

Short report

Emergency Caesarean delivery in prolonged obstructed labour as risk factor for obstetric fractures - A case series

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Abstract

Birth fractures predominantly affect the clavicle, humerus or femur. Brachial plexus injury may co-exist with humeral or clavicular fractures. From January 2002 to December 2010, 8 neonates with fractures after caesarean section were treated under the supervision of the first author following obstructed labour and caesarean delivery. The most classical of the cases is a vertex-presenting neonate who was delivered by caesarean section for obstructed labour in a primipara in whom ipsilateral klumpke's palsy and fractures of the clavicle and humerus were confirmed. Literature review did not consider emergency caesarean delivery as one of the predisposing factors for such birth injuries. This case series, in addition to presenting emergency caesarean section as a predisposing factor for birth injuries, offers to suggest a manoeuvre that may reduce severity and rate of birth injuries in caesarean section for obstructed labour in our environment where obstructed labour is still rife. (*Afr J Reprod Health* 2012; 16[3]: 118-121).

Résumé

Les fractures pendant l'accouchement affectent principalement la clavicule, l'humérus ou le fémur. Les lésions du plexus brachial peuvent coexister avec les fractures de l'humérus ou claviculaire. Du janvier 2002 au décembre 2010, 8 nouveau-nés qui souffraient de fractures après une opération césarienne ont été traités sous la supervision du premier auteur. Ils étaient tous des cas du travail obstrué et l'accouchement césarien. Le plus classique des cas était un nouveau-né qui présentait du sommet qui a été accouché par l'opération césarienne pour dystocie dans une primipare chez qui la paralysie ipsilatérale Klumpke et fractures de la clavicule et l'humérus ont été confirmés. La revue de la littérature ne semble pas considérer l'accouchement césarien d'urgence comme l'un des facteurs prédisposant à ces traumatismes à la naissance. Cette série de cas, en plus de présenter l'opération césarienne d'urgence comme un facteur prédisposant aux traumatismes à la naissance, propose de suggérer une manœuvre qui peut réduire la gravité et le taux de traumatismes à la naissance en cas d'opération césarienne pour dystocie dans notre environnement où la dystocie est encore monnaie courante (*Afr J Reprod Health* 2012; 16[3]: 118-121).

Keywords: Obstetric Fractures, Risk Factors, Prevention, Klumpke's palsy

Introduction

The clavicle and the humerus are the most commonly fractured bones in obstetric fractures^{1,2,3}. Such fractures most likely occur following the application of excessive force in the course of delivery. Speed is important in emergency caesarean deliveries in order to reduce the risk of asphyxia. The need for speed notwithstanding,

prevention of birth injuries is still possible if attention is paid to the changes that prolonged obstructed labour cause in the birth process. Indeed, neonatal fractures are more likely to occur at birth⁴. I present a series of eight neonates with birth injuries following emergency caesarean section for prolonged obstructed labour. The most severely injured amongst the neonates was vertex presenting and sustained ipsilateral Klumpke's

palsy and fractures of the humerus and clavicle. It is plausible to presume that a vertex presenting neonate whose head is already engaged and stationed beyond 0 +1 will present the difficulties of breech delivery when caesarean delivery is undertaken i.e. the buttocks now present to the obstetrician with a head that is trapped distally between the two ischial spines. The birth injuries could possibly have been avoided by careful delivery under such circumstances. These cases highlight the need to give thought to a manoeuvre that could reduce the incidence of birth injury during caesarean section (CS) by non-obstetricians and trainee obstetricians who may be responsible for a significant proportion of such deliveries in our setting. Therefore, this case series is suggesting a manoeuvre that could reduce the incidence of birth injuries in caesarean delivery in obstructed labour.

Case Series

A series of patients presenting to the first author in University of Benin Teaching Hospital and Cenit Medical Centre, Benin, Nigeria following birth

injuries associated with prolonged obstructed labour.

Of these cases, a male neonate aged 10 days with irritability, abnormal movement of the left humerus, swelling over the left clavicle and poor movement of the hand and fingers on the same side is presented as the most insightful of the group. The recorded birth weight was 3.9kg. He was born to a primiparous 25 years old lady in a private hospital by caesarean section. Clinical and radiologic examination (Figure 1) revealed fractures of the left clavicle and left humerus. There was no associated ptosis.

A collar/cuff sling and an above elbow back slab were applied. The clavicle which was not significantly displaced was left without figure-8 splints.



Figure 1: Plain radiograph showing ipsilateral fractures of the left humerus and clavicle

three weeks later (At the age of four weeks, three days post-partum) the splints were removed. The hand and finger movements had improved remarkably. Clinical union had occurred without residual deformity and the baby had become comfortable with parental handling. The movement of the hand became normal at the age of three months and the patient defaulted from clinic without having a post treatment radiograph.

The clinical and demographic features of all eight patients are shown in table 1 where one neonate suffered a fracture of the femur, four had fractures of the clavicle, and one had combined fracture of the clavicle and the humerus while two had fractures of the humerus only.

Table 1: Clinical features in neonates presenting with fractures after caesarean delivery

Number	Sex	Age (Days)	Injuries	Maternal Complications	Mode of Delivery
1	M	5	Fractured Humerus	Foot drop	EMCS
2	F	3	Fractured Clavicle	None	EMCS
3	F	18	Fractured Clavicle	None	Forceps
4	M	10	Fractured Clavicle/Humerus /Nerve Palsy	None	EMCS
5	M	19	Fractured Clavicle	Wound infection and foot drop	EMCS
6	F	24	Fractured Humerus	None	EMCS
7	M	12	Fractured Clavicle	None	EMCS
8	F	8	Fractured Femur	None	Forceps

EMCS = Emergency caesarean section; ELCS = Elective caesarean section; Wd = Wound; Frct = Fracture; C = Clavicle; H = Humerus. NP = Nerve Palsy
FD = Foot Drop

Discussion

Fractures in neonates following delivery, whether normal or assisted, occur usually in difficult labour and delivery. Macrosomia is one of the predisposing factors to fractures of the clavicle in neonates, while breech delivery is associated with Klumpke's palsy and, femoral fractures. Klumpke's palsy is a rather rare obstetric palsy⁵. Parity of the mother has been identified as a risk factor for birth injury particularly clavicular fractures which is more common in primiparas than multiparas⁶. Combined fracture of the clavicle and humerus associated with Klumpke's palsy

following a caesarean section (C/S) is a rare event which further highlights the higher risk of birth injuries with caesarean delivery for obstructed labour⁴. It is believed that caesarean section is associated with low incidence of birth injuries including fractures and nerve palsy⁷, but this is not the case in this series where five out of eight of this series were delivered by emergency C/S. The possible mechanism of the injury is the effort applied in an attempt to deliver the head of the baby during emergency C/S for prolonged obstructed labour.

The lessons to learn in this series include the need to regard abdominal delivery for obstructed labour of a vertex presenting foetus as challenging

as obstructed breech presentation. In addition, it is thus suggested that a complementary hand in the vagina for upward pressure on the head may reduce the force required to achieve abdominal delivery in obstructed labour. Furthermore, the need to increase advocacy in developing countries to ensure that primiparous women are attended to in hospitals with qualified obstetricians and difficult caesarean sections are done by qualified obstetricians cannot be overemphasized.. It is plausible to assume that the difficulties encountered in a difficult breech will be similar to the difficulties encountered in the delivery of the head during caesarean section for prolonged obstructed labour in a vertex presenting foetus. If this is so, the force required to deliver the head may be sufficient to cause fractures and nerve palsy in neonates. In addition, the urgency attached to delivery by emergency caesarean section in order to reduce asphyxia may also suppress caution.

In obstetric fractures, the presence of associated nerve palsy involving the brachial plexus may delay satisfactory functional outcome or cause an adverse outcome altogether whereas the tendency for early union and huge capacity for remodelling in childhood fractures makes conservative treatment the usual mode of care and the outcome after birth fractures usually satisfactory.

Contribution of Authors:

We declare that the following authors contributed to this article in the manner detailed below:

Alfred O. Ogbemudia- Concept, design, data collection and analysis and preparation of the initial article;

Ehimwenma J. Ogbemudia -Concept, design and preparation of the revised article.

We also declare that both authors approved this manuscript.

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