Subarachnoid Block with Phenol-Glycerine for the Relief of Intractable Pain

WILLIAM F. KENNEDY, JR., M.D., AND TOSHIO AKAMATSU, M.D.*

Since 1930 when Dogliotti [1] introduced to clinical practice the intrathecal injection of alcohol, chemical rhizotomy has proven to be one of the effective and useful methods in the management of intractable pain, particularly in patients with terminal cancer. However, since subarachnoid alcohol block is sometimes followed by complications, the search for a better method of producing chemical denervation continues. In 1955, Maher [2] first reported in the British literature the intrathecal use of phenol-glycerine solution in patients with terminal malignancy. Subsequently, encouraging results were published by Nathan [3] and Brown.[4] More recently, Mark and his associates [5] published the first report in the American literature. We were prompted to evaluate this method when Brown of Edinburgh visited our department in 1951 and reported a high incidence of success. Our results have been sufficiently encouraging to prompt us to report them and describe our technique.

In our practice, this method has been used for: (a) the treatment of intractable pain, and (b) the relief of spasticity in paraplegia. In managing cancer pain, this technique was reserved for terminal patients with short life expectancy (six months or less) and those with widespread metastases. When a prolonged life expectancy was anticipated, and the procedure suitable, a spino-thalamic tractotomy was performed. In patients with spastic paraplegia, the injection of phenol renders the limbs flaccid, thus facilitating nursing care and the rehabilitation of the patient.

TECHNIQUE

The patient was placed on an operating table with the affected side down (the specific gravity of glycerine is 1.25) with 15 degrees of reverse Trendelenburg. A subarachnoid puncture was performed one space cephalad to the highest root that was to be blocked. If the puncture was performed at or below the second lumbar space, we employed a 20 gauge Whitacre spinal needle in order to more accurately deposit the phenol-glycerine solution around the nerve root. If the site was above the second lumbar space, a short bevel 20 gauge spinal needle was employed because the shorter point was less likely to injure the spinal cord. The viscous phenol-glycerine solution was then injected into the subarachnoid space in 0.25 ml. increments, and the patient was instructed to announce any changes that he noticed. If an adequate amount of the agent had been injected, pain disappeared in 15–30 seconds. If the pain was relieved by the initial injection, the procedure was terminated. If, however, pain persisted 15 minutes following the initial injection, an additional 0.25 ml. of phenol-glycerine was injected provided it was demonstrated that there was only C fiber impairment.

To date, fifteen patients have been treated. Ten of the patients had results which we classified as good; they were comfortable and did not require narcotics. Five patients had fair results and required supplemental narcotics. Three patients incurred complications, consisting of urinary retention in one which required the insertion of an indwelling urethral catheter for 48 hours, wrist drop in the right upper extremity with only partial resolution of this problem in another, and severe chemical arachnoiditis after pain relief was achieved with phenol-glycerine in the third patient.

The following case history of a patient who had a good result from subarachnoid block with 5 per cent phenol-glycerine is illustrative of these results.

A 64-year-old woman had carcinoma of the cecum with pain in the right lower quadrant. One year prior to her initial visit in the Pain Clinic, a laparotomy and bowel resection was performed. Since that time, the pain had gradually increased in severity to the point where the patient was bedridden and required a narcotic analgesic every three hours. With the patient in the right lateral decubitus position, a subarachnoid puncture was performed at the seventh thoracic space and a

* University of Washington School of Medicine, Seattle, Washington.

total of 0.7 ml. of 5 per cent phenol-glycerine injected. There was complete relief of pain and hypalgesia from the seventh thoracic to the first lumbar neurotomes. At the present time, six weeks after the block, the patient is ambulatory, performing her household duties, and no longer requires narcotic analgesic.

We believe that this technique is better than subarachnoid alcohol block because the hyperbaricity of the solution permits more precise placement of the analgesic with the nerve roots involved in the pain. On the other hand, complications can occur with this method. Moreover, the procedure appears to be less effective in the management of nonmalignant pain problems.[4, 6] On the basis of these results as well as those of others, we wish to suggest that the procedure be limited to the treatment of intractable pain of inoperable carcinoma or relief of spasticity.

References

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Treatment of Laryngospasm by Digital Elevation of Tongue

Lester C. Mark, M.D.*

Dr. Mark notes that reflex closure of the glottis caused by mechanical stimulation, *e.g.*, insertion of an artificial airway too early during the induction of anesthesia (or failure to remove same until too late in the emergent phase) may result in complete and prolonged respiratory obstruction. Fink [1] has described the mechanism responsible as a ball-valve closure of the larynx accomplished by the invaginating epiglottis and the aryepiglottic folds. Attempts to inflate the lungs forcibly by manual or other pressure applied to the breathing bag are useless; the pyriform fossae on either side of the larynx simply become distended, while the aryepiglottic folds are forced even more firmly down upon the infolded epiglottis. Valuable time may be lost in attempts to secure a vein for the administration of a muscle relaxant drug. In this desperate situation, digital elevation of the tongue may be life saving. The procedure is accomplished as follows: gently pry the jaws open, maintaining the aperture with a bite block or with thumb and forefinger. Insert an index finger over the tongue deep into the pharynx (the epiglottis is thus frequently palpable), hook the end of the finger over the base of the tongue and pull the whole tongue upward and forward. This raises the hyoid bone and, through the hyoepiglottic ligament, the epiglottis. The larynx is literally unfolded and the obstruction at once relieved. Despite the apparent risk to the anesthesiologist's fingers, this maneuver is ordinarily readily accomplished in children and is frequently possible in adults except in the very robust.

* Columbia University, New York City.

Reference

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