Middle Articles

CONTEMPORARY THEMES

Unexpected Home Confinement

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Summary: An analysis of 100 consecutive cases of unattended home confinements has shown that, while precipitate labour is an important factor, inadequate preparation and instruction of the patient are the commonest causes.

Introduction

Every maternity department is familiar with the term "B.B.A.," signifying a baby "born before arrival." Each year a number of such cases occur, and as these patients have not been booked for a home confinement their delivery outside hospital is usually both unexpected and unattended. This paper attempts to find out why such cases occur at all and what the increased hazards to mother and foetus are from such an event.

Patients

One hundred consecutive cases of B.B.A., resulting in 101 babies, were admitted to the maternity department of St. Mary's Hospital, where they were assessed and the patients interviewed within 24 hours of arrival; an analysis of the results forms the basis of this report. The incidence of such cases was about 13 per 1,000 hospital deliveries.

Results

Nationality.—The nationalities of these 100 patients are contrasted with those of 1,000 consecutive cases actually delivered in hospital in Table I. The one significant difference was the higher incidence of B.B.A. among the West Indian patients.

TABLE I.—Comparison of Nationalities Between 100 Cases of B.B.A. and 1,000 Cases Delivered in Hospital

Nationality	Cases of B.B.A.	Hospital Maternity Cases
West Indian	48	26%
British	23	31%
Irish	17	23%
African	5	8%
Indian	4	2%
Others	3	10%

Parity.—If a "grand multipara" is defined as having had four previous pregnancies, then only 25% of cases fell into this category. In fact, 30 patients had had only one previous pregnancy and, in addition, 15 were pregnant for the first time. The actual distribution was as follows: para 0, 15; para 1, 30; para 2, 19; para 3, 11; para 4, 9; para 5, 7; para 6 or more, 9. In the case of 65 of the 85 parous patients information was available about the length of the previous labour, and in 25 (38%) of these the duration was four hours or less.

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Antenatal Care.—Seventy-nine of these patients had been attending regularly at the antenatal clinic, 16 had received no antenatal care at all, and a further five attended irregularly.

Maturity.—In 91 out of the 100 cases the maturity at the time of delivery was over 36 weeks.

Duration of Labour.—It is difficult to assess accurately the actual duration of labour where information is based on subjective evidence. It would seem, however, that 73 of these 100 patients had a total labour of four hours or less. Twenty-four patients had labour lasting more than four hours but less than 12 hours, and three had labours of over 12 hours.

Interval from Call to Delivery.—In 72 out of the 100 cases the time interval between calling for help and delivery was less than one hour, and in 63 of these it was less than half an hour; it is not surprising that these patients had their babies at home. In seven cases help was summoned over one hour before delivery, and an analysis of these cases gives some insight into the difficulties that may arise and cause delay. In five of these seven cases a relative telephoned for the family doctor and in a time interval of between one and a half and three hours later a "relief" doctor arrived. In a further case the husband spent over an hour trying to find a telephone in working order, and as will be seen below this problem also arose in other instances and caused unavoidable delay. In the final case the ambulance attendant waited for over an hour with the patient as he thought delivery was imminent. Help was not summoned until after the baby was born in 21 cases, and of these eight had labours lasting over two hours. The total labours in these 21 patients were less than one hour in 11 cases, one to two hours in two cases, two to four hours in seven cases, and four hours in one case.

Interval Between Calling for Help and Help Arriving.—In 94 cases help arrived within one hour of being summoned and in the vast majority of these within half an hour. This reflects highly on the efficiency of the London Ambulance Service, but in spite of this excellent response the summoned assistance actually arrived before delivery in only 18 cases. In the remaining six cases the time interval was over one hour and in only two of these was there no explanation. In three cases the delay was due to the family doctor being telephoned when off duty and a relief doctor being sent, and in the other case it was a familiar story of being unable to find a telephone in working order.

Place of Delivery and People Present.—While most patients had their babies in bed in the conventional manner a variety of other places and positions were also used (Table II). As would be expected some patients confused the second stage of labour with a desire to defaecate, and as will be seen later this led to fatal results in three instances. In only one case was a qualified attendant present at delivery, though there were 15 occasions when the ambulance attendant was present and

able to give common-sense, practical assistance. On all the other occasions the patient was either alone or attended by a relative, neighbour, or husband.

TABLE II.—Place of Delivery and Persons Present in the 100 Cases

Place of Delivery	No. of Cases	People Present at Delivery	No. of Cases
Bed	67	Patient alone	35
Lying on floor	13	Husband	22
Toilet	7	Ambulance man	15
Squatting on floor	5	Neighbour	14
Standing on floor	3	Relative	11
Settee	2	Flying squad	1
Car	2	Small children only	2
Stairs	1		

Third Stage of Labour.—Though, as already stated, a qualified attendant was present on only one occasion at delivery of the baby, a midwife was able to arrive and deliver the placenta in 48 cases. This is because of the standard London practice whereby if on arrival at the patient's home the ambulance crew consider delivery to be imminent then one member stays with the patient while the other fetches a midwife from the appropriate hospital. In 25 cases the patient herself completed the third stage and in a further 17 the ambulance attendant was responsible. A doctor delivered the placenta in seven cases, and in the remaining three the patient was transferred to hospital by the flying squad because of a retained placenta. The estimated amount of blood lost during the third stage in the 100 cases of B.B.A. was compared with that in 100 consecutive cases of hospital delivery of less than four hours and with the overall hospital postpartum haemorrhage rate (Table III). As can be seen from these results there is a definite increased hazard of postpartum haemorrhage in the B.B.A. group, some 10% of the cases having a loss of over 20 fl. oz. (570 ml.). This was presumably due to the absence of qualified assistance during the hazardous third stage of labour in most cases and the resultant absence of prophylactic ergometrine.

TABLE III.—Postpartum Haemorrhage

Amount		B.B.A.	*Special Hospital	All Hospitals
fl. oz.	ml.			
10-20	280-570	7	6	
20-30	570-850	6	1	1.4%
30+	850+	4	2	0.7%

* 100 consecutive labours in hospital of less than four hours.

Explanations for Delay.—In 40 of the 100 cases the rapidity of labour itself was sufficient explanation. In a further 12 cases no one was available either to call the ambulance or alternatively to look after the other child at short notice. This latter is a common occurrence, since all too often no warning is given during the antenatal period, as it is wrongly assumed that the patient herself will have already thought of it. Ten patients thought that labour would take longer, while a similar number did not think they were in labour at all. Half of this latter group stated that as contractions had not started on the date given by the hospital they assumed they were not labour pains. Three patients feared arriving in hospital too early and being sent home, while another five had deliberately waited until their membranes had ruptured on the advice of neighbours. In

cases where neighbours did not offer alarming advice the husband occasionally stepped in and took over this role. The classic advice of "go back to sleep and stop fussing" was responsible for the B.B.A. in three cases, while in a further two the husband had said there was time for his lunch to be cooked first. As mentioned previously, delay from awaiting the arrival of the family doctor was responsible in some cases and difficulty in finding a working telephone in others. Two patients had been sent home from the antenatal clinic with contractions, but in each case they deliberately did not mention it to the doctor who saw them, and as he did not comment on it they assumed it was safe. The casual remark of a tutor that first babies take 18 hours to be born resulted in one B.B.A., as did the "mother-in-law's" advice that first babies were never born on a Friday.

Birth Weight.—Eighty-five of the babies weighed over 5 lb. (2,260 g.) at birth (Table IV), while 10 weighed less than 4 lb. (1,800 g.); 71 survived.

TABLE IV.—Birth Weight

Weight { lb. g. }	1-450-1	2-900-3	3-1,360-6	4-1,800-5	5-2,260-8	6-2,720-37	7-3,170-30	8-3,620-9	9-4,080-2
No. of babies*									

* Includes one set of twins.

Perinatal Mortality.—There were six stillbirths and two neonatal deaths in this series, giving a perinatal mortality of 8%. In 100 consecutive cases of precipitate labour in hospital the perinatal mortality was 1% and the overall hospital stillbirth rate for 1968 was 1.3%. The baby born at home unexpectedly is therefore at considerably greater risk. A summary of the stillbirths and neonatal deaths that did occur is given in Table V.

Discussion

Few references have been made to date to the recurring problem of the woman who delivers at home without either a midwife or a doctor in attendance. In the report of the North West Metropolitan Regional Hospital Board (1967) 40 such cases were reported as occurring in grand multipara in whom no maternal complications occurred, the corrected perinatal mortality being only 2.5%. Though the present report includes patients of all parities—in fact only some 25% were grand multipara—the results are not in agreement with the report quoted above, and they show a postpartum haemorrhage rate five times greater than that found in hospital and a perinatal mortality of 8%.

In the present study the main hazard to the mother was the greatly increased postpartum haemorrhage rate, which was directly due to the absence of a qualified attendant at the end of the second stage of labour. It is interesting that not one serious second- or third-degree tear occurred. Similarly, the absence of a qualified attendant at delivery significantly increased the risk of the foetus. This was partly due to the patient herself being unaware of the significance of second-stage contractions and thereby not being in a suitable place or position for delivery. Five patients were standing up at the time of birth and in three of these the cord snapped as the baby fell to the

TABLE V.—Summary of Eight Cases that Resulted in Stillbirth or Neonatal Death

Case No.	Parity	Weeks of Gestation	Duration of Labour (Hours)	Place of Delivery	Birth Weight		Time Elapsed Before Arrival of Attendant	Result	Cause of Death
					lb.	oz.			
1	4	32			2	4			
2	0	30			2	2			
3	1	34	Less than 1	Toilet	—	—	10 minutes after delivery	Stillbirth	
				Toilet	—	—	30 minutes after delivery	Neonatal death	
				Floor	3	2			
4	0	40	1½	Hospital	7	4			
5	1	34	8	Hospital	4	2	Flying squad before delivery	Stillbirth	
6	1	36	Less than 1	Toilet	4	12	1½ hours	Stillbirth	Breech extraction
7	9	39	2	Bed	6	0		Neonatal death	Premature labour
8	5	38	2	Bed	6	7	15 minutes	Stillbirth	Respiratory distress syndrome
					7	7		Macerated stillbirth	Unknown

floor, fortunately without any serious consequences. Of more concern was the fact that a further five patients delivered while sitting on the toilet and only two of these babies survived. Undoubtedly, the length of time these babies were left in the toilet (20 minutes, 1½ hours, and 1½ hours in the case of those that died) was an important factor in the high perinatal mortality rate. Finally, whereas common sense dictated the initial care of the baby in most cases, five babies were kept in the premature baby unit for a variable period of time because of hypothermia.

In about 73 cases the total duration of labour was four hours or less, and no doubt this precipitate type of labour was a major contributory factor to the birth taking place at home and being unattended. Nevertheless, this survey shows that there were many other disturbing causes as well, and reflects regrettably on our inability as obstetricians to adequately prepare and teach the patient certain fundamental aspects of pregnancy and labour. All too often reliance was placed on the helpful and illogical advice of neighbours and relatives which resulted in unnecessary delay before deciding to seek admission to hospital. Furthermore, some patients had failed to appreciate the normal procedure of ringing for an ambulance and had instead tried to contact their doctor. Again simple antenatal discussion should have been more rigorously pursued to make certain that all patients realized the obvious fact that existing children would have to be left at home and that someone should have been asked to stand by long before labour ensued. We as doctors often forget that most of our patients do not have telephones at home and that someone will have to be sent out to a public telephone box—which in this Paddington area are frequently out of action—to summon help.

The variety of reasons and excuses offered emphasizes the fact that in a large number of cases there has been a complete failure of communication between the maternity patients and the hospital as regards simple obstetric education. In many cases the patient herself may be at fault through indifference and apathy regarding the weekly childbirth classes. Nevertheless, the hospital staff—both medical and nursing—must take some of the blame for failing to realize how little knowledge many women have of the fundamental principles of childbirth. With large antenatal clinics it is all too easy to make a quick obstetrical assessment and to reassure the patient without providing any time for simple discussion. Too little attention is paid by the hospital staff to these many social problems which frequently arise, and all too often we assume that the patient herself will make the first inquiry. The reluctance of obstetric patients to attend instruction classes is well known, but the alternative of the explanatory booklet does not appear to be sufficient to safeguard against the occasional and unnecessary B.B.A.

While better appreciation of these problems will reduce the number of cases occurring, it may also be advisable to plan admission of patients with previous B.B.A.s to hospital in the last four weeks of pregnancy either to await the spontaneous onset of labour or to be induced. In this series 10 of the 100 patients had had previous B.B.A.s.

REFERENCE

North West Metropolitan Regional Hospital Board (1967). *Standards of Obstetric Care. The Report of the North West Regional Obstetric Survey 1962-1964*. Edinburgh, Livingstone.

MEDICAL HISTORY

Birthplace of Thomas Willis

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Every medical student has heard of Willis on account of the arterial circle that bears his name. Comparatively few know that he was the author of a work on the anatomy of the brain and nervous system that was a landmark in the history of medical science (Willis, 1965). Fewer still are aware of his achievements in the field of clinical medicine. In his observations and deductions he was often so far in advance of his time that it is only with the passage of years that their value has been revealed (Hierons, 1967).

Of his methods he wrote: "After I had not found in Books what might satisfy a mind desirous of Truth, I resolved with myself to reach into living and breathing examples; and therefore, sitting oftentimes by the Sick, I was wont to search out their cases, to weigh all the symptoms, and to put them, with exact Diaries of the Diseases, into writing; then diligently to meditate on these; and then began to adapt general Notions from particular events."

Clinical and pathological observations, together with his knowledge of the circle, led him to the surmise that, even though both internal carotid arteries should be occluded, the circulation of the brain might be preserved through the

vertebrobasilar channels, a surmise that has now been proved correct by angiography. He gave the first description of the disease now known as myasthenia gravis. He noted that an intermittent pulse was not invariably associated with a bad prognosis. He gave the first clinical and pathological account of emphysema. After describing epileptic seizures he concluded that they arose from "explosions" in the brain. This followed from his supposition that nervous energy, though derived from the bloodstream, had its origin in the brain, from which it irradiated through the spinal cord and peripheral nerves. He went further than this in suggesting that there was a barrier between blood and brain, allowing only the passage of those smallest particles that were essential to the swift performance of the nervous function.

These are but a few examples of his powers of observation and imagination. That he was one of the greatest of British physicians is now generally admitted. He may justly be regarded as the founder of neurology, for he coined that word to mean "doctrine [teaching] of the nerves."

Tombstone in Westminster Abbey

He was buried in Westminster Abbey, and the following note gives an account of the location and renewal of his tombstone, and of a recent visit to his birthplace.

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