any part of the body should not occasionally show localization of the virus, which, furthermore, has a predilection for epithelial structures.

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Asphyxia Pallida Responding to Endotracheal Insufflation after 140 Minute.

Much interest has been aroused by recent publications on the treatment of asphyxia neonatorum by endotracheal insufflation and intragastric oxygen. Little mention is made, however, of how long these measures should be continued when there is no response. This case is of interest because the infant made a dramatic recovery after complete absence of spontaneous respiration for two hours and twenty minutes.

CASE REPORT

The mother was a primigravida aged 32. She was booked for hospital confinement and attended the antenatal clinic regularly. Her general condition was excellent throughout. Her blood was Group O, Rh positive; haemoglobin 84%. The W.R. and Kahn test were negative. Breech presentation was diagnosed at 36 weeks and external cephalic version was attempted but was not successful. X-ray pelvimetry showed the pelvis to be of good shape and ample dimensions.

Labour was induced at 39 weeks, this being the customary treatment of breech presentation in a primigravida at this hospital. Medicinal induction consisting of castor oil, 2 oz. (60 ml.) by mouth, followed by an enema and a hot bath, was first given. This was followed by surgical induction with a solid rubber bougie. Labour pains began two hours after the latter procedure. The first stage of labour was uneventful and lasted 24 hours. The membranes ruptured after 16 hours. Sedatives given were syrup of chloral, 30 gr. (2 g.), at 12 hours, and pethidine, 100 mg., at 20 hours. The second stage lasted 30 minutes. Spontaneous breech delivery followed under pudendal block anaesthesia. A liberal episiotomy was performed and the head was delivered easily with Wrigley's forceps. The foetal heart was regular throughout. There was no cord anomaly.

The infant gave one gasp after delivery but made no further attempt at respiration. The nostrils, mouth, and pharynx were sucked clear of mucus and liquor, and the infant was placed in a warm cot in an inverted position. After five minutes there was still no attempt at respiration, and the infant had the classical appearance of asphyxia pallida. The heart was beating regularly at 110 a minute. After 10 minutes intragastric oxygen was begun with Akerrén's method. This treatment was continued for a further 10 minutes, but the infant remained pale and was flaccid and inert. The heart rate dropped to 100. In view of this, endotracheal intubation was carried out with a Magill infant laryngoscope and a Magill No. 3 endotracheal catheter. Laryngoscopy showed that the larynx and pharynx were patent and clear of mucus. Insufflation was started with a Gibberd insufflator. Pure oxygen was delivered from the bag 30 times a minute at a pressure of 20 mm. Hg. After

five minutes the infant became pink but remained atonic. The heart rate rose to 120. The only evidence of spontaneous respiration was isolated gasps occurring at half-minute intervals.

For the next 90 minutes insufflation was continued. The state of the baby remained unaltered and shallow gasps continued to occur at the rate of two a minute. Resuscitating measures had now been in progress for 110 minutes. After two hours signs of improvement appeared. There was a deepening in the respiratory gasps and the infant gave a feeble cry. During the next 20 minutes there was a rapid recovery of muscle tone, with deepening and quickening of respirations, culminating in normal spontaneous respiration after 140 minutes. The endotracheal tube was then removed. One hour later the infant was breathing normally and crying lustily.

The birth weight was 6 lb. 6 oz. (2,890 g.). The infant was vigorous and normal in every way. The grasp and Moro reflexes were present and the muscle tone was good. Its cry was quite normal. It was breast-fed without difficulty and weighed 6 lb. 7 oz. (2,920 g.) when discharged after 14 days.

Stimulant drugs given during the period of asphyxia were as follows: lobeline into the umbilical vein, 3 mg., at 10 and at 60 minutes; nikethamide, 0.5 ml. intramuscularly, at 15 and at 40 minutes.

COMMENT

Recovery, as judged by spontaneous respiration, is recorded by Lord *et al.* (1953) as having occurred two hours after delivery in a child treated by endotracheal insufflation of oxygen. This is the longest interval that we have been able to find recorded between delivery of an asphyxiated child and the initiation of respiration. The asphyxia in this case was severe, and was due to the inhalation of large quantities of blood and liquor. Gibberd and Blaikley (1935) state that recovery occurs a few minutes after beginning insufflation. Akerrén and Fürstenberg (1950), describing the treatment of asphyxia by intestinal oxygen, record no cases in which recovery did not occur within ten minutes.

The change in colour which followed immediately after starting endotracheal insufflation is evidence of the superiority, in our case, of this method over that of the relatively more simple one of gastric oxygen. The cause of the asphyxia in our case is not clear. Although a breech delivery, no undue difficulty was encountered. We can assume that the usual doses of sedation employed did not depress the respiratory centre to a dangerous degree, and that, in view of ultimate recovery, cerebral haemorrhage was unlikely.

It will be necessary to observe this child over a period of years to be certain that no lasting damage has been sustained. We have taken the normal appearance of the child and its capacity for suckling as evidence of an intact nervous system. In view of the importance attached at present to birth asphyxia as a cause of neurological and psychiatric disturbance later in childhood, the follow-up in this case should prove of some interest.

Finally, in view of the successful outcome it is worth stressing that the resuscitating team must be prepared to persevere as long as the heart beat is maintained.

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