THE SIGNIFICANCE OF TEMPORARY AND ALTERNATING PTOSIS, MIOSIS AND ANHIDROSIS*

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When the spinal cord of man is injured, a wide variety of complex patterns of activity may develop. Those such as the reflex actions of the somatic musculature, have been the subject of many recent writings. In those patients with injury above the fourth thoracic spinal segment, hypertension and peculiar sudomotor reactions result from reflex stimulation of the afferent limbs of the sympathetic system—most potently induced through the segments supplied by the sacral nerves. Occasionally such reflexes may be of such a disabling nature that they require surgical elimination. In the same general realm of interest are those sympathetic reflexes concerned with the face and eyes. A careful study has been done in regard to the ciliospinal reflex in patients with injury of the cervical spinal cord, indicating that the afferent pathway is changed after injury. From all indications, the cervical sympathetic impulses operate independently of the abnormal reflex responses of the trunk and limbs.

Perhaps the most intriguing finding made in an extensive experience with patients who have had injury to the cervical spinal cord has been a condition of ptosis, miosis, and anhidrosis which has been unilateral and temporary and which could be varied by altering the position of the patient. This report deals with 6 such patients in whom explanations for the changes appear to have been found.

ILLUSTRATIVE CASES

Case 1. #159001. C.W.H., a 15-year-old boy, was injured in an automobile accident on June 16, 1951. He believes that he was able to get up to one knee, then lapsed into unconsciousness. Two days later he was moving all extremities voluntarily. Two days after this, a fracture-dislocation of C5 on C6 was manipulated, after which he was placed in traction. He did not move any extremity after this procedure. In 3 weeks he was transferred to another hospital where a laminectomy was performed.

On July 23, 1951, he was admitted to the James Whitcomb Riley Hospital with eleven decubiti, a hemoglobin of 8.5 gm. per cent, blood pressure of 100/60, and an absolute sensory and motor level at C5. He also had a urethroscrotal fistula and a severe paraphimosis.

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After much supportive therapy and routine investigation, a laminectomy was carried out on Aug. 25, 1951. The spinal cord was found to be compressed laterally by bone fragments. There was a strip of yellowish tissue lying under the arachnoid for a distance of approximately 4 cm. along the right side. This was removed, apparently representing cord material that had extruded through a pial tear at the time of injury. The rent in the pia mater was found at the C6 level where a cavity was present in the cord. This tissue revealed a microscopic picture of pale-staining glial nuclei and nerve cell bodies lying in a fibrillar and loosely arranged stroma, with no evidence of inflammation. The cavity was irrigated and was seen to extend distally.

Following the operation he did very well and in the subsequent months multiple skin procedures were done for the purpose of eradicating the decubiti. After developing an automatic bladder, he was discharged in November 1951.

He was readmitted on Oct. 10, 1952, for repair of a newly formed coccygeal decubitus. At this time, his sensory level was incomplete at C6, with some scattered areas below, and he had active motor elements in the trunk. Of particular interest was the observation that when the patient was in the left lateral position, the right side of the face and neck showed obvious perspiration whereas the left side was dry. On closer examination it was also seen that the left pupil was distinctly smaller than the right, and that the left palpebral fissure was narrower than the right. When he was turned to the right lateral position, the situation was reversed. That is, the right side of the face was now dry and the left showed perspiration, the right pupil was smaller than the left and the right palpebral fissure was narrower than the left. When lying on his back, these differences were not in evidence.