMAN and ADAMS). The vulnerability of the spinal cord is understandable in view of the dependence of the cord on supportive branches to its arterial circulation from the intercostal and lumbar arteries (STEEGMANN; TöNNIS). Many, or sometimes all of these arteries are occluded or separated from their connections as a result of the dissection. Depending on the extent of the lesion and collateral circulation, the clinical symptoms may vary from transient weakness of the lower extremities to complete paraplegia and anesthesia of the lower half of the body. The pathological changes may vary from slight anoxic neuronal damage to complete necrosis of several segments. In the case to be presented a dissecting aneurysm of the aorta resulted in almost exclusive necrosis of the spinal cord gray matter with relatively good preservation of white matter. Accordingly, there was complete paralysis of the lower extremities but the sensorium was surprisingly intact.

Report of case

P. G., a 56 year old white male, was admitted to the University of Kansas Medical Center on 1-30-1963 with the chief complaint of severe pain in the chest and abdomen. The pain began in the mid chest and subsequently radiated posteriorly and extended into the abdomen. During the progress of this pain the patient experienced a transient motor paralysis of the lower extremities which cleared spontaneously at the end of one hour. The patient was a known hypertensive with blood pressure frequently reaching 210/170 mm Hg. On admission blood pressure was 140/80. Examination of head, neck and chest revealed no abnormalities. Palpation in the lower midline of the abdomen elicited pain. Remainder of the abdomen was normal. There was 1+ albumin and pus in the urine and peripheral blood count showed 19,000 white blood cells. Other laboratory findings were essentially within normal limits.

Chest x-rays showed upper mediastinal widening and displacement of the left lung by moderate amount of pleural fluid. Arteriogram showed the outlines of the aorta to be irregular from the left subclavian to the renal arteries. This was interpreted as consistent with a diagnosis of dissecting aortic aneurysm.

The patient was immediately taken to surgery and with the aid of extracorporeal circulation fenestration of the aneurysm was performed in the first portion of the descending aorta.

The patient tolerated the procedure well but 24 hours later he was noted to become oliguric and moderate abdominal distention developed. On the second post-operative day he was found to have complete areflexia of both legs. Sensation, however, appeared intact.
In the following days paralysis of the legs persisted and fasciculation of the leg muscles was observed. Although the patient's condition did not permit very detailed examination, sensation of the lower extremities seemed to remain intact at least for touch and pin prick.

Fig. 1. Section from the upper lumbar cord shows good preservation of the white matter. The gray matter at this power appears fragmented and granular. The necrotic changes in the gray matter involve both anterior and posterior horns entirely. (Weil-Weigert myelin stain × 6)

Fig. 2. Section from borderline of gray and white matter in the lumbar cord shows well staining myelin sheaths. The gray matter has disintegrated and contains “gitter cells” unstained by this method. (Weil-Weigert myelin stain, × 120)