tate the handling of abnormal presentations, including occiput posterior, transvere arrest and breech presentations. . . . We would reëmphasize that the method is best performed by a specialist, in a hospital." 28 references.

J. C. M. C.

IRVING, F. R.: *An Improvement in Catheter Technic for Continuous Caudal Anesthesia.* J. A. M. A. 122: 1181 (Aug. 21) 1943.

"Recently Adams and Lundy described the catheter for continuous caudal anesthesia. The method they described involved the use of a 13 gage Love-Barker spinal needle and a number 5 ureteral catheter. We have used this method in over 250 obstetric cases without any serious complications. . . . Recently we have . . . simplified the technic considerably by employing a 15 gage needle with obturator and a number 4 ureteral catheter. . . . For obese persons or for patients with a small sacral foramen we use a special 18 gage needle 5½ inches long. . . . We employ this needle in the difficult cases. After it is inserted, the 15 gage needle without the obturator is passed over it as a sleeve. The 18 gage needle is then removed. The number 4 ureteral catheter is inserted into the caudal canal through the 15 gage needle, which is withdrawn, leaving the catheter in place. A 25 gage hypodermic needle is inserted into the external end of the catheter, which is connected by an adaptor to an injection system similar to that described by Hingson and Edwards. The 15 gage needle can be used direct in over 75 per cent of cases, the hubless 18 gage needle being reserved for the difficult patient. We have employed this method in over 100 cases." 4 references.

J. C. M. C.

RUTHERFORD, R. N.: *Continuous Caudal Anesthesia in Obstetrics.* West. J. Surg. 51: 6–11 (July) 1943.

"Hingson and Edwards in 1942 applied the principle of continuous caudal anesthesia not only to delivery but also to relieve the pains of first and second stage labor. Their preliminary report on 65 cases has been simplified by subsequent reports from their own group as well as by other investigators. . . . Again we are forced to conclude that the ideal obstetrical analgesia and anesthesia yet glimmers in the distance, for certain technical limitations hamper this procedure as firmly as any of the other agents in more frequent use. The anesthesia still must be adapted to the individual patient with her peculiar needs."

J. C. M. C.

SMALL, M. J.: *A Serious Complication of Caudal Anesthesia.* J. A. M. A. 122: 671–672 (July 3) 1943.

"A secundigravida aged 23, whose previous medical and obstetric history was noncontributory except for a syphilitic infection, acquired five years previously but adequately treated and with negative serologic and spinal fluid findings at present, was admitted in active labor with the cervix three fingerbreadths dilated and the head in midpelvis, the presentation being left anterior oblique. The membranes were intact. Blood pressure was 120/80. The general medical examination revealed no abnormalities. Caudal anesthesia was begun immediately, the technic recommended by Hingson and Edwards being used with one modification. . . . This procedure. . . . utilizes the ordinary intravenous drip arrangement for a slow continuous flow of anesthetic solution instead of the injection of large quantities of solution at intervals. . . . With this

technic, and a rate of flow of metycaine solution of 60 drops per minute with no pinch clamp applied to the tubing, excellent caudal anesthesia was obtained in twenty minutes. My patient made rapid progress and at the end of one hour was fully dilated, the membranes were ruptured and the head was just on the perineum. The patient was smiling, talkative and cooperative. Rather suddenly she appeared to become drowsy, closed her eyes, rolled her head from side to side, gave several gasps and became apneic and rapidly cyanotic. Her teeth were tightly clenched, and it was with considerable difficulty that her jaw was pried open and a mouth gag inserted. Heart sounds were rapid and barely audible. The blood pressure could not be obtained. The needle was immediately withdrawn from its supposed position in the caudal space, but it was noted before doing so that the rate of flow had not accelerated; in fact it was only about 50 drops per minute. One hundred per cent oxygen was given and nikethamide injected intravenously. Artificial respiration was applied. After about three minutes the patient began to breathe and the cyanosis began to clear. The pulse became stronger and slower. The baby was extracted by forceps while resuscitative measures were being applied to the mother and was normal in every respect, crying immediately after delivery. The patient did not regain consciousness to the point at which she was cooperative for half an hour, and when tested at this time she displayed a complete sensory anesthesia extending as high as the lower axillary line. There was complete motor loss of the extremities. From this point on her convalescence was exactly like that of any other patient receiving a spinal anesthetic.

"The total amount of metycaine solution used was 90 cc. over a period of about one and one-half hours. Since the rate of flow was slow throughout this procedure, even though it came from a reservoir bottle at a level of 5 feet above the patient, with unobstructed outflow, the question arises as to whether it is possible for the anesthetic solution to diffuse into the subarachnoid space, even though the needle is properly placed in the caudal canal." 2 references.

J. C. M. C.

NICHOLSON, M. J.: *Regional Anesthesia.* New England J. Med. 229: 244–250 (Aug. 5) 1943.

"In the current progress of regional anesthesia three new developments are outstanding. They are continuous caudal anesthesia for obstetrics, the subarachnoid injection of ammonium sulfate for the relief of intractable pain and refrigeration anesthesia (crymoanesthesia)."

J. C. M. C.

JAMES, N. R.: *Infiltrator for Regional Analgesia.* Lancet 1: 738–739 (June 12) 1943.

"Compressed air . . . passes by means of a Schrader connexion into a modified filter . . . which removes any minute particles of dust, etc. The air then passes into an ordinary two-gallon pressure chamber such as that normally used in commercial paint-spraying, and exerts pressure (50 lb. per sq. in. is the usual pressure) on the analgesic solution contained in a stainless steel inset; the solution is forced up a stainless steel pipe into a non-ferrous air-trap which remains shut until the analgesic solution is exhausted; then the trap opens and releases the compressed air—thus definitely preventing any chance that air will be accidentally injected into the patient. The solution, on leaving the trap, passes along the flexible rubber hose to