
A 23 year old gravida iii, para ii, was admitted to the hospital four hours after the premature onset of labor. Caudal anesthesia by the catheter technic was begun two hours after admission. Green soap, alcohol and zephiran chloride solution were used in the skin preparation. A No. 4 plastic catheter was inserted into the caudal canal through a No. 16 gauge needle. Waterproof adhesive was used to secure the catheter. The absence of spinal anesthesia was demonstrated by injecting 10 cc. of 1.5 per cent metycaine solution. Four additional injections of metycaine solution, totalling 75 cc., were made during the next two and one-quarter hours. The anesthetic was discontinued but the catheter was left in place when labor did not progress. The patient was restless and seemed more agitated than the severity of the labor pains warranted. When complete dilatation was attained and the head was on the perineal floor, 25 cc. of 1.5 per cent metycaine solution was instilled, making the total 100 cc. or 1.5 Gm. of metycaine in five instillations.

Twenty-four hours after removal of the caudal catheter the temperature suddenly rose to 104 F. and the pulse rate to 100. Nuchal rigidity, hyperactive reflexes, flexure movements of ankle, knee and hip upon passive flexion of the neck were present. Moderate tenderness and hyperemia were present over the presacral area. Spinal fluid was cloudy and under increased pressure. The cell count was 3,000 per cc. and all of them were polymorphonuclear leucocytes. No organism grew on usual laboratory culture media but a smear showed gram positive cocci. Treatment was started with 10,000 Ox-

ford units of penicillin intrathecally, 50,000 intramuscularly, and 5 Gm. of sulfadiazine orally. Continuation therapy included 2 Gm. of sulfadiazine every four hours, and 50,000 Oxford units of penicillin intramuscularly every three hours. This was continued for five days. Two days after onset of the meningitis the cerebrospinal fluid contained 350 polymorphonuclear leucocytes per cubic centimeter and was less cloudy. At the time 10,000 Oxford units of penicillin were injected intrathecally. Seven days after delivery the cerebrospinal fluid was normal. The patient was completely well when she was discharged on the tenth post-partum day.

Three selected normal patients who had caudal anesthesia were studied and the spinal fluid of each was grossly and microscopically normal. This suggests that neither the plastic catheter nor the metycaine was irritating to the meninges of these three patients. The possibility that the patient entered the hospital during the incubation period of meningitis cannot be denied. It is reasonably certain that the original spinal anesthetic did not enter the patient's dura. 4 references.

F. A. M.


A forty-nine year old woman gave a history of irregular, sometimes copious, menstrual periods for a period of three years. During the last two months, bleeding had been constant. Her chief complaints were fatigue, weakness and dyspnea. The concentration of hemoglobin was 5.9 Gm. per 100 cc. of blood. She was admitted to the hospital for emergency surgical treatment. Dysp-
Dyspnea was not improved by elevation of the patient’s shoulders and head. The dyspnea was judged to be the result of air hunger caused by marked secondary anemia. It was decided to give a blood transfusion for the purpose of increasing the number of erythrocytes and the amount of hemoglobin and, thereby, the capacity of the patient’s blood to carry oxygen. Improvement in the breathing and increased strength followed the administration of 200 cc. of blood. After 1,000 cc. of blood had been given the breathing was within normal limits, the color was improved and the patient was stronger and felt better.

Premedication of morphine 1/6 grain (0.01 Gm.) and atropine sulfate 1.50 grain (0.00043 Gm.) was given. Pentothal sodium was the anesthetic of choice. Inhalations of 100 per cent oxygen were given during the performance of vaginal hysterectomy which required an hour and ten minutes. A total of 1,225 mg. of pentothal sodium was used. During the operation 500 cc. of blood was given. The patient was taken from the operating room in good condition. Two days later the hemoglobin was 7.5 Gm. per 100 cc. of blood. Convalescence was uneventful.

When the blood volume is not sufficient to support the patient and offset shock while surgical operation is being done, or when the erythrocytes and the amount of hemoglobin are inadequate to transport adequate oxygen and to eliminate carbon dioxide, then trauma or further loss of blood, regardless of type of anesthesia, may produce shock or permanent cerebral damage. Spinal anesthesia is contraindicated if the hemoglobin is 50 per cent or less. If anemia is marked, the anesthetist must assure adequate oxygen in the anesthetic mixture. When the hemoglobin is less than 5 Gm. per 100 cc. of blood there will usually be no detectable cyanosis. In this situation cerebral anemia may produce cerebral anoxia and possibly cerebral damage.

Each transfusion of 500 cc. of blood usually increases the amount of hemoglobin by about 10 per cent and the number of erythrocytes by about 500,000 cells per cubic millimeter. Enough blood should be given to produce the benefit desired. Air hunger in association with anemia is rarely seen.

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In the laboratory of the Department of Surgery, University of Minnesota Medical School, recent investigations with large doses of curare in dogs showed that intense submucosal and mucosal congestion of the entire small and large intestine, with free bleeding into the intestinal tract, occurred. The stomachs of these animals were not congested. The present study was made to determine the mechanism of the development of the intestinal congestion and bleeding and to further study the pathological changes produced by large doses of curare as well as the effect of large amounts of curare on blood pressure in the experimental animal.

Eighteen dogs were used for these experiments. Intocostrin was used. The curare (intocostrin) was given in single, rapid, intravenous injections. Doses ranged from 0.035 to 1.333 cc. of intocostrin per pound of body weight.

The results of these experiments show that doses of intocostrin suffi-