

Preventive nursing of neonatal clavicular fracture in midwifery: a report of six cases and review of the literature

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Summary

Purpose: To summarize and analyze the obstetric factors and medical care for neonatal clavicle fracture during delivery. **Materials and Methods:** In 4,456 vaginal deliveries, only six newborns were found with a clavicle fracture in our hospital from October 2002 to October 2011. **Results:** Clinical findings showed that dystocia and improper midwifery manoeuvres are the two major reasons which lead to newborn clavicular fractures. **Conclusion:** More attention should be paid to non-violent traction and proper treatment of shoulder dystocia.

Key words: Midwifery; Newborn; Clavicle fracture; Nursing.

Introduction

Newborn clavicle fracture is a typical kind of birth injury in obstetrics [1]. The injuries cause severe psychological pressure on the parents and midwives of the newborns although it includes simple therapy and good prognosis. It is critical to reduce the incidence and carry out early diagnosis and treatment [2]. Six patients in 4,456 infants born through vaginal delivery were found clavicle-fractured in our hospital from October 2002 to October 2011.

Materials and Methods

A total of 4,456 fetuses weighing from 1,900 g to 4,350 g underwent vaginal delivery from October 2002 to October 2011 in our department, including 422 cases of multipara, 4,034 cases of primipara, 367 cases by forceps delivery, 248 cases with shoulder dystocia, and 61 cases with nuchal cord around neck. Six fetuses suffered from neonatal clavicular fractures at gestational age of 38–40 weeks, weighing from 3,450 g to 3,850 g, total laboring time four to 19 hours, and second stage of labor time 30 min to 1.5 hours. Out of these six, three had shoulder dystocia and three cases had forceps application together with Kristeller maneuver, while in five cases the fracture was in the distal third of the clavicle.

The injured babies cried, especially when the affected upper arm was moved. The injured upper arm was limited in movement, had local swelling, extravasated blood, bony crepitus, and reduced or disappeared embrace reflex in the ipsilateral clavicle. The earliest fracture time in one case was at delivery (fractural sound heard at shoulder delivery during labor). Other five cases were found at routine clavicle palpation within 24 hours and confirmed by X-ray.

The confirmed injured babies were set in supine position with chest expanded to mitigate the affected upper limb movements. In one case, an eight-style bandage was used for fracture dislocation. The fractured site was X-rayed and was well-reduced after the bandage was removed after two weeks. The remaining patients were not specially fixed. All patients were discharged together with their mothers.

Results

Callus growth was found in the fractured ends through X-ray examination at three weeks postpartum and all had healed at six weeks postpartum as confirmed during the normally scheduled follow-up visits. All patients were discharged with their mothers at the same time. Before leaving the hospital, individualized breastfeeding, bathing, and nursing education were performed. The follow-up contact cards were established to contact patients and encourage them for re-examination in the hospital. The follow-up visits were scheduled in four to six weeks in order to assess the healing conditions of the fractured limbs.

Discussion

Neonatal clavicular fracture is associated to the laboring manner, vaginal dystocia, fetal weight, and midwifery technique [3]. The fracture rate over vaginal dystocia is significantly higher than vaginal delivery and cesarean operation [4]. Five cases of this group occurred over vaginal dystocia. Therefore, dystocia is a fundamental factor in birth trauma that is elicited by mechanical factors. Midwifery maneuvers are thus one of the vital causes for the injuries [5]. Providing that the posterior shoulder is raised prematurely when the anterior shoulder is not adequately delivered, the clavicle of the anterior shoulder is bound to press below the pubic arch causing the clavicle to fracture due to excessive forces [6]. Persistent occipitotransverse position or occipitoposterior position, fetal excessive weight (> 3,500 g), oversized fetal shoulder circumference, and premature uplift of posterior shoulder when the anterior shoulder is not adequately delivered, will lead to fracture through excessive pressure of anterior shoulder on the clavicle [7].

It is critical to avoid and prevent neonatal clavicular fracture by controlling the delivery for cephalic presentation and abnormal fetal position, properly treating shoulder dystocia against violent traction, and constantly improving the

childbirth technique [8]. In the event of shoulder dystocia, the McRobert method is immediately adopted. Three cases of neonatal clavicular fracture associated to improper midwifery way occurred in 74 cases of shoulder dystocia. Obstetricians should keep vigilant over this [9].

It is important to timely identify the neonatal clavicular fracture through careful examination. In the event of neonatal clavicular fracture, psychological care and health education should be enhanced for parents in order to establish a good nurse-patient relationship, to reduce or prevent complications, as well as to avoid medical disputes [10]. Five cases in the group with neonatal clavicular fractures were found by the nurses through conventional clavicle palpation within 24 hours after childbirth, and they underwent X-rays, orthopedic consultation, and immediate care. The affected limb was immobilized to ensure healing during breastfeeding and bathing. A good social supportive system is created to allow the parents to care for the newborns with scientific approaches, to benefit the affected limb recovery, shorten the disease course, and reduce or protect the complications. Detailed discharge guidance and regular follow-up visits are conducive to the healing of the fracture and improve the doctor-patient relationship to reduce medical disputes.

Conclusion

Generally bone remodelling will complete within six to 12 months in good condition and even recover its normal aspect, along with the stress change in limb in severe shortened angular deformed callus without any future sequelae or repercussions.

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