

1928

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# GOOD SAMARITAN HOSPITAL

TELEPHONE BEACON 3171

CORNER MARSHALL AND TWENTY-THIRD STREETS

EMILY L. LOVERIDGE, SUPT.

MEMBER OF  
AMERICAN HOSPITAL ASSOCIATION

PORTLAND, OREGON,

December 20, 1927

Mr. J. O. Brougher,  
1518 Killingworth,  
Portland, Ore.

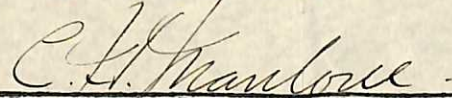
Dear Mr. Brougher:-

This is to notify you that  
you have been appointed as interne in the  
Good Samaritan Hospital.

The service commences July  
10th., 1928.

Please let me know at your  
earliest convenience whether you desire to  
accept or not.

Very truly yours,



C. H. Manlove, M.D., Chairman  
of Internship Committee.

CHM:M



UNIVERSITY OF OREGON  
MEDICAL SCHOOL

OFFICE OF THE DEAN

PORTLAND, OREGON.

June Eighth  
1928

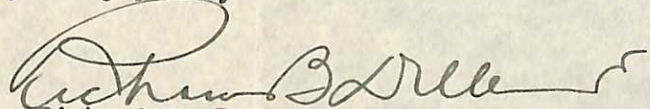
Mr. John C. Brougher,  
1518 Killingsworth Avenue,  
Portland, Oregon.

My dear Mr. Brougher:

I am happy to inform you that, pursuant to the action of the faculty of the Medical School taken June 7, 1928, you have been recommended to the president of the University of Oregon as a candidate for the degree of Doctor of Medicine.

With kindest personal regards,

Very truly yours,

  
Richard B. Dillehunt,  
Dean.

RBD:HAG



## The Use of Local Anesthesia In Delivery

**John C. Brougher, M.D.**  
*Vancouver, Washington*

WHEN Simpson administered an anesthetic to Queen Victoria over a hundred years ago at the birth of her seventh child, the relief of pain in childbirth was considered acceptable. Nevertheless, since that time, the debate has continued between those for and against anesthesia, among both physicians and laymen, with the decision alternately approval or disapproval.

For 50 years beginning with Steinbuechel's studies<sup>1</sup> on the effect of scopolamine and morphine in obstetrical practice, the search for a perfect analgesic agent for women in labor has continued. A great variety of substances has been used, orally, rectally and hypodermically. The so-called modern method of caudal anesthesia had its origin in 1910 when a French physician adopted a labor room technic on injecting an anesthetic solution around the nerves at the base of the spine and thus obliterating the pain of labor and delivery. Of course, present-day administration of caudal and spinal block has many refinements and in the hands of skilled operators both blocks offer good results. Intravenous pentothal and even a one per cent solution of procaine in 5 per cent glucose have been given for the relief of pain in the second stage of labor. As a method to reduce pain Grantley Dick Read's book, "Childbirth Without Fear,"<sup>2</sup> has provoked much interest not only in obstetrical meetings but also in the lay press.

What the next 25 or even 5 years will show in regard to relief of pain in labor is difficult to determine. The question of greatest importance, however, is what effect analgesia has upon conservation of fetal and maternal lives.

In an effort to approach the irreducible minimum of maternal deaths, the author has employed local anesthesia since March 1948. During this time, all patients have been delivered by nerve block and infiltration, when applicable, as described by Greenhill and others.<sup>3,4</sup>

Prior to the use of novocain® block, the author used moderately heavy sedation during labor, and drop ether administered by a nurse during the second stage of labor. In reviewing maternal deaths in over 5,000 deliveries by the author, it was found only three women had died, one a cardiac patient with acute pulmonary edema, one from virus pneumonia, and one from atelectasis due to aspiration of food following ether anesthesia. This last death not only prompted the writer to the routine use of local nerve

block for all deliveries but resulted in a policy whereby the two hospitals in Vancouver arranged to have a trained surgical anesthetist at hand for all deliveries. Prior to this time, the author had used novocain® block in cases of breech delivery, multiple births, or premature parturition, also having used it for a time in 1932 when nembutal® and scopolamine were the analgesic agents being used during labor, since these were unsatisfactory because of associated restlessness. Novocain® block is now administered just prior to delivery while the patient receives nitrous oxide. In multipara there may not always be time to inject the novocain® before the baby is delivered. This was true in 22 per cent of the patients in this report.

### TECHNIC

Novocain®, 60 cc. of one per cent solution, without adrenalin®, is used in this procedure. The patient is sedated during labor with a routine used the past several years consisting of tuinal®, demerol® and paraldehyde in dosage designed to keep the patient just drowsy. When the primipara begins to crown or when the multipara is 8 to 9 cm. dilated, she is removed to the delivery room. She is placed in the lithotomy position and, if restless, is given enough nitrous oxide and oxygen to produce light analgesia. After sterile perineal preparation, the obstetrician slips on sterile gloves and with the left second and third digits in the vagina feels the left ischial tuberosity. Injection of 6 to 8 cc. of a one per cent novocain® solution is then made just medial and inferior to this prominence, with the novocain® deposited in the region of the pudendal nerve. On withdrawing the needle, the obstetrician deposits 2 to 3 cc. of novocain® in the region of the perineal branch of the posterior cutaneous nerve about one inch under the skin. The syringe is disconnected from the needle, filled with 10 cc. of novocain® and injected in the region of the ilioinguinal nerve under the left pubic ramus with the left index finger held in the vagina as a guide to the needle. Another injection of 10 cc. more of the solution is used in the para-anal region to block the inferior hemorrhoidal nerve.<sup>5</sup> In the three locations on both the left and right sides of the vagina, not only is novocain® injected for a nerve block but some solution is deposited as the needle is slowly withdrawn, thus performing a paravaginal infiltration.

All that is required for this technic is a 10 cc. Luer-Lok syringe and a 22-gauge spinal needle, a one ounce medicine glass and a stock bottle of sterile

<sup>1</sup>Read before the Washington State Obstetrical Association, April 1, 1950, Seattle, Washington.  
<sup>2</sup>From the Vancouver Clinic, Vancouver, Washington.



one per cent novocain®. Adrenalin® may be used if desired. After the injection is completed, the patient is draped for delivery, while the obstetrician scrubs and puts on a sterile gown and gloves.

For primiparas and multiparas having an episiotomy scar, a left mediolateral episiotomy is made and the infant is delivered either by forceps or spontaneously. The wound is then repaired with chromic 00 by a continuous suture, closing the skin with a subcutaneous suture.

#### DANGERS

Greenhill<sup>6</sup> cites only three difficulties from this method: (1) A needle may break off. Since breakage almost always occurs near the hub, needles should not be inserted their whole length. (2) Injection of the solution into the vein directly should be avoided by withdrawing the plunger of the syringe before injection. (3) In rare instances drug shock may occur. This I have not seen so far.

#### RESULTS

This report covers a review of 750 patients in whom local anesthesia was studied. In 22 per cent of these, labor progressed too rapidly or the patient was too excited from the analgesia to permit making the injection, thus eliminating 165 patients from the group. Thirteen patients were delivered by cesarean section, giving an incidence of 1.7 per cent.

There is a noticeable relaxation of the perineum and a cessation of the patient's tendency to move with her pains after the novocain® has been injected. Nitrous oxide can usually be discontinued and delivery may proceed naturally. Oxygen is given to the patient. This has another advantage, namely, of keeping the mask on for further gas inhalation if it is necessary for operative procedure or for expression of the placenta. If outlet forceps, Kielland or other operative procedures are decided upon, the patient is given a little nitrous oxide and oxygen. After the blades are applied, the nitrous oxide is again discontinued, but oxygen administration proceeds. For the delivery and episiotomy repair 94 per cent of the patients received no further inhalation anesthesia; 10 per cent required a little nitrous oxide for expulsion of the placenta. I have thus avoided the use of surgical anesthesia, which may be a dangerous factor, contributing to the complications of anesthesia and also to anoxia of the infant. A much higher incidence of spontaneous deliveries has occurred since the local block has been in routine use. In a former report,<sup>7</sup> outlet forceps were used in 71 per cent of deliveries while only 14 per cent delivered spontaneously. In this series presented here, low forceps were used in 36 per cent, whereas 64 per cent delivered spontaneously; 4.5 per cent delivered

in the breech position; Piper forceps were used when indicated; 9.5 per cent presented in the posterior position; 7.5 per cent were delivered by Kielland forceps and 2 per cent by manual rotation.

The baby with the pulsating cord is laid on the mother's abdomen where it can be watched. Since oxygen is being given the mother, there is an advantage in not cutting the cord because of the oxygen as well as the extra blood that the baby will receive. If the mother has suffered a decrease in blood pressure from her sedation, she is given ephedrine subcutaneously to overcome a possible anoxia in the baby which can be more dangerous than asphyxia. No hemorrhages of a severe nature occurred at the time of delivery and the bleeding was definitely less than under general anesthesia.

The complications in this series consisted of one hematoma of the episiotomy with wound separation and three minor hematomas without impairment of wound healing. Whether there has been increased perineal tenderness and swelling from the novocain® injection has been difficult to ascertain, but I do not believe that any significant difference has been noted. There is more perineal discoloration from minor subcutaneous ecchymoses than in the patient in whom local analgesia has not been used. No infections or abscesses have occurred. These patients were ambulatory from the first postpartum day and allowed a shower on the fifth day. If a patient was unable to void, she was taken to the bathroom by wheel chair 10 to 12 hours after delivery. There were no maternal deaths.

Fetal deaths numbered 12 or 0.016 per cent. There were 17 stillborn babies, or 0.022 per cent. No babies were born with asphyxia pallidum. An attempt was made to evaluate the condition of the baby by noting its color and muscle tone, the minutes elapsing before the baby breathed or cried, the length of time oxygen was given, and also the use of artificial resuscitation, if any. The anesthetist classified 75 per cent of the babies as pink and 25 per cent as blue. Respiration was delayed in 15 per cent and 5.5 per cent were given oxygen. The cry was delayed in 20 per cent, as would be expected in babies whose mothers are narcotized. Artificial resuscitation was given to 6 per cent of the babies.

#### DISCUSSION

Of all the obstetrical problems no subject occupies more space in obstetrical literature than analgesia and anesthesia. Greenhill<sup>6</sup> repeatedly indicated the disadvantages and dangers of inhalation, spinal and caudal anesthesia for obstetrical procedures. He showed that local anesthesia for vaginal delivery, cesarean section, and many gynecological operations can be successfully used with greater safety. In his

review<sup>8</sup> of articles published as well as the report of the committee on the study of continuous caudal anesthesia, he concluded that "until such a time as its safety can be determined, we must say that caudal anesthesia has a limited place in obstetrics and should be limited to the obstetricians who are trained to administer the drugs, and who have time for its supervision." He stated that spinal anesthesia has no place in obstetrics.

Since men of great experience report deaths from both spinal and caudal anesthesia, then most obstetricians must use methods that are safer and less time-consuming.

Taylor and Jack<sup>7</sup> published a critical analysis of local anesthesia as an agent for the relief of pain in vaginal delivery. Of their 355 patients receiving local anesthesia 36.4 per cent were found to have some degree of pain with the delivery or repair. They expected their local anesthesia to allow outlet forceps, low and mid forceps, forceps rotation and breech deliveries. Taylor and Jack's percentage of patients' reaction to the questionnaire on local anesthesia termed as satisfactory was only 75.5 per cent. They asked their patients certain questions 48 hours after delivery. I have asked similar questions.

The patients from the Vancouver Clinic had nitrous oxide and oxygen until the time came to make the episiotomy. From then on patients received only oxygen. This would account for the 92 per cent negative answers in this report to the question, "Did you have any pain when the baby was born?" and for 96 per cent negative answers to the second question, "Did you feel any pain when the stitches were put in?" Another reason for the higher percentage of satisfactory anesthesia herein presented could have been because of a greater degree of sedation before the patients entered the delivery room.

Taylor and Jack recommend that all premature infants, breech presentations and twins be delivered under local anesthesia for the benefit of the fetus. Local anesthesia should be used for the delivery of all primary and secondary inertia cases in order to prevent postpartum hemorrhage in an already atonic uterus. Cardiac patients and those with diabetes or pulmonary disease should be delivered under local anesthesia.

Mitchell<sup>10</sup> advocates the use of procaine infiltration because it does not depress fetal respiration and is indicated in the following conditions: (1) Toxemia, especially if the baby is premature. (2) When a general anesthetic is contraindicated or a competent anesthetist is not available. (3) To aid in the spontaneous expulsion of the breech. (4) Cesarean section if the patient is suitable. (5) Particularly in the presence of placenta previa, severe cardiac disease or chronic nephritis.

Mitchell finds the following advantages: absence of operative shock, rarity of pulmonary complications; absence of injurious effects on the liver or kidneys; lack of effect on heart muscles; unimpaired gastric and intestinal motility; unimpaired uterine retraction, and absence of asphyxia in the infants.

Mackey<sup>9</sup> advocates pudendal block and perineal infiltration for delivery of the premature infant, in breech deliveries and for cesarean section. He uses 1.5 per cent metycaine® with only one adverse reaction having been reported at Women's Hospital since 1944. He finds it also very beneficial and life saving in diabetic, cardiac, pulmonic, and pre-eclamptic patients. Postpartum bleeding is minimal.

Greenhill<sup>12</sup> in 1948 noted two obstetric deaths from direct infiltration anesthesia in the literature in 1948, the first he had observed reported. "In the Newsletter of the American Society for Anesthesiologists (April-June, 1948) is reported the case of a woman, aged 40, who had a tubal ligation on the first postpartum day, under procaine infiltration anesthesia. Convulsions occurred, and she died. There was no autopsy. Procaine had been used for a tooth extraction many years before without ill effect. The second case was reported by F. P. Locke (South. M. J. 41:228, 1948)."

Why use local anesthesia? Against its use are the arguments that local anesthesia takes time and that deaths from general anesthesia seem to be rare. Concerning the latter, Gordon<sup>13</sup> reviewed a total of 958 puerperal deaths from 1937 to 1946 and found 43 were due to anesthesia. In 17, death was attributed to the toxic action of the anesthetic itself and in 26 either to aspiration, asphyxia or atelectasis. He believes that local anesthesia is highly satisfactory. Bryant and Assali<sup>14</sup> reviewed causes of death for mothers and found anesthesia to be responsible for 3.5 per cent in the Cincinnati General Hospital; 2.1 per cent in the New York Lying-In; 4.3 per cent in the Margaret Hague (Jersey City); and 3.7 per cent in the Chicago Lying-In Hospital.

Since deaths from general anesthesia are unavoidable and since spinal and caudal anesthesia are much more dangerous than novocain® locally, then it behooves obstetricians to use the safest procedures with a maximum of relief for the patient and a minimum of danger to both mother and infant.

Whereas anesthesia is a distinct blessing to women in labor, there are dangers associated with every type of anesthetic used. Local anesthesia is undoubtedly the safest. The technic should be familiar to every obstetrician for use when he feels it may be indicated. A more widespread use of local block will reduce both the maternal and the fetal mortality and morbidity.



## CONCLUSIONS

Local block and perineal infiltration of one per cent novocain® has given 94 per cent satisfactory anesthesia in appropriate patients for the termination of labor. In 22 per cent and chiefly in multiparous patients the technic could not be used, largely because of the time element. Spontaneous delivery and episiotomy repair can be performed very satisfactorily. Nitrous oxide or cyclopropane can be given readily for Kielland rotation or other obstetrical procedures if necessary. Oxygen can be given to the mother and indirectly to the baby before delivery and until the cord is ligated and cut. Asphyxia of the newborn occurs less frequently with this procedure. Blood loss is minimal.

The combination of analgesia and amnesia producing drugs with nitrous oxide and local anesthesia for the second stage has given a very safe and satisfactory way of contributing to the relief of pain in childbirth.

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FATAL POSTPARTUM CEREBRAL  
HEMORRHAGE

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Vancouver, Wash.

From the Vancouver Clinic

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## FATAL POSTPARTUM CEREBRAL HEMORRHAGE

### Report of a Case

JOHN C. BROUGH, M.D., VANCOUVER, WASH.

(From the Vancouver Clinic)

**T**OXEMIA of pregnancy with its complications has always been a constant source of worry for the obstetrician. Until the present experience, I have felt that no fatal eclamptic complication would develop, if the mild and early symptoms of toxemia were treated and kept under control. Never before has a patient died of eclampsia in over 7,000 patients I have delivered.

Mrs. K., primigravida, aged 20 years, married 1½ years, first consulted me when approximately eight weeks pregnant. Her family history disclosed that she had an aunt who had died of toxemia and convulsions, which worried her a bit. Her weight was 121 pounds and she gave as her usual weight 125 pounds. Examination showed the following positive findings: Bilateral mastoidectomy scars, moderate dental repair, a colloid goiter, cold moist palms with bitten fingernails. The uterus was anteverted and enlarged to the size of a 7 to 8 weeks' pregnancy. The laboratory report was: hemoglobin 11.9 Gm. per 100 ml., red blood count 4.35 million, white blood count 9,000; Rh negative, blood Group IV-O. The urine was normal. The blood pressure was 138/80, and from three months' gestation to term, the blood pressure varied from 150/78 to 160/98 as the maximum. Three days before she entered the hospital in labor the blood pressure was 140/90. Her entire weight gain was 18 pounds. At eight months of pregnancy, two weeks before delivery, she had slight ankle edema. The urine was negative for albumin until three days before delivery, when the laboratory reported a trace.

She was a most cooperative patient during the entire pregnancy, had a good mental attitude, and her home life was excellent. She watched her diet and took the vitamin-mineral supplement. After the edema appeared, she restricted the salt intake. She entered the hospital on Sept. 13, 1952, at 1:15 P.M. after labor had started at 11:00 A.M., about two weeks prematurely. Her temperature was 99.4° F., pulse 86, and respirations 20. The blood pressure was 140/90. The fetal heart tones were 152 per minute. She was given one 3 grain Tuinal capsule, 100 mg. of Demerol, and 1/200 grain of scopolamine. The cervix was completely dilated at 3:45 P.M. and spontaneous delivery of a healthy female infant occurred at 4:28 P.M. Intravenous Ergotrate was given and the placenta expelled. The patient lost a minimum of blood and was returned to her room in good condition. She was seen the next morning at 9:00 and nothing unusual in her condition was noted. She did not complain of headache when asked. Her blood pressure was 130/70. She had voided. At 1:00 P.M., she complained of gas and abdominal discomfort. I saw her at 5:00 P.M. because of upper abdominal pain. The nurse had started a return flow. The abdomen was flat and there was no evidence of tympanites. Her lips were slightly cyanotic, but the patient appeared cheerful, and had no impairment of breathing. Her blood pressure was 160/85, and there appeared to be a slight increase in the pitting edema of both ankles. At 8:00 P.M., the nurse reported that the patient was sleeping very soundly. She had not complained of headache, and her blood pressure was 140-80, temperature 100, pulse 56, respirations 16. There was a little cyanosis, and her only complaint was abdominal. At 10:45 P.M.,

her face was swollen and she was perspiring. The blood pressure was 140/90. At 11:00 P.M., she showed increased cyanosis, and respiration became labored. The pulse was 64 and blood pressure 150/92. She rapidly became comatose and failed to respond. Blood-tinged mucus began to appear in her nose and throat. The blood pressure was now 169/98. Oxygen was given, and in thirty seconds respirations ceased. Her color became deeply cyanotic and there was a feeble rapid pulse for three hours while she was given positive pressure oxygen by the hospital anesthetist.

A summary of the pathological findings reported by Dr. Robert Johnston is as follows:

The immediate cause of death of this young mother may be attributed to a massive spontaneous intracerebral hemorrhage of the left cerebral hemisphere complicated by the development of pulmonary hyperemia and edema and early terminal bronchopneumonia. The primary cause of death should be coded as eclampsia, however, morphologically substantiated by hemorrhagic intralobular periportal necrosis of the liver and parenchymatous degeneration of the kidneys.

*Brain Addendum.*—Following fixation in formalin, the brain was carefully sectioned coronally at intervals of 1.0 cm. The hemorrhage within the left cerebral hemisphere had destroyed the white matter of the corona radiata and extended from and involved the frontal, parietal, and even a portion of the occipital lobe. Numerous punctate hemorrhages within the white matter surrounded the area of massive hemorrhage. The corpus striatum was destroyed and the hemorrhage had ruptured into the left lateral ventricle. The septum pellucidum was likewise ruptured and the right ventricle also contained blood. The only other finding of note within the brain was a single area of focal hemorrhage within the pons; this area measured approximately 0.4 cm. in diameter.

### Comment

This case illustrates essentially postpartum eclampsia with few antecedent warnings of impending toxemia.

Tatum<sup>1</sup> found no antecedent toxemia in 36 cases of postpartum eclampsia.

Stander<sup>2</sup> reported 24 cases of eclampsia post partum with 54 per cent showing no antepartum toxemia.

Way<sup>3</sup> reported two instances of massive cerebral hemorrhage in 33 patients who died of eclampsia.

Dieckmann,<sup>4</sup> reviewing fatal cases of eclampsia, reported extensive cerebral hemorrhage in 15 to 20 per cent of the autopsies.

The blood pressure recordings were never high enough to cause suspicion that a fatal cerebral accident might terminate this life. If the Ergotrate given immediately postpartum caused a sudden rise in the blood pressure, it was not recorded by the anesthetist.

The absence of headache at any time in this patient gave us little indication of what was happening. The abdominal discomfort 24 hours after delivery was the only clue to eclampsia, and this was not recognized as a symptom of impending danger. The mildly toxemic patient usually recovers quite promptly after delivery. This patient had sufficient spasm and thrombosis of hepatic and cerebral vessels that hemorrhage and death resulted instead of recovery.

### Summary

This case report illustrates how cerebral hemorrhage may complicate and cause fatal termination of pregnancy where there have been few symptoms of



toxemia. The arteriolar spasm with thrombosis in cerebral, hepatic, and renal blood vessels produced ischemic necrosis and hemorrhage in the brain, liver, and kidneys.

The postpartum abdominal discomfort was not recognized as a symptom of toxemia. The absence of headache or increased hypertension masked the clinical picture. There was no evidence of a convulsive seizure, although the respirations were significantly increased as seen in impending toxemia. The onset of coma without convulsions is quite unusual.

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