

# **Extralobar Lung Sequestration in a Newborn Infant An Unusual Cause of Respiratory Distress**

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## **INTRODUCTION**

Extralobar lung sequestration is an uncommon disorder. Its detection in the neonatal period is even more unusual. This paper records the survival of a newborn African infant, one of twins, who had persistent respiratory distress associated with this condition. The abnormal lobe was successfully excised.

## **CASE REPORT**

Sarudzayit. The first of female twins was born at full term by L.S.C.S. on 31st March, 1971 for transverse lie of both infants. The Apgar score for each twin at 3 minutes was 10 and their weights were 2270 g and 2300 g respectively.

When examined next morning, 9 hours after birth, both showed mild respiratory distress with subcostal recession and tachypnoea, although they were pink in oxygen and had no significant

abnormality on auscultation. They were treated with intravenous 10 per cent. dextrose with added sodium bicarbonate.

Chest X-ray of the second twin showed changes of hyaline membrane disease. This twin subsequently made a satisfactory recovery.

Chest X-ray of Sarudzayi showed a large homogenous opacity of the lower two thirds of the left lung field, having a convex superior margin highest laterally and displacing the cardiac shadow to the right (Fig. 1.).

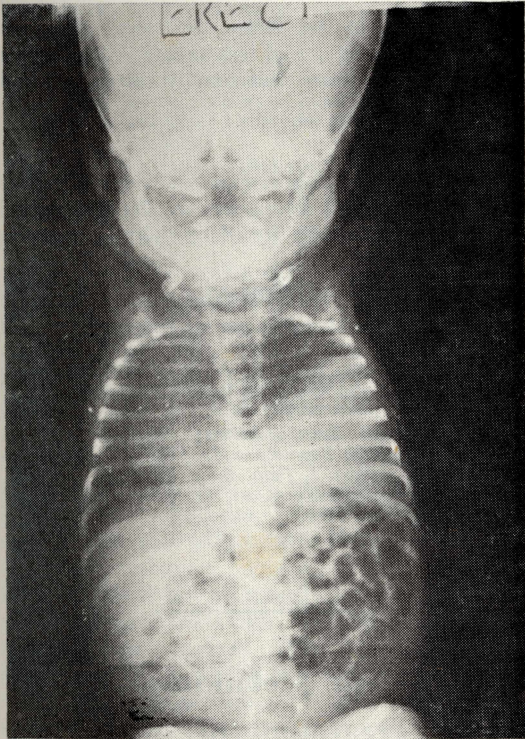


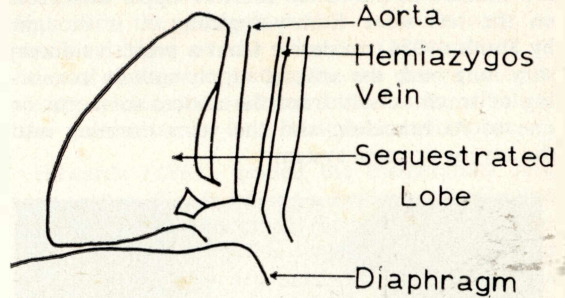
Fig. 1.—Pre-operative Chest X-ray.

On fluoroscopy the diaphragm was difficult to distinguish clearly but gas in the stomach and bowel below this region was clearly seen making the diagnosis of diaphragmatic hernia unlikely.

Clinically slight subcostal recession persisted and no auscultatory change was detected. Progress chest X-ray with penetrated views and screening of the diaphragm performed on the 6th April suggested some increase in size of the opacity previously seen.

Thoracotomy was therefore performed on the 7th April. The findings were:

#### DIAGRAM



A large "sequestered" supernumerary lobe of lung without bronchus but with an artery coming off the aorta immediately above the diaphragm and a vein entering an enlarged (L) hemiazygos. The lobe had its own visceral pleural covering. The left lung above was normally formed.

The vessels were divided and the extra lobe removed.

Histology revealed normal lung tissue with numerous dilated venous channels and well formed bronchioles containing oedema fluid. Many alveolar sacs were dilated.

On return from theatre the baby appeared slightly dusky. Five minutes later, despite administered oxygen, she stopped breathing, her heart rate slowing considerably. However, she responded quickly to intubation and assisted ventilation. A few crepitations were audible over the left thorax but air entry was good and chest X-ray showed a more central cardiac position and normal radiolucency of both lung fields (Fig. 2).

The only other post-operative problem was a slight wound infection which resolved with systemic penicillin and streptomycin. Breast feeding was resumed on the day after operation.

Mother and both twins were discharged on the 26th April. At out-patient follow-up on the 13th May Sarudzayi weighed 2 765 g and her twin 3 120 g. Each was progressing well with no clinically detectable abnormality.

On the 17th June, at 10 weeks of age, their respective weights were 3 775 g and 3 580 g.

#### DISCUSSION

Extralobar pulmonary sequestration has frequently been reported since Pryce's description in 1946. The sequestration is distinct from the normal lung; has its own pleural covering and no connection with the normal bronchial tree.

Fraser and Paré (1970) state that 90 per cent. are situated in the lower chest or upper abdomen on the left side. Embryologically it is thought by Smith (1956) to derive from a primitive accessory lung bud; the arterial supply usually consisting of small vessels from the abdominal aorta or one of its branches, and the veins draining into the azygos or canal system.

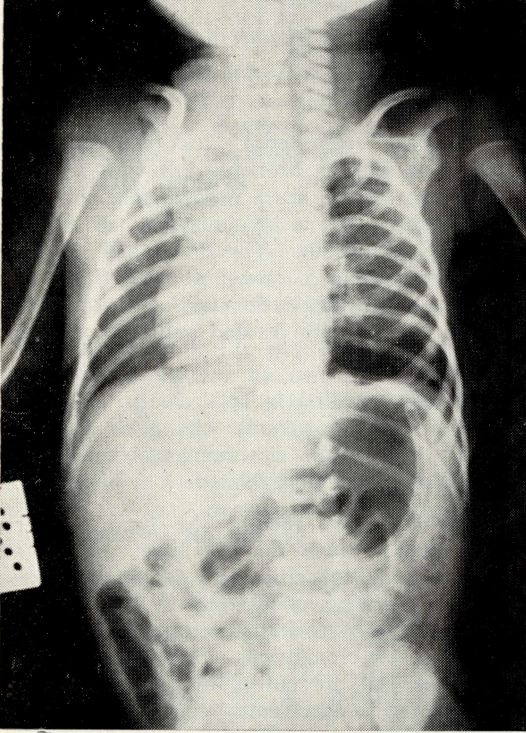


Fig. 2.—Post-operative Chest X-ray.

Intralobar sequestration on the other hand, Smith believes to result from failure of the pulmonary artery to supply a peripheral portion of the lung. A ventral branch of the primitive dorsal aorta, therefore, persists to supply it. The venous drainage is to the pulmonary venous system.

The features of the present patient are consistent with those previously described for extra-lobar pulmonary sequestration. It is an uncommon anomaly and when seen in neonates is usually at autopsy as in the case reported by Blied and Mulholland (1971). Klein reported a surviving case in 1970. Other congenital anomalies may be associated. Infection is a less common presentation than for the intralobar type, as the extra-lobar sequestration has its own pleural sac.

The differential diagnosis in the neonate presents a problem. Here, hyaline membrane disease was to be excluded as clinically, despite its size,

the extra lobe was not detected. The role of chest X-ray in diagnosis has also been noted by Kilman *et al.*, (1965). Diaphragmatic hernia and mediastinal tumours may have a similar radiological appearance.

The importance for the surgeon of preoperative angiography has been emphasised by Kilman *et al.* (1965). Retrograde aortography with selective injection of the abnormal vessel (Ranniger and Valvassani, 1964) demonstrates the different course of the venous drainage in the two varieties of sequestration and in outlining the arterial supply helps to avoid difficulties its variability may cause.

Fortunately, in the infant described, diagnosis at operation was no disadvantage. The single artery from the aorta was readily recognised and divided.

#### Acknowledgements

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