Extensive Spinal Epidural Abscess Treated by Laminectomy and Hypothermia

Case Report*

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It was Hippocrates (460–377 B.C.) who said “Extreme remedies are very appropriate for extreme diseases.” The following case delineates the clinical course of a young marine who when first seen by the Neurosurgical Service was in critical condition with quadriplegia caused by an extensive confluent spinal epidural abscess. He was both febrile (107°F) and toxic. Treatment consisted of decompressive cervical, thoracic, and lumbar laminectomy and concomitant hypothermia with excellent, although unfortunately not complete, relief of the quadriplegia.

Case Report

A 17-year-old private in the U. S. Marine Corps was admitted to the Naval Hospital, San Diego on March 12, 1963 because of fever of undetermined origin. He had been in excellent health until 4 days previously. At that time, while on the rifle range, he first noted pain in the low lumbar area of his back when he assumed the sitting position. This low-back pain became increasingly severe and 2 days prior to admission it was noted that he was febrile, for which a wide spectrum antibiotic (tetracycline) was administered. Roentgenogram of the chest was normal. His throat was moderately inflamed and culture at that time yielded a beta Streptococcus. Because of the increasing severity of the pain in the back he was admitted to the Naval Hospital. Past history and review of systems were noncontributory. He had had no abrasions, contusions, or history of furunculosis or recent infections.

Examination. He was an acutely ill male with a temperature of 104.4°F. His neck was supple but there was inflammation of the pharynx with a purulent postnasal drip. Heart and lungs were normal except for tachycardia. There were no murmurs. There was an erythematous rash which blanched on pressure over the trunk and both upper extremities. There was no significant adenopathy. Neurological findings were described as “physiological.” Laboratory studies revealed a hemato-

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dural space that was thick and yellow and had the gross appearance of *Staphylococcus aureus*. This had caused a complete block at the level of C4. In addition to the liquid purulent material, older epidural granulation tissue was present completely surrounding the dural sac, much thicker posteriorly than laterally. The same situation was encountered in both the thoracic and lumbar areas. In the lumbar area, however, an additional finding was that of free pus in the epidural space that had dissected through the interlaminar spaces into the paraspinal musculature on the left side, forming an abscess cavity under the lumbar fascia. This cavity contained approximately 300 cc. of thick yellow pus and was encountered as soon as the thoracolumbar fascia was opened in that area. It was decided not to open the dura mater in any operative site. After wide decompressive laminectomy had been performed in each of the three operative sites, #8 Davol tubes were passed epidurally, both cephalad and caudad in each of the locations. These tubes were irrigated with a solution containing 500 units of bacitracin per cc., and were allowed to remain in place. The operative wounds then were packed open, utilizing "adaptive" gauze packing on the free surfaces of the muscles. Retention sutures of #8 stainless-steel wire with Davol tubing cuffs were placed in the wound but the retention sutures were not tightened at the time of operation. The estimated loss of blood through the entire procedure was 4,000 cc. and the patient received 8 units of whole blood during the procedure.

_Course_. A postoperative tracheostomy was performed. His general condition was good. A temperature of 97°F was maintained by hypothermic measures for the first

Achilles reflexes. Babinski's sign was not present. It was the neurosurgical consultant's opinion that this condition probably represented a transverse myelopathy caused by an extradural abscess, and immediate myelography was undertaken. Upon insertion of a #18 spinal needle in L2 interspace, approximately 5 cc. of thick yellow pus were encountered. There was no evidence of spinal fluid. Two cc. of Pantopaque were instilled and anteroposterior (Fig. 1) and lateral (Fig. 2) roentgenograms revealed that the Pantopaque had entered a lobular cavity of an abscess at the level of the 3rd lumbar vertebra, extending into the paraspinal musculature. A cisternal tap then was performed with a #20 needle with the patient in the sitting position and 2 cc. of intracisternal Pantopaque were instilled. This revealed a complete block at the level of the 4th cervical vertebra (Fig. 3). The spinal fluid in the cisterna magna was slightly cloudy but not grossly purulent.

_Operation_. Under general anesthesia, with the patient on a Foster frame the entire cervical, thoracic and lumbar areas of the back were prepared and draped. Because of the marked hyperthermia (107°F), the patient was packed in ice in an attempt to combat the deleterious effects of the extreme hyperthermia and also to reduce metabolism of the central nervous system. Temperature of 97°F was achieved and maintained throughout the surgical procedure. Through vertical midline incisions a laminectomy from C3 through C6, T6 through T9, and L3 through L5, was performed. In the cervical area free pus was encountered in the epi-

![Fig. 1. Anteroposterior view of lumbar spine showing Pantopaque in the perispinal *Staphylococcus aureus* abscess, lateral to the body of L3. There is no cephalad flow of the intraspinal Pantopaque.](image)

![Fig. 2. Lateral view of lumbar spine illustrating position of *Staphylococcus aureus* abscess presenting just under the thoracolumbar fascial plane.](image)