NEUROLOGICAL COMPLICATIONS IN SURGERY

JOHANNES M. NIELSEN, M.D.

BATTLE CREEK, MICHIGAN

THE neurologist frequently is in the fortunate position of consultant on problem cases. As patients are often referred by him to the surgeon, and to him by the surgeon, he is enabled to gather cases which in themselves are rare but collectively may be instructive in showing lurking dangers.

Among complications which are well-known and hence only to be mentioned in passing are the introspection and somatic fixation seen in psychoneurotics following surgery, nerve palsies from setting of dislocated limbs, aphonia after thyroidectomies, radial nerve injuries in extended arms following Trendelenburg posture, and Erb-Duchenne's paralyses from podalic extractions.

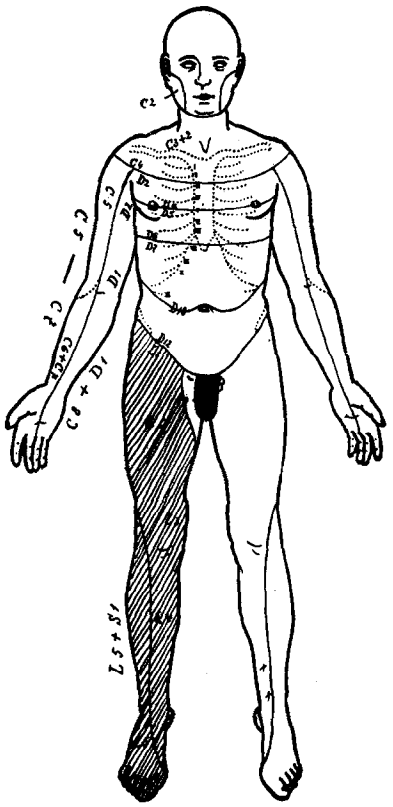

FIG. 1A.

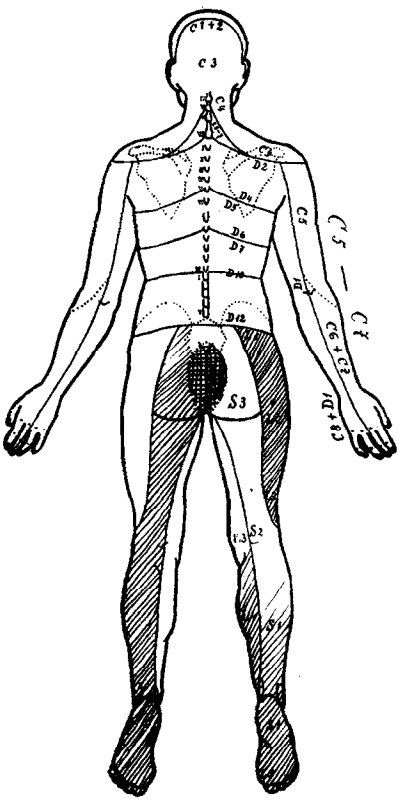

FIG. 1B.

FIGS. 1A and B. Case 11. Dark shading represents total anesthesia, light shading hypesthesia at time of first examination.

It is not my purpose to present here common complications but rather the unusual and little-discussed cases. Those presented have not been gathered from this clinic alone but are the most instructive and uncommon which have come to our attention.

CASE REPORTS

Case I. Miss L. B., nurse, aged thirty-five, of a neurotic temperament but otherwise complaining only of rectal discomfort, was operated upon under gas anesthesia. Four large internal hemorrhoids were removed by the ligation method.

During the operation the lower limbs were suspended in stirrups. An inexperienced assistant, unnoticed, leaned against the right limb somewhat during the fifteen or twenty minutes of the operation.

When the patient recovered consciousness

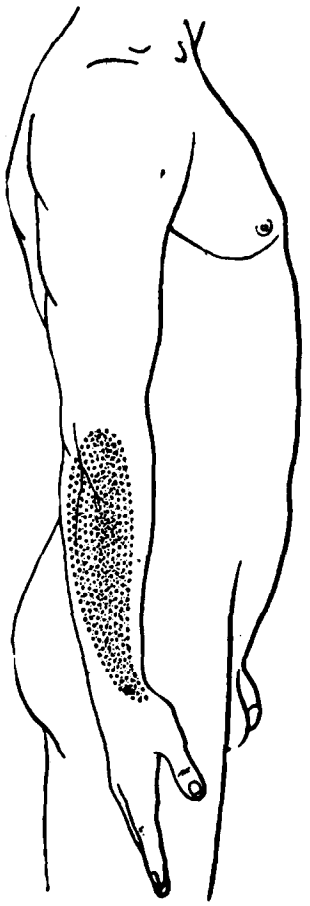

Fig. 2. Cutaneous anesthesia in complete section of the musculocutaneous nerve. (From Jelliffe and White, Diseases of the Nervous System. Phila., 1919.)

she could not raise the right foot above a right angle with the leg. On the sixth day when she attempted to walk she had poor control of the right foot and a foot drop. Examination disclosed tenderness along the peroneal trunk and the peroneal group of muscles. There was no anesthesia but considerable pain, which was not relieved by any of the usual mechanotherapeutic means. Massage and electrical stimulation were given and the function slowly returned, but even after eleven months the tendency to foot drop persisted.

Case II. Mrs. I. T., aged thirty-six, was referred to a surgeon for perineoplasty, which was done under lumbar anesthesia. When this began to wear off the patient complained of severe pain in the tip of the coccyx and in the sacral region. This continued unabated for two weeks and was relieved temporarily by heat but not in any other way except by opiates. With the pain came a saddle-shaped area of total anesthesia in the perineum and buttocks, (see Fig. 1, A and B) rectal and vesical insensibility, and the patient became involuntary to urine and feces.

When she was seen two weeks after operation the foregoing was confirmed but there was in addition hypesthesia in the first and second sacral areas on the left and all lumbar segments on the right. The lumbar segments had escaped on the left, while the first and second sacral segments had escaped on the right. The pain was greatly increased by raising the trunk, straining, coughing or sneezing. A diagnosis of a cauda equina lesion was made, probably hemorrhagic. Improvement has been steady but slow. Five weeks from the onset, there was marked sensitiveness in the area formerly totally anesthetic. The other segments had returned to function but the patient walked clumsily. In six months there were still a few remnants in the form of hypesthesia.

Case III. Mr. A. H. S., aged seventy-one, suffering from cardio-vascular-renal disease and maxillary sinusitis, was operated upon for drainage of the sinus. After local anesthesia the trocar was inserted in the usual way and air was gently forced into the sinus. Abundant discharge of pus through the natural sinus opening occurred. When this had drained, a little more air was injected but the patient immediately complained of "feeling funny." His head was lowered, all apparatus was removed and he was asked whether he wished to be carried to a chair or preferred to walk. He chose to walk but found himself unable to move his lower extremities. The arms were weak. The man had a thick, bulbar speech and some dysphagia. Examination revealed a diplegia with a bilateral Babinski reflex, which disappeared in four days. A vascular spasm in

the medulla was diagnosed. In two weeks the patient was as well as before.

Case iv. R. A., a boy aged fourteen, was taken with attacks of pain in the region supplied by the fourth to the seventh dorsal segments on the left side. The pain completely incapacitated him for a day at a time. There was constant exquisite hyperesthesia to light touch, even clothing causing severe pain. Bouts of pain with continuous hyperesthesia continued for four years, when the sensory roots in the segments named were cut by a neurologic surgeon. The pain in the original four segments was replaced by total anesthesia but it soon recurred in the segments above and below. Bleeding occurred into the spinal canal and gave rise in twelve hours to a total paralysis below that point. A second operation to relieve this condition showed that there was a general oozing; the patient was a hemophiliac. He was still paralyzed one year later.

Cases v, vi, vii and viii. These were all women operated upon by four different surgeons, but one description will apply to the four cases.

Following the operation it was found that the patient had one weak arm. She was entirely powerless to flex the elbow unless the forearm were first pronated and then flexion was still weak. In addition to the weakness there was an area of numbness and anesthesia as shown in Figure 2. The diagnosis was simple —musculocutaneous nerve paralysis. But the explanation of the mechanism by which the lesion was produced was not so simple.

Radial nerve lesions are well known in cases where the arm is inadvertently allowed to dangle during a pelvic operation in the Trendelenburg posture. But this had not occurred as the arm in question had been strapped to a board to obtain blood pressure readings. An analysis was much facilitated by having the neurologist placed in a similar but exaggerated posture for a few moments. It was found that an arm abducted to a right angle with the body and then pressed backward would give the precise conditions to cause stretching of the musculocutaneous nerve. Therefore, if the board supporting the arm were stuck under the table pad and a similar pad were not placed on the board, a musculocutaneous nerve paralysis resulted. All patients recovered and no similar cases have resulted since the technique was changed.

Hardly any comment is necessary. I have nothing new to offer in preventing such complications as resulted from the sinus drainage or from the lumbar puncture. The other types of complications may obviously be prevented.