# HORNER'S SYNDROME—COMPLICATION OF LUMBAR SYMPATHETIC BLOCK

Paravertebral sympathetic blocks have been a valuable diagnostic and therapeutic measure since the early work of Labat in 1928. In his thorough treatise on the subject in 1947, Mandl states that complications are rare and usually of a technical nature (1). The safest agent to use is procaine. However, complications have been seen by all physicians using this procedure. They may be due to injection into blood vessels, the pleural space, the lung, the subarachnoid space, or abdominal organs such as the kidneys. Also a neuritis may occur, but usually this is a complication of blocking with ethyl alcohol. Reports of broken needles are to be found. Infection may result and a true allergy to procaine has been reported (2). We wish to report a case of massive unilateral sympathetic blockade following injection of procaine around the sympathetic ganglion at lumbar segments 1 and 2.

## CASE REPORT

An 18 year old white female was admitted to the hospital on January 8, 1954, with a history of phlebitis of the left calf of five days' duration following a bruise. She appeared in good general condition and had a normal laboratory urinalysis and blood count. On examination, the left calf was slightly warmer than the right, tender and three-quarters of an inch larger in circumference. There was no limitation of movement but she had moderately severe pain on moving the left leg. A positive Homan's sign was elicited. Shortly after admission, a left lumbar paravertebral sympathetic block was done at L1 and L2. After positioning the needles and checking for blood and cerebrospinal fluid, 10 ml. of 2 per cent procaine was injected at each level. In approximately ten minutes, the entire left leg became considerably warmer than the right, which was indicative of a good sympathetic block. Tenderness was less. The patient was helped to stand and walk and stated that the movement caused no pain. After returning to bed, she complained of mild dizziness and then diplopia and tinnitis in the left ear. On examination, she was seen to have constriction of the left pupil, ptosis of the left lid, and increased warmth without sweating of the left side of the head, the neck, the arm, and the thorax. Inadvertent subarachnoid block was ruled out, for there was no sensory or motor paralysis. Blood pressure and pulse remained normal. This was interpreted to be a complete sympathetic blockade on the left side. She was given 1 gr. of luminal® by hypodermic and kept in bed. Symptoms and signs disappeared in one and one-half hours. She remained in the hospital for five days with a rapid recovery of the phlebitis, and was discharged on January 13, 1954.

## DISCUSSION

Almost all blocks admittedly are "around" the area of the nerve or the ganglion desired. Mandl states that larger volumes of dilute anesthetic are more satisfactory as they tend to spread more readily than a smaller volume. In most cases, the anesthesia is thought to include the ganglia one or two segments above and below the intended area. This probably is due in part to the intercommunication of the nerve fibers and in part to the diffusion of the anesthetic substance along the fascial planes in which the ganglia lie. Alexander and Lovell injected 4 to 5 ml. of diodrast® in blocking the stellate ganglion and x-ray pictures showed the dye to be as high as the superior cervical ganglion and as low as the fourth dorsal (3). From this work, it is known that solutions can spread in the fascial plane of the sympathetic chain. Also, in our case, it is possible that having the patient stand and walk after the block may have enhanced the fascial spread of the lumbar sympathetic block.

In reviewing this case, the possibility of an overdose of procaine as a cause of extending anesthesia into the upper thoracic regions was considered. Recommended doses of procaine for paravertebral block are: Adriani (4), 10 to 15 ml. 1.0 per cent; James C. White, 2 ml. 2 per cent; Labat, 5 to 6 ml. 1 per cent; and Mandl, 10 to 15 ml. ½ per cent or

20 to 30 ml. ¼ per cent (1) at each site of injection. Although our dosage of procaine was 2 to 5 times as much as usually is suggested, the volume used undoubtedly is of more importance in obtaining an anesthetic spread of the block. It is thought that the only reasonable explanation for obtaining a total left-sided sympathetic block from a lumbar sympathetic injection would be by procaine diffusion up and down the fascial planes of the sympathetic chain.

This is considered an unusual complication of lumbar paravertebral sympathetic block therapy; at least it has not been reported, to our knowledge, in the medical literature. Fortunately, it was not of any clinical significance in this case.

REFERENCES

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## A MODIFIED MILLER LARYNGOSCOPE

I have changed the position of the light bulb on the Miller laryngoscope, which, in my experience, has improved laryngoscopy in the dentulous patient. Central placement of the light has given a brighter field and better definition of the larynx.

R. Foregger, Ph.D., suggested the fenestration in the curved tip of the blade. This has proved worth while inasmuch as it recesses the bulb and minimizes obstruction to vision.

The laryngoscope * is inserted easily from any part of the mouth and with a protected bulb there is no interference from tongue or pharyngeal wall; furthermore, "blinking" has never occurred since there is no pressure on the bulb.

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* Manufactured by the Foregger Company, New York, New York.

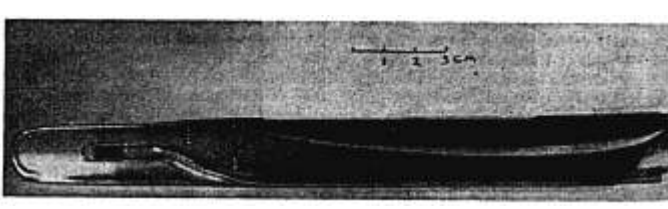

FIG. 1.