INTERNAL VERSION

(A Review of 118 Cases)

by

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The operation of internal version is of great antiquity. Hippocrates is said to have recommended internal cephalic version in all cases of "cross-birth". Although an occasional dissident voice was raised, the Master's teaching was commonly followed until Ambroise Paré in the sixteenth century described the advantages of podalic version. Recently Neely (1959) has pleaded for the readoption of internal cephalic version in certain cases of transverse lie.

Contra-indications to internal version were originally ruptured membranes, contracted pelvis and inadequate cervical dilatation. Although the former is desirable, it was realised that relaxation of the uterine muscle would often allow version to be carried out even if the membranes had been ruptured for some hours and the employment of ether, and later chloroform, by Sir James Y. Simpson in 1847, increased uterine relaxation. In the same year Simpson showed that internal podalic version allowed delivery of the after-coming head to be achieved with greater ease through a contracted pelvis than would be the case with a vertex delivery. In 1860, Braxton Hicks described a method of bipolar version in which the cervix had only to be dilated sufficiently to permit the introduction of two fingers.

During the next thirty years internal version was used for nearly every form of dystocia which could not be overcome by easy forceps delivery. That the foetal mortality was enormous was accepted as unavoidable. Thereafter axis traction forceps or caesarean section often provided attractive alternative treatment. There was a temporary revival in the United States, in the 1920's and early 1930's, after Potter had advocated prophylactic version for the elimination of the second stage of labour. The operation had reached its highest point of development and in expert hands the maternal and perinatal mortality were negligible, e.g. Potter himself claimed a corrected perinatal mortality of 2.3 per cent. With the further development and increased safety of caesarean section many of the indications for internal version have disappeared. Indeed, some (Agüero *et al* 1962, MacGrego 1964) have even condemned its u in cases of transverse lie detected la in labour, for long accepted as t indication par excellence, for

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TABLE I

Comparative series of versions

Author	Hospital	Years	No. of versions	Incidence	Maternal Mortality		Perinatal Mortality	
					No.	%	No.	%
Jarrett (1951)	MacDonald House, Cleveland	1945-49	446	1 in 47	0	0	17	3.8
Keettel (1952)	State University of Iowa	1926-51	156	1 in 161	5	3.2	61	39.2
Erving (1954)	Elizabeth Steel Magee Hospital, Pittsburgh	1944-52	1,146	1 is 34	1	0.1	63	5.5
Rosensohn (1954)	New lork Lying-in Hospital	1932-50	186*	1 in 309	3	1.6	46	24.7
Roddie (1955)	Kandang Kerbau Hospital, Singapore	1949-54	164	1 in 551	3	1.8	116	70.7
Ferron (1960)	L'Hôpital Maisonneuve, Canada	1954-60	36	1 in 374	0	0	14	38.8
Moore (1961)	San Borja Hospital, Santiago	1951-60	1,103	1 in 77	7	0.9	304	27.1
Díaz (1961)	Instituto Materno Infantil, Bogotá	1953-60	121	1 in 539	0	0	25	23.9
Agüero (1962)	Maternidad Concepcion Palacios Caracas	1939-57	667	1 in 307	9	2.3	271	43.5
Bhatt (1962)	Nowrosjee Wadia Maternity Hospital, Bombay	1954-59	203	1 in 274	2	1.0	149	74.5
Chapman (1967)	Queen Charlotte's Hospital, London	1940-65	118	1 in 552	2	1.7	47	39.8

* Versions in Multiple Pregnancies Excluded.

operation. The author's experience suggests that in carefully selected cases the operation is safe for both mother and child. Jarrett's (1951) and Erving's (1954) large series (Table 1) support this belief but it is a minority view. The object of this article is to discover whether internal version is ever the treatment of choice in modern obstetric practice.

Cases studied

The operation of internal or bipolar version was performed on 118 occasions at Queen Charlotte's Maternity Hospital, London, between 1940 and 1965. Since there were during those 25 years 65,105 deliveries, the operation's incidence was 1 in 552 (0.2 per cent). At first sight the number of cases appears inadequate to warrant detailed analysis but it is believed that study of the individual case records in some measure compensates for the lack of numbers.

In this series there were 2 maternal deaths, 31 still-births and 16 first week deaths, i.e., a maternal loss of 1.7 per cent and a perinatal mortality of 39.8 per cent. Twenty-two of these infants weighed 3 pounds or less at birth, were dead before version was carried out, or died subsequently from an unrelated cause. This gives a corrected perinatal mortality of 21.2 per cent. A comparison is made in Table 1 with some hospitals in Asia and America, but no attempt has been made to compare the corrected maternal and perinatal mortalities since the authors' criteria varied considerably.

Indications for Version

In the present series internal version was carried out for one or more of six indications (Table II) of which delivery of the second twin, or the second or third in the case of triplets, accounted for 51.7 per cent while transverse lie and prolapsed cord accounted for most of the others.

Between 1940 and 1945 caesarean section was carried out at Queen Charlotte's Hospital 456 times for the same six indications. There were 2 maternal deaths, 14 still-births and 23 first week deaths, i.e. a maternal mortality of 0.4 per cent and a perinatal mortality of 8.1 per cent.

In Table II the indications for version and caesarean section are cor-

TABLE II
Indications for version

Indications	INTERNAL VERSION						CAESAREAN SECTION					
	Cases		Maternal deaths		Perinatal deaths		Cases		Maternal deaths		Perinatal deaths	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Second twin	61	51.7	—	—	8	13.1	3	0.7	—	—	0	0
Transverse lie	27	22.9	—	—	15	55.6	35	7.7	—	—	1	2.9
Prolapsed cord	19	16.1	1	5.3	14	73.7	68	14.9	—	—	2	2.9
Placenta praevia	8	6.8	1	12.5	7	87.5	267	58.6	2	0.7	27	10.1
Brow presentation	2	1.7	—	—	2	100.0	35	7.7	—	—	3	8.6
Failed forceps	1	0.8	—	—	1	100.0	48	10.5	—	—	4	8.
TOTAL	118	100.0	2	1.7	47	39.8	456	100.0	2	0.4	37	8

related. Where two or more of these coexist only the main one has been tabulated.

Delivery of the second twin or the second or third of triplets by internal version should, theoretically, be easier than similar delivery of a single foetus or the first of a multiple pregnancy since the cervix should be fully dilated, the lower birth canal stretched and disproportion unlikely. For this reason, in the tables which follow, a distinction is made between the two groups which are referred to as the "second twin" and "singleton" respectively.

Age

The patients' ages varied from 19 to 44 years. Thirty were under 25 years, 62 were between 25 and 35 and 26 were over 35 years of age. There did not appear to be any correlation between age and number of foetal deaths.

Parity

Forty-four patients were primigravidae and 74 were multiparous, of whom 10 had given birth to more than 5 children. Here again there was no obvious correlation between gravidity and number of foetal deaths.

Period of gestation

In 27 cases pregnancy lasted less than 35 weeks and 22 (81.5 per cent) of the infants died. Pregnancy exceeded 40 weeks in 9 cases, 4 infants survived and 5 (55.5 per cent) died. In the remaining 82 cases 20 (24.4 per cent) infants succumbed. This suggests that internal version can more safely be carried out between the 35th and 40th week.

Duration of labour

The majority of patients were delivered within 24 hours of the onset of labour. In only 12 cases did labour exceed 36 hours, the longest recorded duration being 97 hours 50 minutes. Analysis of the case records suggests that the longer labour lasts the higher is the perinatal mortality. Indeed, of the 18 singletons delivered after labour lasting more than 12 hours, 15 (83.3 per cent) died.

Length of time membranes ruptured before version

In 84 cases the membranes were intact or had been ruptured for less than 1 hour before version was carried out; even so, 21 (25.0 per cent) infants died. In the remaining 34 cases the membranes had been ruptured from 1 hour to 12 days and 26 (76.5 per cent) infants succumbed. Rupture of the uterus occurred on one occasion only (although broad ligament haematoma was diagnosed twice) when the membranes had been ruptured for 46 hours. Detailed analysis of the records indicates that delivery should be carried out within 1 hour of rupture of the membranes, preferably at the time of rupture. No infant survived version and delivery when the membranes had been ruptured for more than 24 hours.

Cervical dilatation at time of version

Ninety-four patients were treated by version followed by immediate extraction. Table III gives the dilatation of the cervix at the time of version and extraction. It shows that immediate delivery in both primi-

TABLE III

Cervical dilatation at time of version

Cervical Dilatation	PRIMIPARAE									MULTIPARAE										ALL CASES								
	Singletone			2nd Twin			Total			Singletons			2nd Twin			Total				Singletons			2nd Twin			Total		
	No.	Died	%Died	No.	Died	%Died	No.	Died	%Died	No.	Died	%Died	No.	Died	%Died	No.	Died	%Died		No.	Died	%Died	No.	Died	%Died	No.	Died	
¾ or less	2	1	50.0	3	2	66.7	5	3	60.0	5	5	100.0	2	1	50.0	7	6	85.7		7	6	85.7	5	3	60.0	12	9	75
Rim	0	0	0	4	0	0	4	0	0	8	2	25.0	3	0	0	11	2	18.2		8	2	25.0	7	0	0	15	2	13
Full	6	5	83.3	24	3	12.5	30	8	26.7	12	7	58.3	25	2	8.0	37	9	24.3		18	12	66.7	49	5	10.2	67	17	25
Total	8	6	75.0	31	5	16.1	39	11	28.2	25	14	56.0	30	3	10.0	55	17	30.9		33	20	60.6	61	8	13.1	94	28	29

TABLE IV

Version—delivery interval

Hours	0 - 1			1 - 3			3 - 24			Total		
	No.	Died	% Died	No.	Died	% Died	No.	Died	% Died	No.	Died	% Died
Primiparae	2	1	50.0	2	2	100.0	1	1	100.0	5	4	80.0
Multiparae	4	2	50.0	6	4	66.7	9	9	100.0	19	15	78.9
Total	6	3	50.0	8	6	75.0	10	10	100.0	24	19	79.2

parae and multiparae should only be carried out if the cervix is completely effaced or at the most a rim is present. Delivery through a ¾ dilated cervix, even in a multipara, is extremely dangerous.

Version-Delivery interval

In 24 single pregnancies internal or ipolar version was followed by delayed delivery. Table IV gives the version-delivery interval of those cases. Only 5 (20.8 per cent) infants survived and the longest version-delivery interval associated with foetal survival was 2 hours 35 minutes. These very poor results suggest that this form of treatment is no longer justifiable.

Ante-partum complications

Table V gives those complications which could affect the foetus adversely or which might cause difficulty in labour. Pre-eclampsia occurred in no less than 44 (38.3 per cent) cases, 35 of these being associated with multiple pregnancy. Ten cases of hydramnios were recorded of which 5 were associated with prolapse of the cord during labour. Two of the six cases of accidental haemorrhage resulted from external cephalic version; in both cases placental separation of such a degree occurred as to lead to foetal death from asphyxia.

TABLE V

Ante-partum complications

Ante-partum Complication	No.	% Total Cases
Pre-eclampsia	44	38.3
Eclampsia	1	0.9
Essential hypertension	1	0.9
Acute nephritis	1	0.9
Threatened abortion	2	1.8
Accidential haemorrhage	6	5.2
Placenta praevia	9	7.8
Ante-partum haemorrhage, cause unknown	3	2.6
Deep venous thrombosis	1	0.9
Hydramnios	10	8.7
otal	78	67.8

Complications of delivery

Manual removal of the placenta was necessary on 26 occasions, an incidence of 22.6 per cent. One case of uterine rupture occurred. The patient died and the diagnosis was made at autopsy. Cervical lacerations were recorded in 6 patients. In addition, broad ligament haematoma was diagnosed in 2 patients during the puerperium. Contracted pelvis was diagnosed 5 times and radiological confirmation of this was obtained in 4 of those patients during the puerperium. Four (80 per cent) of their infants died, 2 (40 per cent) before delivery, but 2 (40 per cent) from the effects of birth trauma. The only infant who survived was one of triplets. Post-partum haemorrhage was recorded on 11 occasions, an incidence of 9.6 per cent. Table VI lists the complications which accompanied delivery.

Post-partum complications

Urinary and genital tract infections accounted for half the puerperal complications. Escherichia coli accounted for all 12 cases of urinary tract infection. Of the 9 cases of genital tract infection, 3 were due to non-haemolytic streptococci, 1 due to streptococcus viridans, 1 to staphylococcus aureus, 2 to E. coli and in 2 cases the organisms were unknown.

TABLE VI
Complications of delivery

Complication of delivery	No	% Total Cases
Prolapse of cord	25	21.8
Previous caesarean section	2	1.8
Bicornuate uterus	1	0.9
Contracted pelvis	5	4.3
Ruptured uterus	1	0.9
Cervical laceration	6	5.2
Third degree tear	2	1.8
Post-partum haemorrhage	11	9.6
Manual removal of placenta	26	22.6
Aspiration of vomitus	1	0.9
Total	80	69.6

The patient who developed acute renal failure had been treated with systemic cortisone for Besnier's Prurigo prior to pregnancy. Following delivery the patient became hypotensive and anuric. This was considered to be inadequate adrenal response to stress. She recovered. Table VII records the post-partum complications.

TABLE VII
Post-partum complications

Post-partum complication	No.	% Total Cases
Genital infection	9	7.8
Urinary infection	12	10.4
Secondary post-partum haemorrhage	2	1.8
Broad ligament haematoma	2	1.8
General peritonitis	1	0.9
Vulval haematoma	1	0.9
Infected episiotomy wound	3	2.6
Pulmonary collapse	2	1.8
Pneumonia	1	0.9
Deep vein thrombosis	1	0.9
Superficial venous thrombosis	2	1.8
Acute renal failure	1	0.9
Hepatitis	1	0.9
Dental abscess	1	0.9
Total	39	33.9

Maternal mortality

There were two maternal deaths in the series, a mortality of 1.7 per cent.

Case 1

Mrs. A. R. T. aged 34 para 4 + 0.

Past history (a) The previous pregnancy which occurred 11 year ago was complicated by placenta praevia.

(b) Ovarian cystectomy was performed 4 years ago.

Present history. The patient was referred when 35 weeks pregnant with a history of slight vaginal bleeding for 4 weeks. Examination under anaesthesia confirmed central placenta praevia. Brisk haemorrhage occurred. Bipolar version was performed and the bleeding ceased. Further bleeding occurred 5 hours later but was controlled by attaching a one pound weight to the leg. Labour started shortly afterwards and was completed in 3 hours. Delivery resulted in a still-born female child weighing 6 pounds. The third stage was complicated by a post partum haemorrhage of 20 ounces. This was controlled by ergometrine and oxytocin. The patient became shocked. She was given 10 ounces of saline rectally. Laetr 250 ml. blood were transfused. There was no further blood loss but she failed to rally despite the use of strophanthin. She died after 20 hours.

Autopsy summary

(a) Subendocardial haemorrhages (obsteric shock).

(b) Oedema of lungs.

Case 2

Mrs. M. D. aged 31, primigravida.

Past history; Menorrhagia occurring 10 years before; was treated with radium.

Present history: The patient was 31 weeks pregnant when she was referred in early labour with a transverse lie and prolapse of the cord. The foetus was dead and the membranes had been ruptured for 9½ hours. External podalic version under anaesthesia was successful but the transverse lie recurred. Ten hours later bipolar version was attempted but failed. After a further 28 hours in labour when the cervix

was 3 fingers dilated bipolar version was again attempted. That time it was successful. Immediately afterwards the pulse rose to 140 per minute but later fell. The uterus developed board-like rigidity. Delivery of a still-born foetus weighing 4 pounds 14 ounces occurred 17½ hours later. The placenta was adherent and was removed manually. Blood loss of 15 ounces occurred following this. Ergometrine and oxytocin were given.

The patient was given a course of sulphonamides. She became shocked, was transfused and rallied. The abdomen became distended, but she passed flatus on the 3rd day. The pulse rate remained rapid at 120 per minute. On the 5th day her temperature rose to 100.8°F. The uterus was tender. On the 7th day a severe secondary post-partum haemorrhage of 50 ounces occurred. Two and a half pints of blood were transfused. Despite this the patient deteriorated rapidly and died after 12 hours.

Autopsy summary

(a) Rupture at the junction of the upper and lower segments.
(b) Retained placenta (? adherent to muscle at fundus).
(c) General peritonitis.
(d) Marked toxic changes in myocardium, spleen, liver and kidney.
(e) Free blood and peritoneal exudate in peritoneal cavity.

The two maternal deaths occurred in 1940 and 1944 respectively. They illustrate the three most serious maternal complications of this manoeuvre, haemorrhage, uterine rupture and sepsis.

The Infant

One hundred and eighteen infants were delivered and 47 of them died. The perinatal mortality was thus 39.8 per cent. Thirty-one (26.3 per cent) were still-born and the remaining 16 (13.6 per cent) died in the first week.

Fourteen infants weighed 3 pounds or less. None survived. Of infants weighing more than 4 pounds approximately one in three died, the exception being those between 7 and 8 pounds in weight whose perinatal mortality was only 9.7 per cent.

Since autopsies were not performed routinely until 1947 the cause of death in many instances can only be surmised. Table VIII gives the primary cause of death as recorded in the autopsy record. Anoxia would appear to be almost three times as common a cause of death as intracranial haemorrhage resulting from birth trauma. This is analogous to the findings of the National Survey of Perinatal Mortality with respect to breech deliveries (Law, 1961).

TABLE VIII

Cause of perinatal death

Cause of Death	No.	% Total Cases
Maceration	3	2.5
Ante-partum anoxia	1	0.8
Intra-partum anoxia	12	10.2
Intraventricular haemorrhage	3	2.5
Traumatic intracranial haemorrhage	6	5.1
Atelectasis and hyaline membrane	2	1.7
Pneumonia	1	0.8
No autopsy	19	16.1
Total	47	39.8

Foetal morbidity attributable to the hazards of version and delivery occurred in 5 further infants. Four cases of cerebral irritation were recorded (1 of these infants also had a fractured clavicle), but in only 1 of them was residual damage demonstrable after 18 months. The 5th in-

fant was found to have a fractured humerus.

Discussion

It has already been noted that the problems associated with delivery of the second twin differ from those of the single foetus. In the discussion which follows the distinction will be maintained.

(a) The second twin

Version of the second twin was carried out in 61 (51.7 per cent) instances. In 35 cases the lie was transverse; in 3 the presentation was compound and in 23 the vertex presented. In 32 patients a general anaesthetic had already been administered for delivery of the first twin. The cord prolapsed on 5 occasions and presented once. Failed forceps occurred no less than six times. In 5 of these, delivery was effected by internal version and breech extraction without foetal loss, but the 6th died from intracranial haemorrhage. There were 8 foetal deaths, i.e., a perinatal mortality of 13.1 per cent. Three of these infants weighed less than 3 pounds and a 4th died from unrelated pneumonia. Of the other 4 deaths, 3 possibly were attributable to errors of judgement on the part of the obstetric staff. The corrected perinatal mortality was 6.6 per cent. It has long been recognised that delivery of the second twin is associated with a high mortality attributable to an increased incidence of complicated delivery, reduced placental circulation, occasional placental separation and relative asphyxia at birth (MacDonald, 1962). In a review of several series of twin deliveries Camilleri (1963) found that the average perinatal mortality for the second twin was 13.9 per cent. Thus, the uncorrected perinatal mortality of Camilleri's (1963) collected figures and the present series are virtually the same. This suggests that internal version and breech extraction is an acceptable form of treatment for the second twin, since if it were not so, the perinatal mortality of the present series would be very much higher.

When the patient has already been anaesthetised for delivery of the first twin, delivery of the second, presuming it to be presenting by the vertex, can be effected either by forceps or by internal version and breech extraction. In 6 of the 23 cases of vertex presentation forceps delivery was attempted first, unsuccessfully. Since the head is invariably high at this stage, artificial rupture of the membranes, followed by immediate internal version and breech extraction is probably the simpler and safer procedure.

Internal version and breech extraction is also the treatment of choice when the second twin presents by the shoulder, for external version is not only difficult in the presence of a large uterus, but may result in placental separation or prolapse of the cord. In the present series external cephalic version was attempted, unsuccessfully, in 8 of the 35 cases of transverse lie which were subsequently delivered by internal version and breech extraction and on one of those occasions prolapse of the cord occurred.

There remain those cases of uterine inertia where the head remains high

despite rupture of the membranes. No help is afforded by study of the present series in the way these patients should best be managed.

(b) The single foetus

Version and delivery of a second twin is usually performed in the presence of full cervical dilatation. In the case of a single foetus, however, version can be carried out at any cervical dilatation which is sufficient to permit the introduction of two fingers. Subsequent delivery is either effected by immediate breech extraction, or a foot is drawn out through the vulva until the half breech is applied to the cervix, labour being allowed to continue until full cervical dilatation and descent of the breech permit delivery to take place.

Tables III and IV strongly suggest that immediate breech extraction through a fully dilated cervix or, at most, a rim of cervix, yields the best results. Bipolar or internal version followed by delayed breech delivery is extremely dangerous. It usually results in either foetal death from cord compression or death from intracranial haemorrhage due to a forceful delivery through the incompletely dilated cervix (Holmes, 1956).

(i) Transverse Lie

Transverse lie, uncomplicated by prolapse of the cord or placenta praevia was treated by version on 27 occasions. Fifteen (55.6 per cent) infants died but 6 (22.2 per cent) of these weighed 3 pounds or less or were dead before version was performed. The corrected perinatal mortality was thus 33.3 per cent whereas the foetal loss for those treated by caesarean section was 2.9 per cent. For comparison, Johnson (1964) gives the corrected Mayo Clinic's figures as 25 per cent and 2 per cent respectively.

In only 4 cases did optimum conditions exist at the time of version, namely, full cervical dilatation, intact membranes and multiparity, and one of those infants died. A favourable result therefore cannot necessarily be anticipated by delaying treatment until full cervical dilatation is achieved. Indeed, several authors (Mangone and Kane, 1955, Calkins and Pearce, 1957, Wilson *et al* 1957) have proved conclusively that postponement of treatment is fraught with danger.

One is therefore reluctantly forced to conclude that internal version and breech extraction should rarely, if ever, be performed on a mature foetus.

(ii) Prolapse of the Cord

Of 19 foetuses treated by internal version for prolapse of the cord, 9 were premature. In 15 cases the lie was transverse and in 4 cases the vertex presented. Fourteen (73.7 per cent) infants died but the corrected perinatal mortality was 26.3 per cent. One (5.3 per cent) mother died. In 68 patients delivered by caesarean section the perinatal mortality was 2.9 per cent and there was no maternal death.

Relief of cord pressure is essential while preparations are made for delivery (Cushner, 1961) even if this results in some delay before delivery is effected. The mode of delivery will obviously depend upon the dila-

tation of the cervix at the time of the cord prolapse but here again caesarean section will yield the best results (Seligman, 1960). It should be noted, however, that in some cases lowered foetal blood pressure is an aetiological factor in prolapse of the cord (Heinisch, 1955, Seligman, 1960). This may be one of the reasons for its relative frequency in premature infants. In such cases foetal prognosis following any form of delivery is poor.

(iii) Placenta praevia

Treatment of placenta praevia by bipolar version is now of historic interest only, except where the baby is very immature, is already dead, or very rarely, in the multipara in labour with a good obstetric history who has haemorrhage of such a degree that it must be controlled before any further steps are taken (Macafee, 1960).

Of 8 patients with placenta praevia who were treated by bipolar or internal version only 1 infant with a lateral placenta praevia survived. There was 1 maternal death. During the same period, 267 patients with placenta praevia were delivered by caesarean section for a maternal mortality of 0.7 per cent and a perinatal loss of 10.1 per cent.

(iv) Brow presentation

Only 2 patients with brow presentations were delivered by internal version and breech extraction in this series during the last 25 years and both infants died, while the perinatal mortality associated with 35 caesarean sections for the same indication was only 8.6 per cent.

Hellman *et al* 1950, found the incidence of pelvic contraction in brow presentation at Johns Hopkins Hospital to be no less than 53.8 per cent compared with a general average of 22.3 per cent. This suggests that disproportion is the major aetiological factor in brow presentation; consequently version and extraction is extremely likely to have a fatal outcome. This mode of delivery in cases of brow presentation has now been virtually abandoned. (Posner *et al* 1963).

(v) Failed Forceps

Three fundamental factors are responsible for failure to deliver the patients with forceps: disproportion, incomplete cervical dilatation and some malposition of the foetal head (Law, 1953). It is thus clear that version should never be attempted after delivery with forceps has failed.

The only single foetus in this series treated by version died, but of 48 delivered by caesarean section (in most cases following failed trial of forceps) the perinatal mortality was 8.3 per cent.

Summary

One hundred and eighteen cases of internal version performed at Queen Charlotte's Hospital during the last 25 years have been analysed. The maternal mortality was 1.7 per cent and the gross perinatal mortality 39.8 per cent which, when corrected, fell to 21.2 per cent.

Version was carried out for six indications of which delivery of the second twin accounted for 51.7 per cent. Transverse lie or prolapsed

cord was the reason for version in most of the others.

Active intervention was shown to be frequently desirable in the management of the second twin and internal version and breech extraction appeared to be the treatment of choice when the patient had already been anaesthetised for delivery of the first. Internal version and breech extraction was also thought to give better results than external cephalic version in the management of the second twin with a transverse lie. The best method of delivering the second twin in the presence of uterine inertia and ruptured membranes remains to be evaluated.

The various indications for delivery of a single foetus by internal version were reviewed and it was concluded that in all cases where the foetus was alive, was thought to weigh more than 3 pounds and had no gross congenital malformation, caesarean section was the better treatment.

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