

he leaves a drop of the solution hanging from the outer receptacle of the needle. He then advances the needle pushing as slowly as possible, and when the epidural space is reached the drop is aspirated inward." . . . "With this sign, and the assurance that the point is in the extradural space, 10 cc. of air is injected to separate the dura from the end of the needle. The anesthesiologist then injects 5 cc. of anesthetic solution and waits five to ten minutes. The latter precaution is essential to ascertain whether the dura has been punctured. If it has the specified amount of anesthetic is sufficient to produce intradural (spinal) anesthesia. If after this time no signs of anesthesia are noted the rest of the solution is injected. The amount of anesthetic solution depends upon its concentration and the duration of the operation."

Various anesthetic solutions have been tried by the author, but he prefers to use Gutierrez mixture (0.5 neotocain (pontocaine) and 0.50 novocaine (procaine)) which is then dissolved in 50 cc. of physiologic saline solution, and 10 drops of adrenalin added. The anesthetic dose ranged from 20 cc. to 46 cc. The puncture was made between the 7th cervical and the 1st thoracic vertebrae for operations in the neck and thorax. For operations in the abdomen the puncture was made between the 11th thoracic and 3rd lumbar vertebrae. For anesthesia of the perineum and lower extremities the puncture was made between the 3rd and 5th lumbar vertebrae. The time that the patient was kept in sitting position following the injection of anesthesia varied with each site of injection. It took twenty minutes to get complete anesthesia from the time of injection. There was only one complete failure of anesthesia in the series of 600 cases.

The author maintains that failures and accidents which may occur are

due largely to inexperienced and improper technic.

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TRUMAN, S. R.: *Oil Solutions in Local Anesthesia: Experimental Appraisal.* West. J. Surg., Obst. & Gynec. 53: 364-365 (Oct.) 1945.

"The use of anesthesia in solution in oil has gained considerable popularity for surgery about the rectum and anus. This popularity is due to the prolonged action obtained, anesthesia or analgesia lasting for several days, occasionally as long as a week. After observing the use of the oil anesthetics in a large number of cases the author used a solution made up of procaine base, 1.5 per cent; butesin, six per cent; benzyl alcohol, five per cent; in almond oil for all minor rectal surgery and occasionally postoperatively in hemorrhoidectomies. The results were usually quite satisfactory regarding the relief of pain, but there seemed to be considerable prolongation of the healing time of the wound. . . . A rabbit was anesthetized with an intravenous injection of nembutal and the entire abdomen was shaved. On one side 2.5 cc. of the oil anesthesia was infiltrated subcutaneously over about a three inch area, great care being taken to infiltrate evenly to prevent pooling; then the area was gently massaged to distribute the anesthesia evenly. Following this two squares of skin were excised from this side of the abdomen, one from the area where the oil had been infiltrated and one from an area of untreated skin. On the other side of the abdomen an area three inches square was also infiltrated with 2.5 cc. of the oil anesthesia with similar care. The two linear incisions two and one-half inches long were made on this side, one through the oil infiltrated area and one through an untreated area. Pictures, measurements and notes were made and then the

wounds observed periodically for a period of two weeks. . . . This experiment confirms the clinical impression that infiltration of an oily solution of anesthesia delays and prolongs healing, increases inflammation and produces increased scarring. The injection of the oil anesthesia has been shown to produce prolonged bleeding, increased swelling and ecchymosis, failure of the wound edges to contract and invert, and the increased inflammatory reaction and foreign body reaction about the oil delays healing and increases scar formation."

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HORNER, H. O.: *Refrigeration Anesthesia*. Am. J. Surg. n.s. 70: 201-212 (Nov.) 1945.

"The use of refrigeration anesthesia for major amputations of the limbs is a sound surgical procedure. It is applicable in particular to the poor risk patient since there is scarcely any shock accompanying the procedure. It is possible to perform major amputations safely with this form of anesthesia in what formerly were hopeless

cases because of debility or septicemia. It lowers the incidence of stump infections in those patients requiring amputation because of infection. . . . Pain is relieved in most instances after the application of cold, thus adding to the ease and comfort of the patient as well as facilitating preoperative preparation. The postoperative period is likewise free from pain. . . . There is ease and quickness of operation in these cases. Poorly nourished tissues may be saved although refrigeration will not restore devitalized tissue. Edema and drainage may be controlled postoperatively when necessary. There is also a reduction in the incidence of thrombosis and embolism. This method of anesthesia is also valuable in severe crushing wounds of the extremities or other injuries that require amputation. This form of refrigeration is not intended to supersede other forms of anesthesia when the general condition of the patient is good, but is a valuable adjunct in the treatment of the poor risk patient. 23 references.

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