Nigerian Journal of Paediatrics 2004, 31 (2) 59-60

Right Sided Hernia of Bochdalek: A Case Report

MA Odelola*, AO Akinsulie**

Summary

Odelola MA, Akinsulie AO. Right Sided Hernia of Bochdalek. *Nigerian Journal of Paediatrics* **2004; 31: 59.** Congenital diaphragmatic hernias (CDH) of the foramen of Bochdalek are commonly reported in newborn Caucasian children; in contrast, they are rarely seen in African children. We report a case of right-sided Bochdalek's hernia that presented after the neonatal period and was successfully managed at the Lagos University Teaching Hospital. The seeming rarity of this lesion in African children may really represent a low incidence or it may be due to underdiagnosis as a result of the paucity of prenatal diagnostic and perinatal support services.

Introduction

ACCORDING to various reports, the incidence of hernias of Bochdalek ranges from 1:2000 to 1:5000.[1,2] When stillbirths are included in the birth rate however, the rates are relatively higher. Prospective studies of prenatally diagnosed cases of congenital diaphragmatic hernia (CDH) have revealed a higher mortality rate than that obtained in retrospective studies of postnatally diagnosed cases in spite of optimal postnatal care.[3] The difference is attributed to a substantial number of cases that die without being diagnosed.

Case Report

A six-week old male child presented in the emergency room of the Lagos University Teaching Hospital with a two-week history of cough and breathlessness associated with refusal of feeds; there was no fever. The child was born at term after an uneventful pregnancy. There was no history of polyhydramnios. The delivery was also uneventful with no history suggestive of birth asphyxia. The child was exclusively breast fed and thrived until the onset of symptoms at about the age of four weeks.

On examination, he was acutely ill, and dyspnoiec with a respiratory rate of 72 breaths/minute. The chest was barrel shaped and there was poor air entry over the right axillary and basal lung fields with audible bowel sounds in the chest. The abdomen was flat and soft but was otherwise, unremarkable. The clinical diagnosis was that of a right-sided pneumonia with a differential of diaphragmatic hernia. A chest x-ray showed loops of bowel in the chest, while a barium meal and follow-through confirmed the presence of a right sided CDH (Fig. 1). Following this, a nasogastric tube was passed and an exploratory laparotomy was performed through a right subcostal incision. The findings consisted of a large defect in the postero-lateral aspect of the right hemi-diaphragm with about 100cm of the small intestine inside the right thoracic cavity; there was no hernial sac. The bowel was reduced into the peritoneal cavity and a chest tube was inserted through the right seventh intercostal space. The diaphragmatic defect was repaired using 2-0 prolene mattress sutures. There was good lung

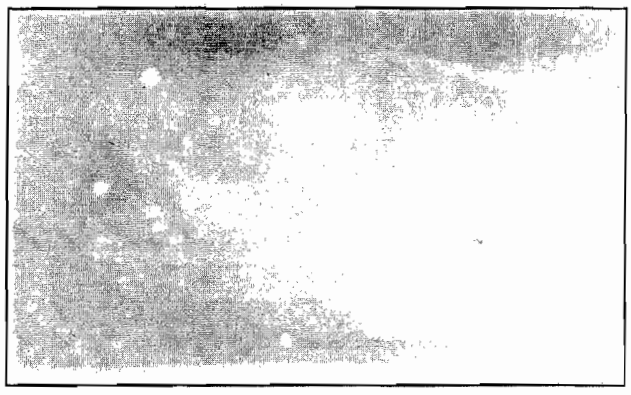

Fig. 1 Barium meal and follow through showing loops of bowel in the chest

College of Medicine, University of Lagos

Paediatric Surgery Unit, Dept of Surgery
* Lecturer I
Dept of Paediatrics
**Senior Lecturer

Correspondence: MA Odelola.
e-mail: adebolaakinsulie@yahoo.com

expansion by the fourth post-operative day, with minimal effluent from the chest tube. Post extubation chest x-ray was satisfactory and after an uneventful recovery period, the child was discharged home for follow-up in the clinic.

Discussion

There are extensive publications on the prenatal diagnosis and *in utero* interventions as well as post-delivery management of hernias of Bochdalek.[4,5] From a relatively miserable outcome in the last century, mortality rates have improved but are still high. In fact, mortality rates appear to be higher in the last two decades because more cases which would have remained undiagnosed are now being identified. Morality rates now range between 40 and 60 percent in spite of all efforts. Prenatal diagnosis affords the health team the opportunity to determine the ideal timing and place for delivery as well as preparation for the child with a diaphragmatic defect. The exact place for *in utero* interventions is at present not clearly defined and is still largely experimental. There is no doubt that prenatal closure of a diaphragmatic defect could at least, in theory, prevent severe pulmonary hypoplasia which is a marker for high mortality.

Pharmacological manipulation, mechanical ventilation and extra-corporeal membrane oxygenation have also helped to salvage a small but definite fraction of children who would otherwise have been lost. Current management of CDH tends towards stabilization of the cardio-respiratory status of the child using various means and delayed surgery. Such practices are reported to result in better survival rates than urgent surgery, when presentation is early.[7] In the developing world, the above-mentioned facilities are found in very few centres. Antenatal care is not routine and many children are born at home or delivered by traditional birth attendants. Not all births are registered and stillbirths and early neonatal deaths are not adequately reported. Post-mortems are also not routinely carried out where indicated. It is therefore difficult to be sure how real the apparently low incidence rate of hernias of Bochdalek is, in Africans.

The present patient and the only previously reported case from our centre in the last 25 years, had right-sided hernias presenting after the neonatal period.[8] The proportion of left to right sided hernias as reported by other workers is 5 or 6:1. Mortality rates are less in left than right sided hernias. This may be related to an increased incidence of life-threatening congenital malformations in right-sided compared to left-sided diaphragmatic hernias.[9] Postnatally diagnosed children have a consistently better prognosis than antenatally diagnosed children.[9] It would appear that natural selection rather than expert management has been responsible for the survival of these children.

There is no doubt that awareness needs to be raised in the developing world about congenital malformations including hernias of Bochdalek. Good antenatal care and facilities for prenatal diagnosis need to be provided for the populace. A high index of suspicion is necessary on the part of the health worker attending to a neonate who is asphyxiated. In the third millennium, hidden mortality in CDH should be minimal.

References

1. Gleeson F, Spitz L. Pitfalls in the diagnosis of congenital diaphragmatic hernia. *Arch Dis Child* 1988; **66**: 670.
2. Harrison MR, deLorimier AA. Congenital Diaphragmatic Hernia. *Surg Clin North Am* 1981; **61**:1023-35.
3. Harrison MR, Adzick NS, Estes JM, Howell LJ. A prospective study of the outcome for fetuses with diaphragmatic hernia. *JAMA* 1994; **271**: 382-4.
4. Ein SH, Barker G, Olley P, Shandling B, Simpson JS, Stephens CA, Filler RM. The pharmacologic treatment of newborn diaphragmatic hernia - a 2-year evaluation. *J Paediatr Surg* 1980; **15**: 384-94.
5. Harrington J, Raphaely RC, Downes JJ. Relationship of alveolar-arterial oxygen tension difference in diaphragmatic hernia of the newborn. *Anesthesiology* 1982; **56**: 473-6.
6. Ruff SJ, Campbell JR, Harrison MW, Campbell TJ. Pediatric diaphragmatic hernias. An 11-year experience. *Am J Surgery* 1980; **139**:641-5.
7. Wung JT, Sahni R, Moffitt ST, Lipsitz E, Stolar CJ. Congenital diaphragmatic hernia: survival treated with very delayed surgery, spontaneous respiration, and no chest tube. *J Paediatr Surg* 1995; **30**: 406-9.
8. Olumide F, Lesi FEA, Brown A, Oribabor I. Bochdalek's hernia in a two year old infant. *Nig Med J* 1973; **3**: 105-7.
9. Skari H, Bjornland K, Haugen G, Egeland T, Emblem R. Congenital diaphragmatic hernia: a meta-analysis of mortality factors. *J Paediatr Surg* 2000; **35**:1187-97.