

spinal fluid pressure reduced for some time, producing increased vascularity of the cord and probably also of the brain, with the beneficial effects ascribed alone to spinal drainage. Indeed, injection of arsphenaminized serum within an hour of the intravenous injection may increase extravasation from the meningeal vessels by reason of irritation produced by the serum and arsphenamin in the subarachnoid space, in addition to the increased vascularity and transudation ascribed to reduction alone of cerebrospinal fluid pressure.

5. The patient receives the benefit of treatment with mercury and iodids and of spinal drainage conducted while under the influence of these antisyphilitic medicinals.

CONTRAINDICATION TO THE METHOD

The disadvantage of the method (encountered once in my experience) is the inadvisability of giving the intraspinal treatment in the presence of a reaction following the intravenous injection of arsphenamin. The administration of arsphenamin as described has been only exceptionally followed by a reaction of flushing and chills, and with one exception the patients have expressed a desire for the intraspinal treatment and have enjoyed a good sleep and rest, toward which a psychic element due to the realization that the ordeals were over has contributed in no slight degree.

In the one case in which a reaction following the intravenous injection of arsphenamin prevented the intraspinal treatment, a second specimen of blood was drawn later in the afternoon after the subsidence of the reaction and placed in a refrigerator over night, followed by separation of the serum next day and arsphenaminizing by the addition of 0.1 c.c. of a solution of arsphenamin prepared by dissolving 0.1 gm. in 30 c.c. of 0.8 per cent. salt solution, neutralizing with a normal solution of sodium hydroxid (about 4 per cent.)² adding two or three drops more of alkali, and then salt solution to bring the total volume to exactly 33 c.c.; 0.1 c.c. of this solution added to the serum represents 0.0003 gm. of arsphenamin ($\frac{1}{3}$ mg.). After heating the arsphenaminized serum at 56 C. for thirty minutes, spinal puncture, drainage and intraspinal injection were conducted as described above, and the patient was kept in bed for another twenty-four hours, which I regard as a wise precaution after intraspinal treatment or even simple spinal puncture and the removal alone of 5 c.c. or more of spinal fluid for laboratory examinations.

1720 Lombard Street.

2. A normal solution of sodium hydroxid, or one of approximately 4 per cent. strength, is better than a 15 per cent. solution for the purpose of preparing solutions of small amounts of arsphenamin, as 0.1 gm.

Influenza in Alaska.—The annual report of the governor of Alaska shows that thousands died in an influenza epidemic through want of care. Influenza broke out early in October in practically all the coastal towns following the lines of steamer travel. Travel to the interior was stopped and so it escaped the outbreak. It is estimated that there have been 1,500 deaths, chiefly among the natives, on the Seward Peninsula and vicinity. There were over thirty deaths among the passengers on the last trip of the steamer *Victoria*. At Kodiak and on Cook Inlet the mortality was extremely high. Whole villages of Eskimos lost their entire adult population. Many infants were frozen in their dead mothers' arms. Medical relief was given where possible; destitution was relieved, and the orphan children gathered up and placed in institutions until appropriations should become available for their permanent care. The burial of dead natives alone cost approximately \$20,000.—*U. S. Bull.*, Dec. 15, 1919.

AN ANALYSIS OF FIFTY-SIX CASES OF BREECH PRESENTATION

DESCRIPTION OF A METHOD OF DELIVERY IN WHICH
MANUAL EXTRACTION OF EXTENDED ARMS
IS RARELY NECESSARY

HARBECK HALSTED, M.D.

NEW YORK

These cases of breech delivery occurred at the Manhattan Maternity and Dispensary on the services of Drs. J. Clifton Edgar, Austin Flint and R. E. Brown, during my time as resident surgeon (June 3, 1915, to July 1, 1916).¹ In cases of fetal death, the necropsies were performed by Dr. L'Esperance of Cornell University.

A large number of the deliveries of the Manhattan Maternity and Dispensary are performed on the out-door service, by interns whose service is only three months. Therefore an effort was made to find or devise a standard method of breech delivery that was as near "fool proof" as possible.

As a large part of the delay in breech delivery is due to the more or less common practice of manually going up past the head through the pelvic inlet to deliver extended arms, an attempt was made to find a method whereby this was seldom, if ever, called for. The use of the delivery described herewith has practically eliminated this necessity, except when there is a nuchal hitch.

METHOD OF DELIVERY

Until the breech delivers from the vulva, the procedure is the same as with any other breech delivery. As soon as the breech delivers, the child is covered with a warm, wet towel, and gentle traction is made downward and backward, assisted by pressure from above, until the umbilicus is delivered; then a loop of the cord is pulled down, the child is grasped about the pelvic girdle, and strong traction is made downward and backward. The bisacromial diameter of the body is kept in the anteroposterior diameter of the maternal pelvis until the anterior scapula is seen to slip under the symphysis; at this point it is very easy to deliver the anterior arm from the vagina. Now the child's body is lifted over the mother's abdomen, whereupon the posterior arm will slip out. The occiput is allowed to rotate under the symphysis, and the body to go with it. The child is placed along the right forearm, the index finger is put in the child's mouth, with the fingers of the left hand over the child's shoulders, care being taken not to fracture the clavicles, and moderate traction is made downward and backward until the mouth can be delivered by flexion upward. After the mouth is delivered, one should go slow unless there is some indication for speed.

Before the delivery is begun, the position of the child should be accurately made out so that there will be no danger of allowing the occiput to rotate posteriorly. This can be prevented by always delivering the anterior hip first and assisting the rotation of the occiput forward by rotating the body in the proper direction. In left sacral positions, the child's body should be rotated to the right and anteriorly. In right sacral positions, to the left and anteriorly.

Before any traction is made from below, an assistant makes firm pressure on the child from above; this pressure is continued until the child's mouth is delivered. It is made in such a manner that the head will remain flexed on the chest and the arms will not extend. This pressure is a very important part of the delivery.

The main points to remember are:

1. As soon as any traction is made, it should be made downward and as far backward as possible. To do this it is

1. The reason I did not complete this paper earlier is that I have been on active duty in the United States Naval Reserve Forces for two years.

always necessary to have the woman's hips on or just over the edge of the operating table, or, if done in a home, over the edge of a kitchen table. The delivery will be facilitated, especially the traction backward, if the legs of the woman are held by two assistants so that the thighs are slightly flexed on the abdomen and the legs on the thighs with the feet on a level with the buttocks, and not in the ordinary lithotomy position with the legs in stirrups. A breech delivery should never be performed in bed.

2. One should not go up after the extended arms, unless certain that there is a nuchal hitch, that is, an arm caught back of the occiput; for in all other positions the arms will squeeze through the pelvic inlet with sufficient traction from below.

3. Firm pressure should be maintained from above, applied in such a way as to keep the head flexed.

No originality is claimed for this method, but if it is used conscientiously, breech delivery will lose a great many of its terrors, and the fetal mortality will be decreased.

The method was used in nearly all of the cases here reported. Versions and multiple births are not included in this series.

The position was left sacro-anterior in thirty cases; left sacroposterior in one; right sacro-anterior in twenty-one, and right sacroposterior in four. As the majority of these patients lived in tenements, and so were not often seen early in labor, the number of sacroposterior positions reported is probably much too small.

REPORT OF STILLBIRTHS

In this series there were nine stillbirths.

CASE 1 (Breech L. S. A. 198). The fetus, born at the seventh month, was macerated and weighed 3 pounds.

Necropsy: The fetus was too decomposed for microscopic section.

CASE 2 (Breech L. S. A. 204). The mother, a quintipara, lived in a tenement house. When the intern arrived at the bedside, all the baby had been born but the head, and although this was very easily delivered it was too late, and the baby was dead.

Necropsy: The child was a large, normally developed boy. There were punctate hemorrhages in the thymus, lungs, liver and suprarenals, and fluid blood. The thymus was very large, almost double normal size. This may have been a predisposing factor in the cause of death.

Anatomic Diagnosis: Asphyxia in new-born; fluidity of blood; enlarged thymus.

CASE 3 (Breech R. S. A. 115). The fetus was a marked specimen of an encephalic monster that never breathed. The labor was very easy, lasting only one hour and fifty-five minutes.

CASE 4 (Breech L. S. A. 206). The mother was a primigravida. The membranes ruptured during the first stage. Labor lasted thirteen hours and forty minutes. The head stuck at the pelvic inlet for a full ten minutes. The heart was beating at birth, but the baby could not be resuscitated. The arms were flexed on the chest.

CASE 5 (Breech L. S. A. 209). The mother, aged 19, was a secundigravida. The membranes ruptured at the second stage of labor. The delivery was spontaneous after a labor lasting eight hours and forty-five minutes. The cord was around the baby's neck. The baby weighed 7 pounds and 8 ounces.

CASE 6 (Breech L. S. A. 211). The mother was a tertigravida. The two previous deliveries were instrumental. The baby weighed 11 pounds and 11 ounces. The patient was ten days overdue. The membranes ruptured two days before the onset of labor. Labor lasted seventeen hours and eighteen minutes. Delivery was very difficult. The arms were extended, gone up after, and manually extracted. The head was extracted with difficulty. This stillbirth was due to the excessive size of the child.

Necropsy: The baby was a very large boy with excessive development of fat and purplish discoloration of the entire skin. The liver was large and showed multiple hemorrhages. The spleen was large and congested. The suprarenals were entirely destroyed by hemorrhage, forming almost a hemorrhagic sac. The kidneys were deeply congested. The bases of both lungs showed hemorrhages. The remaining portions of the lungs showed some areas of emphysema, as if a pulmotor had been used. The thymus was large. The brain showed diffuse hemorrhage over its entire surface.

Anatomic Diagnosis: Asphyxia; overdevelopment.

CASE 7 (Breech L. S. A. 212). The mother was a quadrigravida with a generally contracted pelvis. The baby weighed 9 pounds and 11 ounces. The membranes ruptured early in the first stage. The arms were extended, gone up after, and manually extracted with great difficulty. Then the head stuck at the pelvic inlet for some time. In this case we had a large child and a small pelvis.

Necropsy: The body was that of a full term, well developed girl. The organs, especially the kidneys and the suprarenals, showed congestion. There were punctate hemorrhages in the lungs and the thymus. The heart was normal. The brain showed diffuse meningeal hemorrhages.

Anatomic Diagnosis: Cerebral hemorrhage; asphyxia.

CASE 8 (Breech L. S. A. 222). The mother had had ten previous labors. The delivery seemed very easy, but the baby could not be resuscitated. The membranes ruptured in the first stage. The labor lasted nine hours and forty minutes. The arms were extended, but caused no delay.

Necropsy: The child was a well developed girl. There were no skin lesions. The area of aeration in the lungs was small; the remaining portion was atelectatic. The bronchi were filled with thick, greenish, tenacious mucus. There were small punctate hemorrhages in the thymus. The other organs were apparently normal.

Anatomic Diagnosis: Asphyxia; mucous plugs in the bronchi.

CASE 9 (Breech L. S. A. 227). The labor occurred four weeks prematurely in a quintipara. The labor lasted four hours and fifteen minutes, and terminated spontaneously. The baby was born dead. It weighed 6 pounds and 12 ounces.

OTHER DATA

No babies that were born alive died while still under our care. There were fourteen primiparas and forty-two multiparas, the latter being thus divided: secundiparas, 9; tertiparas, 9; quadriparas, 6; quintiparas, 9; sextiparas, 2; septiparas, 2; octiparas, 2, and 1 nonipara, 1 decipara and 1 undecipara.

The ages of the mothers ranged from 18 to 44 years. The age did not seem to have any influence either on the frequency or on the ease of delivery.

The fetal heart sounds were mentioned as being heard fourteen times above the level of the umbilicus; at the level of the umbilicus, six times, and below the level of the umbilicus, twenty times. It was not heard seven times, and not mentioned nine times.

The living babies varied from 3 pounds and 8 ounces to 10 pounds. The stillborn babies' weights ranged from 3 pounds (a macerated premature baby) to 11 pounds and 11 ounces. The average weight for all cases was 7 pounds and 2 ounces; for the stillborn babies, 7 pounds and 12 ounces, and for babies born alive, 7 pounds.

No note was made of whether or not the arms were extended unless they gave trouble. They were manually extracted in two cases. (These were both described under stillbirths, Cases 6 and 7.) There is one case described in which there seems to have been a nuchal hitch:

The breech was born as usual up to the shoulders, the scapula appearing from under the symphysis before reaching for the anterior arm. This, the anterior (left), was extended

and lay behind the occiput. The posterior arm was delivered first in the usual manner, then the anterior flexed and pulled down.

The term "usual manner" means the delivery described above.

The after-coming head was mentioned as being delivered by the Smellie-Veit method in twenty-four cases. The delivery was recorded as spontaneous in twelve cases. No mention was made of the delivery of the head in twenty cases. No craniotomy was done on an after-coming head.

The forceps were never applied to either the head or the breech, although they were frequently held in readiness when we expected trouble. The only three cases in which the head stuck and forceps might have been of help occurred in tenements when forceps were not at hand. It might be a good rule always to have forceps ready before starting a breech delivery.

Chloroform was used in twenty-six cases, ether in one case. There was no anesthesia in nineteen cases. No mention was made as to any anesthesia being used in the remaining eleven cases. I myself prefer the patient well anesthetized for the actual delivery.

The longest labor in the series lasted thirty-three hours and fifteen minutes. This was in the case of a primipara, aged 23. The membranes ruptured one day before she went into labor. Finally, a breech extraction was done and she was torn through the sphincter ani. The shortest labor was two hours and fifteen minutes. This occurred in a tertipara. The baby weighed 5 pounds and 9 ounces. The average length of labor in the primigravidae was seventeen hours and four minutes. The average length of labor in the multigravidae was nine hours and eight minutes. From these figures it would seem that the length of labor was not much influenced by the presentation.

The time of rupture of membranes was: in the second stage of labor, seventeen cases; in the late first, ten cases; during the first stage, ten cases; at the onset of labor, one case, and before labor began, three cases, in one of these two days and in another one day, before labor began. The time of rupture was not mentioned in fifteen cases.

There were only two cases of definite prematurity. In both, the baby was born dead; one was macerated. One case was ten days past term. This baby was also born dead after a difficult labor.

Of lacerations of the perineum, in the primigravidae there were six first degree; two second degree, and one third degree; in the multigravidae, four first degree and one second degree. It seems to me that there were as few lacerations in this series as there would have been in a similar number of vertex deliveries, with the exception of the third degree laceration.

In these cases, deformity of the pelvis seemed to play little part, as only one woman is recorded as having any deformity, and she only a moderately generally contracted pelvis.

One baby was a monster; two had club feet; and one of these also had spina bifida. Aside from these, there were no marked abnormalities.

CONCLUSIONS

1. The most dangerous condition in breech delivery seems to be disproportion between the size of the child and the pelvis.

2. Deformities of the pelvis and child did not seem to play much part in determining the breech presentation.

3. Early rupture of the membranes is a serious happening.

4. Manual extraction of extended arms is seldom indicated. Manual extraction of the arms was used twice in this series, and in both cases the child was stillborn.

221 West Fifty-Seventh Street.

DIGESTIBILITY OF STEAM-COOKED SOY BEANS AND PEANUTS*

ARTHUR D. HOLMES, M.D.

Specialist in Charge of Digestion Experiments, Office of Home Economics

WOODSTOWN, N. J.

The unusual demand for foods, coupled with the high price of labor and fertilizer, makes it necessary that each acre of land devoted to food crops produce the maximum amount. From an agricultural standpoint the legumes are considered a profitable crop, since they enrich the soil with nitrogen while producing valuable food for man and beast. The legumes in general have long been important sources of food, and on account of their high protein content are sometimes referred to as the "poor man's beefsteak"; but two valuable kinds, soy beans and peanuts, have been relatively little used in this country in the human dietary.

Studies of the food value of soy beans and peanuts have supplied considerable data relative to their dietary importance. A comparison¹ of the composition of legumes in general with the composition of soy beans and peanuts shows that the latter are much richer in protein and fat, the expensive constituents of the diet, and accordingly from this standpoint are very valuable. For dietary purposes, however, the nature as well as the quantity of protein is of importance, since incomplete proteins cannot serve over long periods of time as the sole source of tissue-forming material.

Studies of the amino-acids from legume proteins made by Osborne and co-workers² and by Johns and Jones³ have shown that those from the proteins of soy beans and peanuts are in kind and proportion such as are believed to be essential to normal development. Such was not the case with the other legume proteins studied.

This belief is confirmed by biologic studies. McCollum, Simmonds, and Pitz,⁴ in discussing the effects of feeding laboratory animals on a diet rich in navy beans, say: "We feel safe in saying that this legume should under no circumstances form a principal part of any relatively monotonous diet." McCollum and Simmonds⁵ conclude that "the protein mixture from maize 80 and navy beans 20 per cent. has just about one-half the biological value for growth that the total protein mixture in milk possesses." Daniels and Nichols⁶

* Prepared under the direction of C. F. Langworthy, Chief, Office of Home Economics, Department of Agriculture, Washington D. C.

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