- 16 Yiallourides M, Savoia M, May J, *et al.* Tibial speed of sound in term and preterm infants. *Biol Neonate* 2004;**85**:225–8.
- 17 Eliakim A, Nemet D, Freidland O, *et al.* Spontaneous activity in premature infants affects bone strength. *J Perinatol* 2002;**22**:650–2.
- 18 Nemet D, Dolfin T, Wolach B, *et al.* Quantitative ultrasound measurements of bone speed of sound in premature infants. *Eur J Pediatr* 2001;**160**:736–40.
- 19 Cole TJ, Freeman JV, Preece MA. British 1990 growth reference centiles for weight, height, body mass index and head circumference fitted by maximum penalized likelihood. *Stat Med* 1998;**17**:407–29.
- 20 McDevitt H, Tomlinson C, White M, *et al.* Quantitative ultrasound assessment of bone in preterm and term neonates. *Arch Dis Child Fetal Neonatal Ed* 2005;**90**:F341–2.
- 21 Littner Y, Mandel D, Mimouni F, *et al.* Bone ultrasound velocity of infants born small for gestational age. *J Pediatr Endocrinol Metab* 2005;**18**:793–7.
- 22 Michaelsen K, Skov L, Badsberg J, *et al.* Short-term measurement of linear growth in preterm infants: validation of a hand-held knemometer. *Pediatr Res* 1991;**30**:464–8.
- 23 Njeh CF, Hans D, Wu C, *et al.* An in vitro investigation of the dependence on sample thickness of the speed of sound along the specimen. *Med Eng Phys* 1999;**21**:651–9.
- 24 Prevral S, Fuerst T, Fan B, *et al.* Quantitative ultrasound of the tibia depends on both cortical density and thickness. *Osteoporos Int* 2001;**12**:28–34.
- 25 Chitty L, Altman D. Charts of fetal size: limb bones. *BJOG* 2002;**109**:919–29.
- 26 Gibson A, Pearce R, Wales J. Knemometry and the assessment of growth in premature babies. *Arch Dis Child* 1993;**69**:498–504.
- 27 Palacios J, Rodriguez S, Rodriguez JL. Intra-uterine long bone growth in small-for-gestational-age infants. *Eur J Pediatr* 1992;**151**:304–7.
- 28 Beyers N, Alheit B, Taljaard JF, *et al.* High turnover osteopenia in preterm babies. *Bone* 1994;**15**:5–13.
- 29 Frost HM. Perspectives: a proposed general model of the “mechanostat” (suggestions from a new skeletal-biologic paradigm). *Anat Rec* 1996;**244**:139–47.
- 30 Rauch F, Schöenau E. The developing bone: slave or master of its cells and molecules? *Pediatr Res* 2001;**50**:309–14.
- 31 Kurjak A, Carrera J, Medic M, *et al.* The antenatal development of fetal behavioral patterns assessed by four-dimensional sonography. *J Matern Fetal Neonatal Med* 2005;**17**:401–16.
- 32 Rodriguez J, Garcia-Alix A, Palacios J, *et al.* Effects of immobilization on fetal bone development: a morphometric study in newborns with congenital neuromuscular diseases with intrauterine onset. *Calcif Tiss Int* 1988;**43**:335–9.
- 33 Kaijser M, Granath F, Jacobsen G, *et al.* Maternal pregnancy estriol levels in relation to anamnestic and fetal anthropometric data. *Epidemiology* 2000;**11**:315–9.
- 34 Lanyon L. Using functional loading to influence bone mass and architecture: objectives, mechanism, and relationship with estrogen of the mechanically adaptive process in bone. *Bone* 1996;**18**:S37–43.
- 35 Rodan G. Mechanical loading, estrogen deficiency, and the coupling of bone formation to bone resorption. *J Bone Miner Res* 1991;**6**:527–30.
- 36 Litmanovitz I, Dolfin T, Friedland O, *et al.* Early physical activity intervention prevents decrease of bone strength in very low birth weight infants. *Pediatrics* 2003;**112**(1 Pt 1):15–9.
- 37 Specker BL. Evidence for an interaction between calcium intake and physical activity on changes in bone mineral density. *J Bone Miner Res* 1996;**11**:1539–44.
- 38 Iuliano-Burns S, Saxon L, Naughton G, *et al.* Regional specificity of exercise and calcium during skeletal growth in girls: a randomized controlled trial. *J Bone Miner Res* 2003;**18**:156–62.
- 39 Specker B, Binkley T. Randomized trial of physical activity and calcium supplementation on bone mineral content in 3- to 5-year-old children. *J Bone Miner Res* 2003;**18**:885–92.

IMAGES IN NEONATAL MEDICINE.....

doi: 10.1136/tadc.2007.117549

Asymmetrical crying facies in monozygotic twins

We present a case of 4-day-old monozygotic twin girls with asymmetrical crying facies. Asymmetrical crying facies is caused by unilateral hypoplasia or aplasia of

Figure 1 Four-day-old monozygotic twin girls with the characteristic presentation of congenital asymmetrical crying facies. Parental/guardian informed consent was obtained for publication of this figure.

the depressor anguli oris muscle. The essential clinical finding is failure of one corner of the mouth to move downwards and outwards during crying or grimacing (fig 1). There is no asymmetry when the baby is awake but quiet. Other functions of the facial muscles, such as frowning and closing the eyes, and the depth of the nasolabial fold, are normal. This helps to distinguish the disorder from peripheral facial palsy. The cause of the defect is unknown. The present case of monozygotic twins indicates a possible genetic origin. Although asymmetrical crying facies is an isolated benign finding in most cases, it can be associated with cardiovascular, musculoskeletal, respiratory, central nervous system, genitourinary and chromosomal anomalies.

Sandra Horsch

Department of Neonatology, Children's Hospital University Essen, Essen, Germany

Claudia Roll

Department of Neonatology and Pediatric Intensive Care, Vest Children's Hospital Datteln, University Witten-Herdecke, Germany

Correspondence to: Dr Claudia Roll, Department of Neonatology and Pediatric Intensive Care, Vestische Kinder und Jugendklinik, Dr.-Friedrich-Steiner- Str. 5, 45711 Datteln/Germany; claudia.roll@kinderklinik-datteln.de

Competing interests: None.