Faridpur Med. Coll. J. 2012;7(1): 10-12

Original Article

Bryant's Traction for Neonatal Femur Fracture Occurred During Birth

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Abstract

Femoral shaft fracture is an uncommon birth trauma. Bryant's Traction followed by spica cast is an acceptable method of treatment of femoral shaft fracture 0-18 month's age group. Here we treated 30 cases of neonatal femur fracture during birth with only Bryant's Traction of both legs for 3 weeks in hospital. We retrospectively reviewed all neonatal femur fractures occurred during birth admitted in FMCH during a two and half years period. All patients were followed up monthly for 3 months and 6 monthly for 2 years. All fractures healed satisfactorily clinically and radiographically and with no residual deformity, limb length discrepancy or functional impairment. Parents were highly satisfied with the method and its result. It is very simple method and could be safely carried out.

Key words: fractures, femur, traction, neonates.

Introduction :

Birth related injuries to babies are relatively uncommon with a reported incidence of less than 1%[1]. Trauma to long bones in the newborn could occur during a difficult delivery, particularly when the baby is especially large or in breech presentation[2]. Fractures of the femoral shaft in newborns pose a difficult challenge to the orthopaedic surgeon. Parents are very much anxious and unhappy with this untoward situation. Immobilization of the fractured limb should allow access to the babies' torsos and limbs for necessary medication and nursing, while preventing displacement and pain as much as possible. We report our technique of treating fractures of the femoral shaft during birth in neonates and preterm infants.

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Materials and Methods:

During the two and half year's period from 1 July 2009 to 31 December 2011, 30 femoral fractures occurred in 28 babies delivered either at Faridpur Medical College Hospital or referred from different hospital to orthopaedics department of Faridpur Medical College Hospital. Out of 30 babies 16 (53.33%) were male and 14 (46.66%) were female; right femur was fractured in 14 babies, left in 14 babies and 2 were affected bilaterally. All the fractures were treated with Bryant skin traction for 3 weeks. Both legs were sustained to an iron arched bar with the hips in 90^0 flexion, knees in full extension and ankles in neutral position (Figure 2).The infant's buttock elevated 1 cm from the cot. Traction was maintained with weight of the baby. The nursing staff was instructed regarding the signs of vascular compromise of the limbs and any sore over back. The babies were examined daily for any sign of vascular compromise, skin condition, nutritional status and maintenance of traction. All the babies were on breastfeeding.

No medication was needed, the baby and mother adopted very rapidly and nicely. After 3 weeks the traction was released and union was checked clinically and radiographically. All the fractures were united nicely with sufficient callus formation. After release from traction, no further immobilization or splinting was needed. The infants were evaluated for deformity

and function monthly for 3 month and 6 monthly for 2 years; physical examination was performed and radiographs were obtained in all the children. The parents were informed of their babies' condition.

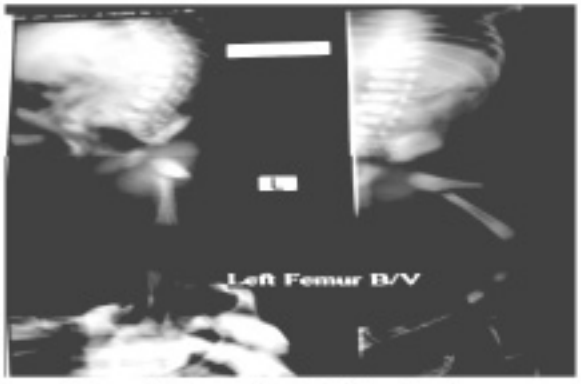

Figure 1: X-ray showing fracture femur

Figure 2: Bryant's skin traction.

Results:

The mean birth weight of the babies was 2.75 kg (range 2.3-3.2Kg) and the mean gestational age was 37.5 weeks (range 35-40 weeks). Twenty of the 30 babies sustaining fractures were delivered by cesarean section (66.66%); 10 babies sustained the fracture during vaginal delivery (33.33%). No babies demonstrated any metabolic or genetic disorder. All the fractures were diaphyseal and no fracture involved any of the growth plates. The duration of traction for femoral fractures was 3 weeks. All the fractures showed clinical and radiological healing by 3 weeks with abundant callus formation. No complications were observed during hospitalization, and there were no cases of skin breakdown under the skin traction. The mean follow up was 15.6 months (range 9 months to 22 months). No deformity, shortening or other complications were noted in the babies and children at the last follow-up. The growth of the child was normal.

Table I: Gestational age distribution of study population (n=30)

Gestational age (months)	Number of study patients	Percentage
35	1	3.33
36	4	13.33
37	5	16.67
38	9	30
39	7	23.33
40	4	13.33
Total	30	100.00

Table II. Sex Distribution (n=30)

Sex	Number of study patients	Percentage
Male	16	53.33
Female	14	46.67
Total	30	100.00

Table III. Details of methods of delivery of study population (n=30)

Methods of delivery	Number of study population	Percentage
CS	20	66.67
VD	10	33.33
Total	30	100.00

Discussion:

The recommended modes of treatment for a fractured femur in neonates include a spica cast, the Pavlic harness, and Bryant traction[1,3,4]. We treated all the babies with a Bryant's traction. The traction was applied without any specialized equipment and using simple devices available in orthopaedic unit. We encountered no skin slough, no vascular compromise and no other complications using this method. We believe that the birth of a new baby, especially a firstborn, is associated with parental distress, and when the child has a fracture this distress is increased. The parents are very much anxious and disheartened with the fate of the newborn. Most parents are concerned that they might cause the baby pain while positioning or care giving, and prefer that the baby be under the care of experienced staff. Our approach was to keep these babies as inpatients to ensure adequate breastfeeding and to provide daily skin

care in the traction. The neonatal nursing staff encountered no difficulty in caring for the infants in traction, and the equipment did not disturb the regular work in the ward. The mother and the baby accepted and adjusted very nicely.

Parents were satisfied with the treatment, and we believe that treating the infants in hospital allows the family to adjust better to the new situation rather than having the baby at home. Additional cost is incurred by the longer hospitalization, but we believe it is justified in order to ensure proper care of the baby and daily assurance of the parents. The majority of the fractures occurred when the children were extracted during a cesarean section. The reason for this finding is not clear, and a larger survey of the total rate of fractures during cesarean section and vaginal deliveries should be performed.

As expected, all the fractures healed without any complications or late sequelae, and none of the children demonstrated any late deformity or complications of the sustained fracture.

Conclusion:

Bryant's Traction for 3 weeks in hospital is a safe method of treatment of fracture femur during birth. The method is well accepted by the parents and outcome is very good. It is very simple method and could be safely carried out even in Upazila Health complex.

References :

1. Tachdjian MO. Obstetrical or birth injuries. In: Tachdjian MO, editors. Pediatric Orthopedics. 2nd ed. Philadelphia: WB Saunder; 1990:p.33- 52.
2. Nadas S, Reinberg O. Obstetric fractures. Eur J Pediatr Surg. 1992; 2(3):165-8.
3. Stannard JP, Christensen KP, Wilkins KE. Femur fractures in infants: a new therapeutic approach. J Pediatr Orthop. 1995; 15(4):461-6.
4. Morris S, Cassidi N, McCormack D, McManus F. Birth associated femoral fractures. J Pediatr Orthop. 2002; 22(1):27-30.