

Birth Trauma In A Tertiary Maternity Unit In South Western Nigeria

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Abstract

Background: Birth trauma contributes significantly to the high perinatal morbidity and mortality, sometimes with long term sequelae in developing countries. An appreciation of the incidence, types of injury and determination of the risk factors in one of the busiest tertiary maternity units in Nigeria will facilitate prevention and early recognition of trauma in order to improve obstetric outcome..

Objective:

To determine the incidence and types of as well as the predisposing factors to birth trauma in our hospital.

Materials and Methods.

Cases records of all birth injuries that occurred in Ayinke House between January 2005 and December 2006 were retrieved. Information extracted included personal data (foetal and maternal), predisposing factors, injury types and treatment offered. The data collected was subjected to simple statistical analysis. Stillbirths, caput succedaneum and anoxic trauma were excluded.

Results:

There were 44 cases of birth trauma out of a total of 7200 deliveries; an incidence of 6 in 1000 live births.

The incidence of lacerations and bruises to the head and face was 52.2%, while intraabdominal haemorrhage occurred in 4.5%. Caesarean section was responsible for more than 50% of the injuries. Babies weighing 3.0 to 3.4kg accounted for 45.5% of birth trauma cases in the study, The nullipara constituted 50% of all cases.. No mortality was recorded among the babies studied. All affected babies were delivered at term.

INTRODUCTION

Injuries to the infant that result from mechanical forces (i.e. compression, traction) during the birth process are categorized as birth trauma (1).

Birth injuries occur due to avoidable and unavoidable mechanical and anoxic trauma sustained by the neonate at labor and delivery (2,3,4). The causes are multifactorial and may follow normal, abnormal and operative abdominal and vaginal deliveries. The improvements in obstetric practice have resulted in a reduced incidence of birth trauma cases especially in the developed countries (4). It has been estimated that only about 25% of deliveries are supervised by skilled attendants in the developing countries (2). Most cases of birth trauma are self-limiting and have a favorable outcome. Nearly one half are potentially avoidable with recognition and anticipation of obstetric risk factors.

Outcome in the neonate is the product of multiple factors.

Successful prevention of birth injuries often depends on the evaluation of each pregnancy during the antenatal period with a view to detecting potential predisposing factors. However the roles of the different factors are not totally well defined. The contribution of foetal macrosomia and breech delivery to the occurrence of birth trauma was highlighted by some workers while others were not so persuaded (1,4,5). It is of utmost importance that the causes of birth trauma within any given geographical area be regularly reviewed so as to clearly define preventive measures.

This study was undertaken to review cases of mechanical birth trauma amongst live births at the Lagos State University Teaching Hospital Ikeja Lagos with the aims of determining the incidence ,classifying the types, identifying

the predisposing factors and recommending preventive measures.

MATERIALS AND METHODS

The labour ward and neonatal registers were examined and all cases of birth injuries that occurred from 1st January 2005 to 31st December 2006 were identified. Case folders of the mothers and neonates were retrieved. Information extracted included socio-demographic data of the mothers, gestational ages at delivery, birth weights of the infants, types of injuries sustained, treatment modalities and outcome, modes of delivery, duration of labour, calibre of obstetric attendant at delivery.

RESULTS

There were 44 babies (26 male ,18 female) with birth injuries out of 7200 deliveries , giving an injury rate of 6.1 per 1000 live births. The distribution of birth trauma across the maternal age groups is shown in Table I. clustering around the 30-34 years age group.

Figure 1

Table 1: Age Distribution Of The Patients

Age Group (Years)	Number of cases	%
15-19	Nil	
20-24	4	9.09
25-29	8	18.18
30-34	24	54.5
35-39	8	18.8
40-44	1	2.27
>45	Nil	
TOTAL	44	100

Table II shows distribution by parity. Fifty per cent of birth injuries occurred among the primiparas ($p < 0.05$)

Figure 2

Table 2: Distribution Of Patients According To Parity

Parity	Number of cases	%
0	22	50
1	10	22.7
2	6	13.6
3	4	9.09
4	1	2.27
>5	1	2.27
TOTAL	44	100

Distribution by birth weight is shown in Table III. 45.5% of the injuries occurred in the 3 to 3.4kg weight range.

Figure 3

Table 3: Distribution By Fetal Birth Weight

FETAL WEIGHT	NO	%
2.5KG -2.9KG	2	4.54
3KG -3.4KG	20	45.54
3.5 -4KG	14	31.81
>4KG	8	18.18
	44	100

More birth injuries (75%) occurred amongst the infants of the unbooked patients, and was found to be statistically significant ($p < 0.05$). Classification of the injury types is illustrated in Table IV. Lacerations and bruises to the head and face made up 52.2% of the total while cases of cephalohaematoma were 22.7%.

Figure 4

Table 4: Type Of Injury

TYPE OF INJURY	NUMBER OF CASES	PER 1000 LIVE BIRTHS	%
CEPHALHAEMATOMA	10	1.38	22.7
LACERATIONS AND BRUISES	23	3.19	52.2
INTRA ABDOMINAL INJURY	1	0.13	2.27
FRACTURES	3	0.41	6.8
SCROTAL INJURY	3	0.41	6.8
SUCCONJUCTIVAL HAEMORRAGE	2	0.27	4.5
ERBS PALSY	2	0.27	4.5
TOTAL	44	6.1	100

This is closely related to the mode of delivery and the level of the attending accoucher. (Table V), where only 9.01% of the injuries resulting from spontaneous vertex deliveries were conducted by midwives. All other deliveries were conducted by resident doctors. No cases were attributed to Consultants. All fractures observed followed assisted breech delivery.

Figure 5

Table 5: Mode Of Delivery And Incidence Of Trauma

MODE OF DELIVERY	BIRTH TRAUMA INCIDENCE	PERCENTAGE
SPONTANEOUS VERTEX DELIVERY	4	9.01
CAESERIAN SECTION.	22	50
FORCEPS DELIVERY	10	22.7
VACUUM EXTRACTION	2	4.5
BREECH DELIVERY	6	13.6

Table VI illustrates the various treatment modalities employed to manage the injured infants. It shows that 18 (40.9%) required no active intervention.

Figure 6

Table 6 : Treatment Modality

PROCEDURE	NUMBER OF CASES
Conservative	18
Minor surgical intervention.	24
Closed reduction of fractures	2
Major surgical intervention.	Nil
TOTAL	44

DISCUSSION

Birth trauma remains a major problem in obstetric practice. Factors which predispose the infant to birth trauma include an abnormally large body, a disproportionately large head, a difficult labour, breech presentation and poor instrumental technique in childbirth. Overall, 5 to 8 newborn infants per 100,000 die of mechanical injury, while about 25 per 100,000 die of hypoxic injuries (4).

The overall incidence of the non asphyxiated birth injuries studied over the 2 years was 6.1 per 1000 live births. The incidence reported in this study is similar to the estimated incidence of 2 to 7 per 1000 live births in the western world, 4.8 per 1000 reported in Sagamu in southwest Nigeria (1,3,6,7)

and 3.1 per 1000 live births reported in the Niger Delta Area of Nigeria (8).

Types of injuries found in the study included lacerations and bruises to face and scalp, cephalhaematoma, scrotal injury, Erbs palsy, subconjunctival hemorrhages and fractures. These are similar to those previously published in the literature (2,4,6,7,8,9,11,12) and illustrate the variations in relative frequencies of specific injuries which possibly reflect local factors. Unlike other studies where fractures and, nerve injuries were preponderant (3,4), lacerations and bruises (soft tissue injury to the scalp and face) were commoner in this study.

The risk factors for birth trauma identified in this study include age, primiparity, booking status, mode of delivery, birth weight of the baby and more importantly the skills of the attending accoucher (1,6,8) .

Parity seemed to play a significant role as about 50% are babies from nulliparous women. This is similar to the findings from other centres in Nigeria (8). The reasons adduced for this increased incidence among the nulliparous include their inexperience, pelvic contraction, and some form of bony and soft tissue dystocia (8,9).

Seventy five percent of the birth injured babies in this series were from unbooked mothers. This is not unexpected as a number of factors such as early detection and planned delivery of mothers with high risk pregnancy are associated with a favorable outcome (2,6,8,10).

With respect to mode of delivery, the relatively high incidence of iatrogenic laceration from the surgeon's knife during caesarean section seen in this study is clearly avoidable. All incidents involved junior residents. This however compares with the findings of a prospective study done in Zeinabie , Iran in which the most common birth trauma was reported to be soft tissue laceration and bruises during caesarean section (11). Amongst these caesarean deliveries following a failed forceps or vacuum attempt had the highest rate of injuries (4,9).

The use of obstetrical instruments had for long generated debate because of observed increase in birth injuries to the neonate and mother (12). Instrumental vaginal deliveries (forceps and vacuum) were both responsible for 27.2% of birth injured babies in this study. Neonatal complications were more common following forceps delivery (22.7%) compared to vacuum extraction (4.5%). There is however a

consensus that inadequate training in the use of these instruments is a vital factor in increased morbidity₍₁₂₎. All implicated instrumental deliveries in this study were performed by junior resident doctors with variable skills.

Assisted breech delivery was the mode of delivery in 13.6% of the birth injured babies in this study. All fractures seen in this study were in babies delivered via assisted breech. On one occasion, a baby suffered ipsilateral fracture femur and humerus following assisted breech delivery by a junior resident. Though variations exist in the type of injuries encountered following breech delivery, it had long been known that conduct and supervision by the most qualified and skillful obstetrician reduces the risk₍₁₃₎.

The higher incidence of birth injuries encountered among normal weight babies in this study contrast with reports from the western world where birth trauma was generally higher in babies weighing more than 4kg. The relative increase in birth injuries at a lower birth weight in our environment reflects the state of our obstetric service, lack of skilled assistance at deliveries and surgeries and high prevalence of pelvic contraction_(4,6).

We found a higher incidence of injury to babies in the male neonate in this study. This is similar to what obtained in other studies₍₁₄₎.

CONCLUSION

Birth injuries in our hospital were largely due to avoidable factors. It is recommended that proper surveillance at antenatal clinics be mounted to pick out cases which are likely to suffer from birth injuries. Junior residents need to accept their professional limitations and call for superior help on time. Caesarian sections and instrumental vaginal deliveries should be performed by the most experienced personnel on ground.

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