LUMBAR EPIDURAL BLOCK AND THE BREECH PRESENTATION

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SUMMARY

A retrospective survey has been made on the effect of lumbar epidural block on 72 out of 133 breech deliveries at two hospitals. Epidural analgesia was found to cause prolongation of the second stage of labour but to have no effect on the incidence of operative intervention during delivery or on the condition of the infant at birth. It is concluded that regional block analgesia is not contraindicated in the management of breech presentation.

In the last few years lumbar epidural block has become increasingly popular throughout the British Isles. However, its use has been contraindicated in certain obstetric conditions of which breech presentation is one (Crawford, 1972a). This paper compares the use of lumbar epidural block with other forms of analgesia in the management of the breech presentation.

PATIENTS AND METHODS

The patients were selected in a retrospective study from all the breech deliveries over a period of 1 year (1971–2) at Queen Charlotte's Maternity Hospital and Kingston Hospital. Infants with a birth weight of 1.5 kg or less, and those who died of causes unrelated to the method of delivery (gross congenital abnormalities, macerated infants, etc.) have been excluded, as have patients delivered electively by Caesarean section. Only the first of twins, if presenting by the breech, has been included.

All the patients had been assessed with regard to their suitability for vaginal delivery, both clinically and by X-ray pelvimetry.

The objectives and technique of lumbar epidural block were explained to all patients, as were the other forms of analgesia that were available. The final choice was left to the patient.

The absolute contraindications to epidural analgesia were: (a) Patient refusal, (b) Sepsis at the site for introduction of the Tuohy needle, (c) Bleeding diathesis, (d) Certain neurological complaints.

The technique used was that outlined by Doughty (1969), being a modification of that used by Bromage (1961). An initial dose of between 7–10 ml of bupivacaine (0.5 or 0.25%) was injected at the 2nd or 3rd lumbar interspace, with the patient in the left lateral position, via a fine flexible cannula previously introduced into the epidural space through a Tuohy needle. Supplementary doses of bupivacaine equal to the initial dose were given when the effect of the previous injection had worn off. The dose was modified towards the end of labour in an attempt to maintain the bearing down reflex whilst preserving adequate analgesia.

To avoid confusion, the following terms are defined:

**Assisted breech delivery** is one in which the infant is extruded as far as the umbilicus by natural forces, but the remainder of the body is extracted by the attendant. Forceps are used to control the delivery of the after-coming head at the discretion of the attendant.

**Groin traction delivery** is one in which the infant is delivered to the umbilicus by a combination of natural forces, and by the use of a variable amount of traction applied by placing the index fingers anterior to the hip joints (i.e., in the groin). Delivery of the remainder of the infant is as for an assisted breech delivery.

**Breech extraction** is a breech delivery in which the entire body of the infant is extracted by the attendant (Hellman and Pritchard, 1971)

**Top up to delivery interval** refers to the time interval between the final dose of bupivacaine administered via the epidural cannula, and the completion of the second stage.

**Second stage of labour** refers to the interval between full dilatation of the cervix and complete
delivery of the infant. Full dilatation of the cervix was confirmed by vaginal examination when the appearance of the buttocks at the vulva indicated its likelihood.

RESULTS
All the results have been considered with reference to the parity of the patient and the type of analgesia or block employed. There was no difference in distribution of maternal age and infant birth weight in the two groups.

One hundred and thirty-three breech deliveries were analysed of which 106 were classified as assisted breech deliveries, 11 as groin tractions and 8 as breech extractions. There were 8 intra-partum Caesarean sections (table I).

Two foetal deaths occurred, one of which was delivered by groin traction under epidural analgesia, and the other by breech extraction under pudendal nerve block analgesia. The cause of death was intra-partum asphyxia in both cases.

Mode of delivery (tables I and II).

(1) Assisted breech deliveries. Of the 106 patients in this group, 57 had an epidural block, and the second stage was significantly longer in these cases ($P=0.001$).

The average top-up to delivery interval in the epidural patients in this group was 66 min while the average length of the second stage was 33 min, suggesting that the final top-up was given before the onset of the second stage in the large majority. This was found to be the case in 71% of the epidural patients.

(2) Groin traction deliveries. Of the 11 patients in this group, 7 had an epidural block. Nine required intervention because of failure of descent and of these, 6 were in the epidural group. Of the remaining 2, one required intervention because of foetal distress (no epidural), and the other had no definite indication for interference (epidural).

The average top-up to delivery interval in the epidural patients in this group was 81 min whilst the average length of the second stage was 72 min. It was found that the final top-up was given before the onset of the second stage in 4 out of the 7 patients (57%).

The average birth weight in this group, excluding the one patient delivered by groin traction for foetal distress, was 3.48 kg, in contrast with an average of 3.04 kg in the assisted breech delivery group.

(3) Breech extraction deliveries. There were 8 patients who required total breech extraction. In 3 of these the indication was "failure to progress”. One of these 3 patients had an epidural block. In the other 5 patients breech extraction was indicated on account of foetal distress or cord prolapse or maternal hypertension. One of the 5 had an epidural block.

In both patients who had an epidural block, the top-up to delivery interval was less than the time for the second stage.

(4) Intra-partum Caesarean section deliveries. Out of these 8 patients, 6 had epidural analgesia. The indication for Caesarean section was "prolongation of the second stage of labour” in 4 patients; 2 of these in the epidural group and 2 in the non-epidural group. In the remaining 4 patients the operation was performed because of a prolonged first stage of labour, all of whom had epidural analgesia; however, oxytocic drugs had ensured optimum contractions in every case, thereby nullifying any slowing of labour caused by the epidural block.

<table>
<thead>
<tr>
<th>TABLE I. Type of delivery of 133 patients with breech presentations, 72 of whom received an epidural block.</th>
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<tbody>
<tr>
<td><strong>No epidural block</strong> (61 patients)</td>
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<tr>
<td>Primiparae</td>
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<tr>
<td>Assisted breech delivery</td>
</tr>
<tr>
<td>Groin traction delivery</td>
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<tr>
<td>Breech extraction</td>
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<tr>
<td>5 = 1 maternal hypertension</td>
</tr>
<tr>
<td>1 foetal distress</td>
</tr>
<tr>
<td>1 cord prolapse</td>
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<tr>
<td>2 delay in 2nd stage</td>
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<tr>
<td>Lower segment Caesarean section</td>
</tr>
<tr>
<td>2 = 1 failed breech extraction</td>
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<tr>
<td>1 delay in 2nd stage</td>
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Two infants died of asphyxia, one in each group.
largely restricted to those cases in which the foetus
abolished in 50% of patients with an epidural block,
presentation has been criticized (Law and Ransome,
(1972) reports that the bearing down reflex is
marked diminution of maternal effort. To lessen this
given during the second stage of labour, there is
spread of the anaesthetic towards the sacral roots,
provided positive steps are taken to ensure some
perineal sensation is seldom totally abolished and
agreement with Kelly and Hewitt (1972) that, pro-
probable total loss of perineal sensation and a
reduction of groin traction even in the absence of
regional block.

The incidence of groin traction seems to be rela-
ted to the weight of the baby, and, perhaps, the
"top-up to delivery" interval. When the top-up is
given during the second stage of labour, there is
probable total loss of perineal sensation and a
marked diminution of maternal effort. To lessen this
effect, it has been our practice to administer the
top-up doses in the horizontal position or with a 5
degree head-down tilt. Although there is inevitable
spread of the anaesthetic towards the sacral roots,
perineal sensation is seldom totally abolished and
the bearing down reflex is maintained. We are in
agreement with Kelly and Hewitt (1972) that, pro-
vided positive steps are taken to ensure some
perineal sensation, breech extraction or groin trac-
tion can be avoided in most patients.

The greater birth weight of infants in the group
receiving epidural blocks suggests that many would
have needed groin traction even in the absence of
an epidural block.

**TABLE II. Infant birth weight, duration of first and second stages of labour and Apgar scores related to the type of breech delivery, analgesia used and parity of the mother.**

<table>
<thead>
<tr>
<th>Condition of the baby at delivery (table II).</th>
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<td>The Apgar ratings of all the breech deliveries were recorded and a comparison was made between the two groups. Figure 1 illustrates the even scatter of Apgar scores and infant birth weights in the two groups. Sixteen babies in the non-epidural group weighed less than 2.5 kg whilst only 2 in the epidural group were in this class. This is explained by the precipitate nature of the deliveries of these premature infants. However, only three of this group had an Apgar rating of less than five.</td>
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<td>As this was a retrospective study, no planned biochemical assessment was available so that a more reliable comparison between the two groups could not be made. Whilst this shortcoming is regretted by the authors, the scatter of results shown in figure 1 does not reveal any obvious difference in the condition of the infants in the two groups. A future prospective survey with acid-base studies would clarify the point.</td>
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**DISCUSSION**

Lumbar epidural block is now widely used for the relief of pain in labour, but its application has been largely restricted to those cases in which the foetus presented by the vertex. Its use with the breech presentation has been criticized (Law and Ransome, 1954; Sweeney and Hawks, 1969). Crawford (1972) reports that the bearing down reflex is abolished in 50% of patients with an epidural block, and that this, coupled with diminished abdominal muscle power, is likely to increase the incidence of breech extraction. This, in turn, imposes a greater hazard to the foetus.

In the present series there were 9 breech extractions out of a total of 132 cases. Four of these were for prolongation of the second stage, of which only one received an epidural block. There was one foetal death in this group, not associated with regional block.

The incidence of groin traction seems to be related to the weight of the baby, and, perhaps, the "top-up to delivery" interval. When the top-up is given during the second stage of labour, there is probable total loss of perineal sensation and a marked diminution of maternal effort. To lessen this effect, it has been our practice to administer the top-up doses in the horizontal position or with a 5 degree head-down tilt. Although there is inevitable spread of the anaesthetic towards the sacral roots, perineal sensation is seldom totally abolished and the bearing down reflex is maintained. We are in agreement with Kelly and Hewitt (1972) that, provided positive steps are taken to ensure some perineal sensation, breech extraction or groin traction can be avoided in most patients.

The greater birth weight of infants in the group receiving epidural blocks suggests that many would have needed groin traction even in the absence of an epidural block.
Fig. 1. The relationship between infant birth weight and condition 1 minute after birth in two groups (epidural and non-epidural). The cross-hatched area represents premature infants (below 2.5 kg) with an Apgar score of six or less. ☐ = Epidural; ● = Non-epidural.

There was no significant difference in the number of those receiving epidural blocks (9) and those receiving some other form of pain relief (10) who required some form of extra manipulation to effect vaginal delivery.

Apart from total perineal anaesthesia, a further objection to top-up doses given in the second stage is the increased incidence of supine hypotension associated with the patient lying in the dorsal position or the lithotomy position. Acute foetal distress may supervene. For this reason, all patients receiving regional block are routinely nursed in the lateral position during the first stage of labour and for as much of the second stage as possible.

In our experience, the condition of the foetus at birth is as good, if not better, than that of those whose mothers had other forms of analgesia or anaesthesia. This is similar to the findings of Noble and associates (1971) who examined a comparable group of infants presenting by the vertex.

Johnson and associates (1972) have demonstrated that epidural block slows contractions and decreases the voluntary effort in the second stage and this was apparent in all our cases. This seems to us to be of little importance provided that the time from delivery of the umbilicus to completion of the second stage is not prolonged. Delay is unlikely to occur at this point as the delivery of the infant is effected by the obstetrician. Indeed, the manoeuvres necessary can be achieved with greater ease and safety to the infant, and the overall increased cooperation of the patient ensures a more controlled delivery of the head. Prolongation of the first stage of labour was seldom seen in association with epidural block because oxytocics were used in many cases to maintain optimum uterine contractions. The high proportion of epidurals amongst patients delivered by the abdominal route is probably misleading. Prolongation of the first stage of labour was the reason for the use of an epidural block and not the result of its use. Failure of progress despite adequate oxytocic stimulation in 5 out of 6 of the cases suggested that they were perhaps not suitable for vaginal delivery in the first place.

There are strong indications for the use of an epidural block in the management of foot presentations. In these patients, the foot often slips through the undilated cervix and presses on the perineum creating a strong and often disastrous urge to push. Total perineal anaesthesia is an obvious advantage here and top-up doses with foot-down tilt are indicated.

There have been previous advocates of lumbosacral block (Daily and Rogers, 1957; Boyson and Simpson, 1960; Gunther and Haver, 1965; Salvatore, Cicivizzo and Twath, 1965) and we feel that the present series demonstrates that, providing there is no absolute contraindication, all patients with breech presentations selected for vaginal delivery should be given the benefit of epidural analgesia. The advantages of pain relief in the first, second and third stages of labour far outweigh the previous theoretical objections on the grounds of increased hazard to the foetus.

ACKNOWLEDGEMENTS

We would like to thank the consultant staff of Kingston Hospital and Queen Charlotte's Maternity Hospital for allowing access to the notes of patients under their care. The initial idea for this paper was provided by Dr A. Doughty whom we would like to thank also.
REFERENCES


NORFOLK AND NORWICH INSTITUTE FOR MEDICAL EDUCATION

A Study Day will be held at Norwich on Saturday, 26 October, 1974.

**Morning**

**HALOTHANE, CHLOROFORM AND THE LIVER**

Speakers: Professor B. R. Simpson
          Dr R. Williams
          Professor J. P. Payne

**Afternoon**

**MAJOR ACCIDENTS**

Chief Inspector B. Fisher
Dr P. O. Pyle
Dr Jean Horton

Details from the Secretary, Norfolk and Norwich Institute for Medical Education, Norfolk and Norwich Hospital, Norwich, Norfolk NOR 53A.