Archives of Pediatrics and Neonatology

Volume 1, Issue 1, 2018, PP 17-20

Multiple Ribs Fractures and Refusal to Suckle : A Fortuitous Association in a One Day Old Cameroonian Neonate

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Abstract

Fractures of the ribs in the neonate have been reported in literature as due mainly to birth trauma, especially from obstructed labor. Reported cases show an association between fractures of the clavicle and macrosomia. The authors report the case of a newborn with a birth weight of 3.88kg, referred on the first day of life for refusal to suckle.

Strong tactile stimulations during resuscitation for birth asphyxia at were noted. During hospitalization, he presented with episodes of postprandial vomiting for which a plain abdominal X-ray to exclude intestinal obstruction revealed multiple fractures of the posterior sides of the ribs at the median position. Evolution on immobilization and oral administration of paracetamol syrup was excellent with resumption of suckling a few hours after. Control X-rays at three and six weeks, showed complete consolidation of the fractures.

Keywords: *Fractures, Ribs, Neonate, Neonatal resuscitation*

Introduction

Rib fracture in the newborn is rare in obstetric settings, representing 0.6% of all neonatal traumas[1]. They often occur during obstructed labor or induced by neonatal resuscitation maneuvers[2]; they are most often associated with fractures of the clavicle, and most often it is the presence of signs suggestive of lesions of the brachial plexus or the presence of a hematoma on the clavicle that warrants request for an X-ray that confirms diagnosis[3].

We present a case of multiple rib fractures in a newborn, incidentally diagnosed, and caused by obsolete resuscitation maneuvers.

Case Report

Newborn male in his first day of life, referred from a health center to our hospital, for refusal to suckle. In the history, we noted that the mother was 30 years old, multiparous G6P5015 and the pregnancy was not well followed up. Delivery per-vaginal, in a cephalic presentation at 38 weeks of gestation. Rupture of membranes was spontaneous with a clear amniotic fluid, and labor was normal. The mother said cry was not immediate at birth requiring strong tactile stimulations. The Apgar score reported in the health record was 4, 6 and 8/10 at the 1st, 5th and 10th minutes respectively. At birth, he weighed 3880 grams, and the other anthropometric parameters were otherwise normal for age.

Physical examination on admission showed: a rectal temperature of 37 ° C, axial hypotonia, weak primitive reflexes, and notably absence of the suction reflex. The rest of the examination was normal. Neonatal sepsis was suspected in view of the refusal to suckle

and the neurological signs. After taking samples for complete blood count, C-reactive protein, blood culture, cerebrospinal fluid and urine analysis, he was placed on cefotaxime, ampicillin and gentamycin. During treatment, refusal to suckle persisted, and on the 7th day of hospitalization, he started having early postprandial vomiting that persisted for 48 hours. The results of the tests were all normal. In view of this post-prandial vomiting, we performed a plain abdominal X-ray and an abdominal ultrasound to exclude neonatal bowel obstruction. The plain abdominal X-ray revealed a lot of air in the bowels and multiple fractures of the posterior arches of the ribs extending from the right 4th to the 8th ribs (*Figure 1*). The abdominal ultrasound was normal. These rib fractures were probably due to the strong chest compressions during resuscitation of the neonate by the personnel after delivery.

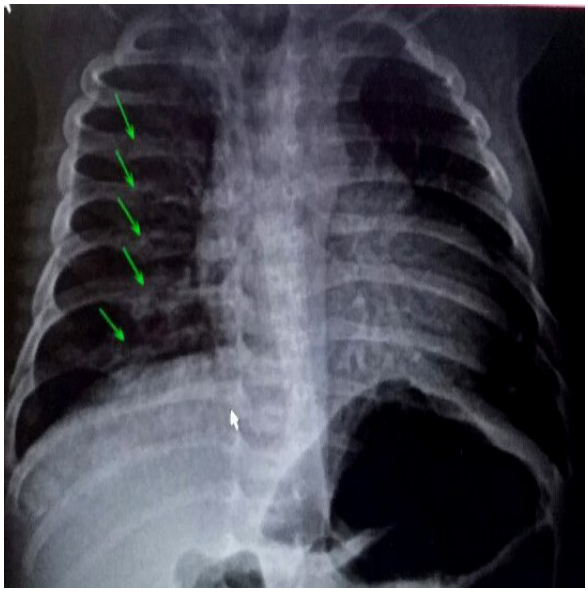

Figure 1. *Staggered transverse line fractures of the posterior arches of the ribs near an imaginary middle line separating the arc into two equal parts, extended from the 4th to the 8th rib*

A surgical consultation was done, and immobilization of the chest and arm done with an elastoplast band, and paracetamol given at a dose of 15mg / kg / 6 hours orally. The evolution was favorable, and the child started suckling a few hours after administration of paracetamol. He was discharged on the 12th day of hospitalization, with paracetamol to be continued for 5 days per os. A control X-ray done three weeks later, showed consolidation of the fractures. (*Figure 2*). Another X-ray done 6 weeks later, showed complete consolidation of the fractures (*Figure 3*).

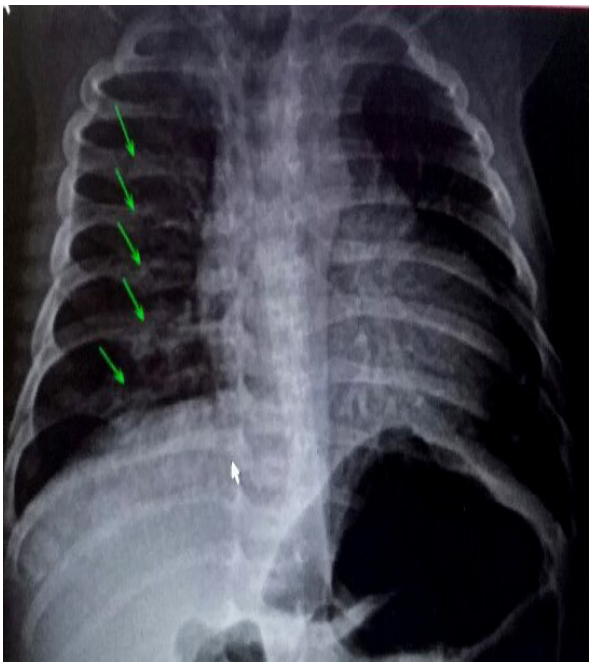

Figure 2. *Fractures of posterior arches of ribs being consolidated*

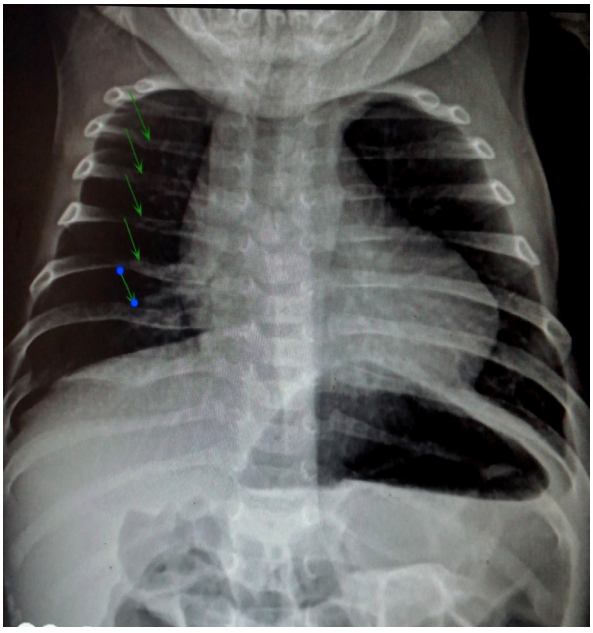

Figure 3. *Consolidated ribs fractures*

Discussion

Neonatal fractures are not uncommon in obstetric settings, particularly in developing countries where childbirth and neonatal resuscitation maneuvers are obsolete [1, 2]. Sites of fractures reported in the literature in decreasing order of frequency include: clavicles, femur, humerus, ribs and, rarely the skull, vertebrae, mandibles, the sternum and the scapula [3]. These fractures are more frequent during vaginal delivery and often occur during dystocia, multiple child births, breech deliveries, instrumental maneuvers (ventouse or forceps), primiparity, macrosomia, prematurity, low birth weight, delivery by inexperienced personnel, bone disorders as in osteogenesis imperfecta. [1,3, 4,5,6]. Other risk factors such as traditional massage, massage of the neonate during neonatal resuscitation or physiotherapy, child abuse (shaken baby syndrome), and home accidents have also been reported [4,5,8,9]. Fractures of the ribs in the neonate are rare. A review of 13 cases of rib fractures in 2009 by Rick et al. in Amsterdam, found as risk factors: macrosomia and the use of a ventouse or forceps [3]. The case we have presented was probably due to the strong tactile resuscitation maneuvers of the midwife in the health center where the baby was born. The refusal to suckle and the early postprandial vomiting were probably due to the pain experienced by the newborn and the limitation of the expansion of the stomach during suckling. Complications of rib fractures include: pneumothorax, hemothorax, pneumo-hemothorax, hemomediastinum, pulmonary contusion (rare in isolated fractures), cardiac complications (rare), hematoma or laceration of the liver, spleen, and renal parenchyma when the fracture concerns the last ribs [7,8].

In the presence of one or more fractures of the ribs, after the diagnosis is confirmed and a pulmonary lesion excluded, an antalgic is often sufficient, and sometimes with a myorelaxant, to relax the intercostal muscles which strongly bind the intercostal nerves. A large bandage round the thorax may also be placed in the early stages to reduce the pain during body movements [8]; as in the case we have presented.

The duration of consolidation of a rib fracture varies from three weeks to one month whatever the treatment given. Residual pain is noted shortly after an isolated rib fracture, but may occur in multiple rib fractures, especially in the case of flail chest [7, 8].

Given that rib fractures are most often caused in the delivery room by obsolete resuscitation maneuvers, prevention requires good obstetric practices (good indication of caesarean sections, early detection of macrosomia and macrocrania, good evaluation of the maternal pelvis, appropriate resuscitation maneuvers and instruments (forceps, ventouse) by well-trained personnel.

Conclusion

Rib fractures in the newborn are a clinical entity, often following bad obstetrical practices. So, health personnel particularly those in developing countries should be adequately trained on neonatal resuscitation,to avert this incident. Furthermore, in a newborn with, refusal to suckle and / or early postprandial vomiting in a non-infectious context, this diagnosis should be suspected and a chest -abdominal X ray done to exclude or confirm the diagnosis.

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