The Syndrome of Spontaneous Spinal Epidural Hematoma*

Report of Three Cases

JAMES W. MARKHAM,† HAROLD N. LYNGE, AND GRAY E. B. STAHLMAN
San Jose, California

Acute compression of the spinal cord or cauda equina caused by spontaneous epidural hematoma is relatively rare. Sadka reviewed 12 published cases and added two more. Schultz, et al., Lougheed and Hoffman, and Lépoire, et al., brought the total to 46 cases, to which we are now adding three cases.

Case 1. A 79-year-old white woman was admitted to the San Jose Hospital on January 28, 1961. At 4:00 a.m. that morning she had awakened with severe pain in the thoraco-lumbar region, which was followed by bowel incontinence. A few minutes later her right leg became so weak that she could not walk. Before the sudden onset of her symptoms the patient had been active despite mild cardiac insufficiency and diabetes mellitus.

Examination. The bladder was distended to the umbilicus and catheterization was necessary. Neurological examination January 29, approximately 30 hours after onset of symptoms, revealed flaccid paralysis of both legs, with areflexia, and loss of all sensory perception below the level of T-10 bilaterally.

Spinal puncture revealed a pressure of 100 mm of water, xanthochromic fluid, and a protein content of 2,800 mg%. X-rays of the lumbar spine were normal except for osteoporosis. Myelography revealed a complete block at the level of the disc space between T-11 and T-12.

Operation. Laminectomy was performed approximately 33 hours after onset of symptoms and 12 hours after onset of paraplegia (H.N.L.). The laminae of T-8 through T-11 were resected. A thick, unencapsulated, recently-clotted mass of blood was removed from the epidural space. No abnormalities were found to account for the origin of this clot.

Postoperative course. Twenty-four hours after surgery, the patient could move both feet and the sensory level had dropped to mid-thigh bilaterally. Twelve days after surgery she could rotate the right leg medially, and on the thirteenth day she was transferred to a convalescent home. At the time of last examination, November 13, 1961, 10 months after surgery, she was walking well with the aid of a stroller, although her right leg dragged somewhat. Sensory testing was within normal limits. The right ankle jerk was decreased, but the remainder of the tendon reflexes in the legs were normal. A positive Babinski sign was present on the left. Bowel control had returned to a satisfactory degree, but a retention catheter within the bladder was still necessary.

The cause of the epidural bleeding in this case was unexplained. There was nothing to suggest that trauma was a factor, and the presence of diabetes mellitus was believed to be coincidental.

Case 2. A 45-year-old white man was admitted to the O'Connor Hospital on May 28, 1962, approximately 24 hours after falling 8 feet from a truck. He was stunned at the time, and immediately afterward complained of pain between the shoulder blades. During the next 12 hours he developed pain in both arms and weakness of the right arm, hand, and leg.

Examination. Neurological examination approximately 20 hours after injury revealed weakness of both arms and hands, which was more pronounced on the right side. Marked weakness of the right leg was noted. Pain perception was decreased below the level of T-3 on the left and C-8 on the right. Temperature sensation was decreased below T-3 on the left, while vibratory sensa-
Spontaneous Spinal Epidural Hematoma

Severe bend in the left leg. Tendon reflexes were increased in the right arm and leg. The Babinski sign was present on the right. Abdominal and cremasteric reflexes were absent bilaterally. Myelography was performed, revealing a partial block at the level of the disc space at C7-T1. The spinal fluid protein was 77 mg%.

The morning after hospital admission, catheterization of the bladder was necessary; 1,100 ml of urine were released. X-rays of the cervical spine were normal.

Operation. Laminectomy was performed approximately 24 hours after injury and 18 hours after the onset of motor weakness (G.E.S.). The lamina of C-7 was removed bilaterally. In the epidural space there was a large, recently-clotted mass of blood which extended anterolaterally on the right and dorsomedially on the left. It was thicker on the right. After removal of the clot with cup forceps and suction, the dura was opened. The spinal cord appeared somewhat edematous but no other abnormalities were observed.

Postoperative course. The patient's motor and sensory findings improved each day. Seven days after surgery, however, while being turned in bed, he suddenly developed dyspnea, cyanosis, and hypotension, and died a few minutes later. Autopsy revealed a massive pulmonary embolism which had originated in the right leg. The cervical cord showed no gross abnormality. Microscopic sections of the cervical cord at the level of C-7 were normal except for a small focus of gliosis in the gray substance on the right.

In this case, injury appears to have been a contributing factor to the onset of the epidural hematoma. Since there was no radiographic evidence of spinal injury and no source of the bleeding was found at surgery or autopsy, it is difficult to understand why such an unusual lesion developed despite the recent trauma. Two cases reported by Hopkins and by Shenkin were similar (see Table 1, Cases 3 and 8).

Case 3. A 56-year-old housewife was admitted to the O'Connor Hospital on July 15, 1962. Twenty-eight hours earlier she had bent over to pick up a towel and experienced severe low-back pain with radiation into both legs. A physician examined her at home 3 hours later, suspected a ruptured lumbar disc, and administered a hypodermic for pain. Shortly after his departure, she attempted to walk to the bathroom but her legs would not support her and she fell. She refused to be moved from the floor for approximately 12 hours; by then she had acute urinary retention.

The patient had had variable hypertension for several years. There was no history of previous backache.

Examination. Neurological examination on admission revealed flaccid paraplegia from the hips down, and absence of tendon reflexes in both legs. The Babinski sign was not obtained. Complete loss of sensation for touch, pain, and vibration was found below the junction of the middle and upper thirds of the thighs. X-rays of the lumbar spine were normal. The spinal fluid was clear and colorless, with normal cell count, but the protein content was 358 mg%. The manometric tests were normal. Myelography revealed a complete block at the level of L-1 (Fig. 1).

Operation. On July 16, surgery was begun 33 hours after the onset of symptoms and 30 hours after the onset of motor paralysis (J.W.M.). The laminae of T-9 through T-12 were removed bilaterally. An extensive, unencapsulated mass of clotted blood was found extending from the rostral margin of L-1 to the caudal margin of T-9, occupying the dorsal aspect of the dural sac and both lateral recesses. The clot was considerably thicker along the left aspect of the dura which, in fact, was displaced somewhat to the right. The clot was thickest posterior to the body of T-10 and lateral to the dura at that level. Upon removing the clot with cup forceps, several large epidural veins were seen, and active bleeding occurred. The wound was closed without opening the dura. Microscopic examination of the surgical specimen revealed clotted erythrocytes, very few lymphocytes, scattered fibrin strands, and loose areolar tissue, but no evidence of vascular malformation or neoplasm.

Postoperative course. Six hours after surgery, the sensory level had dropped to midtibial level and the Babinski sign was present bilaterally. Two days postoperatively she was able to move both legs and had some