An emergency source of oxytocin in labour*

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APPLICATION of artificial suckling, by breast-pump or manipulation (repeated digital protraction of the nipple), confirmed that the milk-ejection reflex operates before milk is secreted, and that its basic mechanism—release of oxytocin—can safely be used to improve uterine contractions during labour.[1] Do further findings support this? What grounds are there for its employment in obstetrics?

Response in second stage to one sequence of suckling

Artificial suckling was applied to 257 mothers, including 174 (67·7 per cent) primiparae, where there was delay in the second stage of labour. Progress had generally ceased, though sometimes, when suckling was applied, there was still slight advance. Responses were graded as "good" if contractions improved, leading to rapid progress and spontaneous birth; "moderate" when stronger contractions resulted in steady progress and birth that was usually spontaneous though sometimes instrumental; "fair" when contractions improved, but progress was only slightly accelerated; and "negligible" when neither contractions nor progress improved. One-hundred-and-fifty-six "good" and 68 "moderate" responses together accounted for 86·6 per cent of those tested.

TABLE I
SECOND STAGE RESPONSE TO SUCKLING (OR SINGLE SEQUENCE)

Response	*Good*	*Moderate*	*Fair*	*Negligible*	*Total*
No. of cases	156	68	26	7	257
Percentage	*60·1*	*26·5*	*10·1*	*2·7*	
Primiparae	96	50	22	6	174

So many babies were born shortly after applying suckling that I began counting the contractions preceding birth. Ninety-one births occurred within eight contractions of starting to suckle, the largest number coinciding with the second and third contractions (20 each), followed by the fourth (15), and the first (10) contractions.

In mothers delivered less rapidly the greatest improvement in strength appeared also to coincide with the second and third contractions after suckling. This had similarly been found with responses to first stage stimulation.[1]

TABLE II
RAPID RESPONSE TO SUCKLING IN SECOND STAGE

No. of contractions (between suckling and birth	1	2	3	4	5	6	7	8
No. of births	10	20	20	15	8	7	5	6
TOTAL								91

Tetanic contractions never occurred despite rapid progress, and only two babies were lost out of 257 born to mothers with second stage delay. One, with hydrocephalus,

*Based on the Sir Charles Hastings (1969) Prize-Winning Essay

required perforation for delivery; the other, in the first year of the trial (1953) was stillborn following a 72-hour, primiparous labour. Excessive trilene had been given with a Marrett's inhaler, and the mother felt no desire to push before suckling was applied. Thereafter there was steady progress, without her contractions becoming excessive. The foetal heart was not beating at birth, though it was thought to have been heard 15 minutes earlier. No postmortem was performed. It appeared the stillbirth had occurred despite, and not because of, suckling being performed.

Seemingly certain forceps deliveries were frequently avoided, but 14 of the 68 mothers with "moderate" responses, and 12 of the 26 with "fair" responses, required terminal instrumental delivery—uterine exhaustion being recorded in eight of the latter. Four persistent occipito-posterior deliveries were also included in this group. It was noticed when treating those with infrequent weak uterine contractions that responses were better than with very frequent weak ones (recorded in five cases).

Two mothers with "negligible" responses required forceps, the remaining five being spontaneously delivered. Two of these had very frequent weak contractions, the others, although unresponsive to suckling, responding to one intramuscular injection of oxytocin (2·5 units). It was considered the absence of any response to suckling provided a sensitivity test, ensuring against excessive response to the injected oxytocin. The fact that forceps were sometimes required, particularly in the "fair" and "negligible" categories, was probably less an indication of failure of suckling than that the primary cause of delay was other than inertia. Thirteen of the forceps deliveries were assessed as difficult, including five for persistent occipito-posterior position, and three for transverse arrest of the head; other indications included large baby (3), narrow outlet (7), elderly primiparae with rigid perineum (6), and foetal distress (5).

Suckling was effectively employed once to overcome shoulder dystocia when delivering an 11-pound baby. It was used 14 times to reduce delay—and possible closure of the cervix—between the birth of twins, the interval being less than ten minutes in nine, and less than five minutes in four cases. Only one of 28 twin babies—a macerated foetus—was lost.

On 30 occasions breech deliveries were assisted by suckling, the optimal time for its performance apparently being when the breech was nearly "crowned". The resulting boost in contractions seemed to aid delivery, often reducing this to a three pain process—one for the buttocks, legs and trunk, one for the chest, shoulders and arms, and one for the head; it seemed to help maintain flexion, reducing the occurrence of extended arms. Two of the breech babies were lost—one in 1953, an extremely difficult, undiagnosed post-mature, nine and a half pound, domiciliary delivery, and the other a neonatal death with multiple foetal abnormalities (spinabifida, hydrocephalus, and double talipes). The corrected breech foetal-loss, under far from ideal conditions, was 3·5 per cent (1 out of 29).

Suckling aided 29 spontaneously delivered occipito-posterior births, responses being graded as "good" in 17, "moderate" in seven, "fair" in four, and "negligible" in one. No babies were lost.

Use of suckling in the third stage

Suckling was mainly used in the second stage as an emergency measure, but applied routinely, and therefore in a much larger number of cases, in the third stage. It was thought that shortening this stage would reduce blood-loss, and at first—for simplicity—the length of the stage was the sole yardstick of effectiveness employed. Later more attention was paid to loss, and less to the length.

No definite relationship was observed between the duration of suckling and the third-stage length or blood loss, though the stage was slightly longer following the shortest suckling (10–19 seconds), and the loss somewhat greater (11·7 ounces) after the longest

suckling (90–99 seconds). This may partly have resulted from prolonging suckling when treating those thought most likely to bleed, *eg*, grand multiparae.

TABLE III

THIRD STAGE LENGTH AND BLOOD LOSS RELATED TO DURATION OF SUCKLING

Duration of suckling	*Average third stage duration*	*Average blood loss*	*No. of cases*
10—19 seconds	10·6 minutes	6·1 ounces	17
20—29 „	6·8 „	6·1 „	58
30—39 „	6·6 „	6·6 „	137
40—49 „	6·5 „	6·8 „	241
50—59 „	7·8 „	7·0 „	314
60—69 „	7·6 „	7·8 „	571
70—79 „	6·9 „	7·5 „	54
80—89 „	6·2 „	9·9 „	9
90—99 „	7·9 „	11·7 „	12
			1,413

Use for third stage following previous use in the second

Since the response to further suckling during the second stage was superior to the initial response in 86·3 per cent,[2] study was made of the third stage responses of those who had earlier undergone suckling in the second stage. The average third stage duration and blood loss of 209 such mothers were 6·8 minutes and 8·2 ounces, compared with 7·2 minutes and 7·2 ounces in 1,310 suckled only in the third stage. As the former underwent suckling because of inertia, it seemed that the handicap of an inert uterus offset any possible advantage from repeated suckling.

TABLE IV

THIRD STAGE RESPONSE AFTER PREVIOUS SECOND STAGE SUCKLING

Response in second stage	*Third stage* (*a*) *duration*	(*b*) *blood loss*	*Number of cases*
Good	6·3 minutes	7·0 ounces	112
Moderate	7·1 „	8·6 „	67
Fair	7·5 „	10·9 „	25
Negligible	11·0 „	14·8 „	5
Average	6·8 minutes	8·2 ounces	209
Controls .. .. (No second stage suction)	7·2 „	7·2 „	1,310

Third stage response related to parity

The parity of the mothers did not apparently impair the effectiveness of suckling until the sixth pregnancy, but thereafter the third stage duration and blood loss were slightly increased.

TABLE V

THIRD STAGE RESPONSE RELATED TO PARITY

Parity	*1*	*2*	*3*	*4*	*5*	*6+*	*Total*
No. of mothers	574	467	247	130	51	50	1,519
Average duration (mins.)	7·1	7·3	7·3	6·4	6·6	8·3	7·1
Average blood loss (ozs.)	7·5	7·2	7·7	6·7	7·0	8·1	7·3

Adverse factors

Certain factors tended to increase the loss. No terminal ergometrin or syntometrin

were given routinely in the early experimental years, 820 (54 per cent of all mothers treated) receiving none; and to ensure a searching test, mothers with histories of previous retained placenta or post-partum haemorrhage, as well as many grand multiparae, were included. Some had very rapid deliveries, 20 being accompanied by heavy loss; others had long labours with secondary inertia; 53 had forceps deliveries under general anaesthesia.

Deliveries were performed by numerous midwives and pupil-midwives, some (mostly young) apparently relying solely on cord-traction for recognition of placental separation; but as this traction was often continuous, strong, and sometimes uncontrolled—a mockery of Brandt-Andrews technique—and started when the uterus was relaxed and the placenta still unseparated, it was no surprise that haemorrhage sometimes accompanied partial detachment of the placenta, and quite a relief that uterine inversion did not occur!

Since apparently arrested bleeding tended to recur, it became clear that suckling was more effective for shortening the third stage than for reducing the loss. In the later years therefore expression of the placenta (in suckling treated cases) was followed routinely by injecting syntometrin, and grand multiparae were excluded from experiments.

Apparently declining effect

The first four experimental years (1953–1956) were remarkably successful; I attended over 700 confinements before encountering a retained placenta, the incidence of post-partum haemorrhage in these suckling-treated mothers being 4·6 per cent. The next six years were less satisfactory, four more placentas being retained and incidence of haemorrhage rising to 5·9 per cent (55 out of 922). The benefit of suckling seemed to be diminishing. I had however started applying suckling earlier, slightly before or accompanying birth (the time when syntometrin was usually injected), and the more this timing was employed the less did any benefit appear. I also had suspected that expression of the placenta immediately following its separation might be contributing to heavier loss.

Controlled third stage experiment

In the later years a comparative trial was carried out, excluding all mothers of parity in excess of five, and all undergoing forceps delivery or receiving a general anaesthetic. Comparison was made of three consecutively delivered groups of mothers, each numbering 250, Group 'A' receiving only syntometrin at the end of the third stage, Group 'B' having suckling shortly after the birth and syntometrin after expression of the placenta, while Group 'C' had syntometrin accompanying birth of the anterior shoulder. With Groups 'A' and 'B' delivery of the placenta was delayed for one contraction following separation, but with Group 'C' (to reduce the chance of placental retention) it was delivered without delay. This variation invalidated comparison of the duration of the third stages, though 39 in Group 'A', 67 in Group 'B', and 140 in Group 'C' had third stages not exceeding six minutes. But reference back to the first 250 suckling-treated

TABLE VI
THIRD STAGE CONTROL EXPERIMENT

Group	*No. of cases*	*Average duration (minutes)*	*Average loss (ounces)*	*P.P.H.*	*Manual removal*
"A" (terminal syntometrin)	250	12·8	8·7	18 (7·2)	2 (0·8)
"B" (suckling and terminal syntometrin)	250	9·7	7·0	17 (6·8)	—
"C" (syntometrin with birth of anterior shoulder)	250	9·8	6·1	9 (3·6)	5 (2·0)

mothers (1953–1955), when placentas were expressed immediately on separation, and which included grand multiparae and anaesthetized mothers and many receiving no terminal oxytocic injection, revealed that 199 had third stages not exceeding six minutes, and an incidence of postpartum haemorrhage of 4·8 per cent compared with 6·8 per cent in Group 'B'. Clearly there was no support for the idea of delaying delivery of the placenta.

It was necessary to call the flying squad four times for Group 'A', (once for a retained placenta without haemorrhage, once for a retained placenta with haemorrhage, and twice for haemorrhage alone), once for Group 'B' (for haemorrhage), but five times for Group 'C', (all for manual removals without haemorrhage). How much valuable time is wasted in general practice by a retained placenta is reflected in the fact that despite the large number of mothers in Group 'C' with short third stages (six minutes or less) the average duration of the third stage in this group—9·8 minutes—was fractionally greater than in Group 'B' (9·7 minutes). In the latter group, although the incidence of postpartum haemorrhage was high (6·8 per cent), the blood losses were not great—only one case requiring transfusion.

Delay in starting suckling

When the baby was born before my arrival the start of suckling was delayed, but provided the placenta remained unseparated, I recorded the time lapsing since birth and began manipulation. In 22 cases, where suckling was started three to four minutes after birth, the average blood loss was 6·0 ounces; while in 21 mothers with a delay of five to eight minutes it was 4·1 ounces.

Incidence of manual removal in all suckling treated cases

Manual removal of the placenta was required on five occasions, an incidence of 0·28 per cent (5 out of 1,769), in the 16 years of personally conducted experiments with suckling. The matron of the Dellwood General Practitioner Maternity Home in Reading estimated that suckling had been used in roughly half the mothers delivered in that unit during the years 1960–1966, the total incidence of manual removals there being 0·52 per cent (19 out of 3,687). In the corresponding general-practitioner maternity unit at Wokingham Hospital for the same period—where suckling was not employed—the incidence of retained placentas was 1·3 per cent (67 out of 5,032).

Discussion

Rationale of suckling in labour

In an earlier publication[1] I suggested that oxytocin was stored in the posterior pituitary lobe and reflexly released at intervals in response to stretching of the cervix[2, 3] or vaginal outlet, or could be released voluntarily by artificial suckling. Repeated oxytocic release, whether produced voluntarily or involuntarily, improved the response, probably accelerating secretion and increasing the stored oxytocin available for release. The cervix was repeatedly stretched in labour by contractions, so repeatedly releasing oxytocin which strengthened fresh contractions. Excessive activity was prevented by limitation of time (between pains) for refilling the store, by the restricted storage space, and by rapid inactivation of oxytocin—half-life only three minutes during pregnancy.[4]

The optimal duration of artificial suckling was apparently between 20 and 40 seconds, below 20 being sometimes insufficient, but more than 40 being unnecessarily long and apt to delay further secretion. Ultimate success or failure depended on the uterus—a lazy, primarily inert one responding well, but a tired secondarily inert uterus responded according to the degree of its fatigue. Mothers with frequent, weak contractions were conspicuously unresponsive, the brief interval between contractions possibly permitting insufficient rest for the uterus or time for the store to be refilled.

A single sequence of suckling produced moderate or good responses in 85·9 per cent

of those tested in the first stage,[1] and in 86·6 per cent of those treated for delay in the second stage. But as responses improve with repetition, these incidences would probably have been higher if the suckling had been repeated.

Birth removes the factor producing passage stretch and reflex oxytocic release, and thereafter the uterus (in the absence of an injected oxytocic) commonly becomes quiescent for 10 to 15 minutes. Then the placenta separates and descends, renewing distension of the vaginal outlet and reflex release of oxytocin. Delivery of the placenta again removes this stimulus, nature apparently deeming further stimulation unnecessary. Unfortunately bleeding may persist, and the uterus become filled with blood clots. Provided the cervix has closed sufficiently to be stretched by them, these clots operate as an emergency stimulus to further oxytocic release, causing troublesome after-pains before they are expressed. Usually the oxytocic reflex operates twice during the delivery—first when the outlet is stretched by the head, and next when distended by the shoulders and body. Provided the interval between these is long enough for storage refilling, the second oxytocic release should equal the first and the total released during birth should be doubled. It has been observed that prolonging this interval is associated with a smaller loss. If however birth is rapid, and delivery completed with one contraction, the released oxytocin will be halved; and significantly rapid deliveries were accompanied by heavier losses on 20 occasions. The uterus seems unable to adjust quickly to sudden removal of the entire baby: perhaps retraction cannot keep pace with contraction.

All who inject oxytocics during the birth have reported reduced blood loss, but many have also found increased incidences of retained placenta. Amongst the best results were those of Fliegner and Hibbard[5] who with intramuscular syntometrin reported only 1·5 per cent retained placentas and 1·9 per cent postpartum haemorrhages. Yet Stearn,[6] with intravenous ergometrin, encountered 10 per cent retained placentas, though reducing this to 4·0 per cent with intramuscular syntometrin. Similarly in a small series—before abandoning the practice—I encountered 10 per cent (4 out of 40) retained placentas using intravenous ergometrin, and 2·0 per cent (5 out of 250) with intramuscular syntometrin; yet with artificial suckling (in the comparative trial) none were met (0 out of 250).

As syntometrin, apart from the addition of synthetic oxytocin, contains the same quantity of ergometrin (0·5 mg) as he earlier administered intravenously, Stearn concluded that oxytocin must affect the corpus more quickly than ergot affected the cervix. This view conforms with the finding that although intramuscular ergometrin is slow—requiring seven minutes to act, and intramuscular ergometrin with hyalase takes 4 minutes 47 seconds, intramuscular syntometrin operates in only 2 minutes 37 seconds.[7] But oxytocin enters intravenously when released by suckling, and as nursing mothers report tingling of the breast (the draught) within 15 seconds, and the first after-pain often within 30 seconds, it suggests that suckling-released oxytocin may begin operating two minutes faster than intramuscular syntometrin. Even slow acting ergometrin, given intravenously, takes only 41·0 seconds to act.[8] Since its oxytocic effect is probably comparatively brief, any use of artificial suckling in the third stage should theoretically be (a) delayed, and (b) repeated: delayed, for several minutes after birth, to ensure adequate refilling of the oxytocic store prior to further release, and allow the uterus a rest in preparation for separation of the placenta; repeated, because following a single sequence of suckling apparently arrested bleeding was apt to recur, the oxytocic effect seemingly declining before injected syntometrin operated. Further suckling, even of shorter duration, usually increased the response in the second stage of labour, and theoretically this improvement should also occur in the third stage—freshly released oxytocin reinforcing any previously released and still active. Unfortunately repetition of suckling in the third stage was an experimental afterthought, but promising results have followed suckling initially performed two minutes after birth, then (if the placenta remains unseparated) three minutes later, and again, if necessary, still later.

A rapid, short-lasting, oxytocic action should produce separation and expulsion of the placenta with minimal danger of placental incarceration and retention. Manual removal, commonly encountered in 1–2 per cent of confinements, was not required in any of the first 700 or the last 250 suckling-treated cases. The optimal time for injecting syntometrin (with the birth of the shoulders) was in practice—and retrospectively is also in theory—a bad time for applying suckling; all the retained placentas occurred, and the blood loss increased, when this routine was followed. The vulva is already effectively distended during delivery, reflexly releasing oxytocin, and suckling is therefore unnecessary and cannot increase the output, though it should do so if performed two or three minutes later. In spite of this erroneous timing (of suckling) in the middle years, the incidence of manual removal for the entire experimental period—0·28 per cent (5 out of 1,769) was considerably lower than any ever reported with oxytocics injected at the time of birth.

Clinical applications of suckling

All the described experiments with artificial suckling were carried out in general-practitioner obstetrics, either in a maternity unit, nursing home, or the home, and its value lies mainly in this field. The availability of the pitocin-drip, prepared forceps or ventouse, and of facilities for prompt manual-removal of the placenta, all limit the usefulness of suckling in hospital; while the haemorrhage-prone nature of so many of the high-risk hospital patients justifies the routine use of an oxytocic injection accompanying birth. In general practice the problem is different, especially since nowadays, with careful case selection, the mothers encountered are low-risk and unlikely to bleed much. The hazard to undiagnosed twins of being born outside hospital is further increased by injecting a powerful oxytocic before the second birth. A retained placenta with or without haemorrhage, preferably dealt with by an experienced obstetrician and expert anaesthetist, is more worrying, dangerous, and much more time-consuming than in hospital. There may be no near-by telephone—adding to delay, and traumatic attempts to express the placenta are sometimes made to avoid sending for the flying squad. It is dangerous to transfer patients to hospitals when the placenta is still *in utero*. Is it logical with low-risk mothers, unlikely to bleed, to employ the same potent measure used for high-risk, haemorrhage-prone ones, when this routine is five times more likely to produce a retained placenta?

The latest figures for the Reading and District Hospital Midwifery Service are relevant. The great majority of high-risk mothers are now confined in the Royal Berkshire Hospital, and the present area policy, practiced in all units, is to inject syntometrin during the birth. The incidence of postpartum haemorrhage in 1970, in the hospital cases, was 3·6 per cent (173 out of 4,755), compared with 1·3 per cent (33 out of 2,516) in four attached general-practitioner units (Reading, Henley, Newbury and Wokingham), but the incidence of manual removals was 1·3 per cent (59 out of 4,412) in the high-risk hospital cases, and 1·5 per cent (38 out of 2,516) in the low-risk unit cases. Hospitalization of high-risk cases (including those with previous retained placentas or haemorrhage) certainly reduces the incidence of haemorrhage, but not that of retained placentas, in those delivered outside hospital. Yet if suckling were employed for the third stage in these mothers, while still using syntometrin (with birth of the anterior shoulder) for all with suspected uterine exhaustion, *eg*, prolonged second stage, and if the incidence of manual removals could thereby be reduced from 1·5 per cent to 0·28 per cent (the level obtained—despite faulty timing) four out of five calls for assistance for retained placenta might be avoided. This would entail some increase in postpartum haemorrhage, but experience suggests the bleeding would mostly be of minor degree, requiring only iron therapy. Transfusion was needed only once in the 250 mothers latterly treated with suckling in the third stage.

Suckling should assist reduction of two of the most prolific sources of foetal loss revealed by the Perinatal Mortality Survey—(a) anoxia[9], and (b) patients transferred to

hospital.[10] Much the commonest cause of perinatal loss shown by postmortem examination was anoxia; 42 per cent of the stillbirths analysed resulted from intrapartum anoxia alone (31·4 per cent), or intrapartum anxoia combined with cerebral birth trauma (10·6 per cent), while 6·1 per cent and 2·8 per cent of early neonatal deaths were attributable to these conditions. Yet for every fatal case there are numerous near tragedies, and countless minor degrees of anoxia. Concern over the cause of anoxia (toxaemia, postmaturity, placental insufficiency, breech delivery), and the resultant damage (cerebral trauma, spasticity, mental retardation) may have diminished realization that anoxia is fatal only when relief is delayed too long, and that timely birth is far the most important single contribution to relief. Delay in delivery must be minimized.

The group in the perinatal survey with the highest loss included those whose deliveries were most delayed—mothers transferred to hospital during labour. Here delay commonly results first from dystocia, next from hesitation over the need for seeking assistance, and finally from time spent in arranging transfer and performing delivery. Suckling can reduce this delay by avoiding the need for some forceps deliveries, yet leading to prompter performance of others. It serves as an antidote to obstetric indecision, as its effectiveness is most marked by the second and third contractions following manipulation, tending thereafter to decline. It should be satisfactory if improvement occurs in these two contractions, but if not suckling must be repeated and observation continued for three more contractions. Absence of progress after the sixth contraction demands prompt action.

Analysis of a group-practice obstetrics[11] showed that nearly half (48·8 per cent) the forceps deliveries in primigravidae were performed for inertia or rigid perineum, the two conditions being largely inseparable. A rigid perineum, resisting stretch, reduces reflex release of oxytocin and encourages inertia. Suckling can increase inadequate oxytocic output, and combined with an episiotomy will usually overcome inertia. It should also, by reducing delay in birth, lessen the occurrence of foetal distress, the need for resuscitation, the danger of still-births, the likelihood of secondary inertia and postpartum haemorrhage, and of prolonged prolapse–producing distension of the perineum.

Compression of the cord by the after-coming head necessarily produces anoxia, and analysis of breech delivery losses in the Perinatal Mortality Survey showed that nearly three times as many died purely from intrapartum anoxia as from cerebral trauma.[12] Timely sucking should both reduce the duration of such anoxia and the loss of many potentially healthy foetal lives.

Because of the apparent freedom from oxytocic overactivity in practice—and in theory it is impossible to release too much oxytocin[1]—suckling could probably be used safely by midwives without prior consultation with the doctor, saving much valuable time. Midwives in Holland are permitted to give one or two intramuscular injections of oxytocin during labour without consultation, and although this is forbidden in Britain for midwives—and largely disapproved of even when administered by doctors—the resulting ability to reduce delay in birth may partly explain why Holland, despite more than double the British incidences of domiciliary midwifery (predisposing to delay) has in recent years boasted lower perinatal mortality rates than in Britain. An acceptable alternative to injected oxytocin could be provided for midwives and doctors by suckling. That suckling is more effective in those with good lactation suggests its usefulness may be greater where the need is greatest, as in impoverished countries where malnutrition and anaemia abound, hospitals are few, blood is scarce, and mothers can ill afford to lose heavily—but where breast-feeding is a necessity and remarkably successful.

Suckling accelerates, but does not initiate labour, and its ineffectiveness when the cervix is undilated can be used as a test of labour—confirming its establishment. It could also be employed in a domiciliary confinement by the midwife prior to leaving a slowly progressing mother, a good response warning of likely birth before her return. But the

use of suckling in the first stage of labour is severely limited by the brevity of action and need for frequent repetition. Its main value in labour is as an emergency measure for overcoming crises in the second or third stages. It can be used as a "stop-gap" measure when treating postpartum haemorrhage, while awaiting the action of injected oxytocics. Logically a combination of injected and suckling-released oxytocic must be stronger than either alone.

When delivery has been unexpectedly quick, and no syntometrin is immediately available, suckling can usefully be substituted; by the time the airway has been cleared, the cord divided, and the baby wrapped up and placed in the cot, a suitable time for suckling—two or three minutes after birth—will have arrived. If the placenta is undelivered 30 minutes after birth, whether separated or unseparated, suckling may be effective.

Suckling can be performed with or without apparatus, and its value is mainly as a supplement to, not substitute for, existing and recognized obstetric procedures.

Summary

The milk-ejection reflex mechanism responds to stimulation by artificial suckling, when the cervix dilates, releasing oxytocin, and so providing an emergency source for increasing inadequate blood oxytocin during labour.

Good or moderately good uterine responses were produced, by one session of suckling, in 86·6 per cent of 257 mothers treated for delay in the second stage. Good responses hasten birth and may avoid forceps, poor responses promptly identify those requring further help, but both responses help to reduce delay in delivery (essential for mastering anoxia). Suckling could be used safely by midwives without awaiting medical consent—further saving vital time. Uses of suckling are discussed and suggestions made for improving responses.

Third-stage suckling in 1,769 mothers reduced the incidence of manual removal of the placenta to 0·28 per cent—approximately one fifth of that obtained by injecting syntometrin when the anterior shoulder is born. But as there was an accompanying increase in minor degrees of postpartum haemorrhage, possible use of suckling in the third stage should preferably be restricted to mothers when likelihood of bleeding is minimal and the inconvenience of a retained placenta would be maximal, *eg*, low-risk mothers, outside hospital, with no evidence of uterine exhaustion.

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