A Left Eparterial Bronchus and a Tri-lobed Left Lung

A CASE REPORT

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Boyden in his excellent book "The Segmental Anatomy of the Lungs" mentions that he and his co-workers had not been able to find a previous report of a left eparterial bronchus in man.

He describes five cases in which this bronchus occurred. In three cases the anterior segment was split by the ectopic left pulmonary artery and in two of these cases there were supernumary clefts. In one case, between the apical and anterior segments on the one hand and the lingula on the other, and in the other case between the apico-posterior and anterior segments on the one hand and the lingula and an abnormal anterior segment on the other. In the fourth case he has described, the eparterial bronchus supplied the apico-posterior segment. In all these four cases, however, the eparterial bronchus appears to arise from the left upper lobe bronchus and not from the main bronchus. In the fifth case described the eparterial bronchus supplies the apico-posterior and a part of the anterior segment and arises from off the main bronchus while the lingula and remaining portion of the anterior segment is supplied by a bronchus which arises from off the left main bronchus in the same position as the middle lobe bronchus on the right.

We wish to report the case of a patient with a left eparterial bronchus in whom the anatomy of the left lung was an exact replica of the normal anatomy of a right lung.

D.S.—This 35 year old man was admitted on December 14, 1957 for treatment of tuberculosis involving the apico-posterior segment of the upper lobe of left lung, first detected in a mass miniature radiographic survey in Delhi in 1953. In January 1956 he developed pleurisy with effusion for which he received 120 grams of streptomycin.

![FIGURE 1: P.A. x-ray film of the chest which reveals the abnormal fissure on the left in the second anterior interspace. In this film the heart and the stomach bubble are on the left side.](http://journal.publications.chestnet.org/pdfaccess.ashx?url=/data/journals/chest/21334/)

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and 20 grams of INAH between February 2, 1956 and April 29, 1957. A culture of his sputum at this time was positive for acid fast bacilli and tomographic studies of the left upper lobe suggested the presence of a cavity. He was referred to this hospital for resection of this diseased area.

Physical examination on admission did not reveal abnormality except for an impaired percussion note at the left base with diminished air entry in this region. Routine laboratory examinations were within normal limits. An x-ray film of the chest confirmed the presence of disease in the left upper lobe. An abnormal fissure was seen on the left which was thought to be between the apico-posterior and anterior segments (Fig. 1). During bronchoscopy the left upper lobe orifice could not be visualized due to retraction, only the superior segmental orifice could be visualized by the operator.

On January 21, 1958 a left upper lobectomy was done in the prone position. The pleura was opened through the bed of the sixth rib and was obliterated, the adhesions being easily separated except over the apex where the dissection was carried out in the extra-pleural plane. The major fissure was almost complete and there was a complete fissure between the apico-posterior and anterior segments on the one hand and the lingula segments on the other, resulting in the left lung having three complete lobes. The upper lobe was diseased, the lingula and lower lobes were healthy and it was elected to remove the upper lobe.

The upper lobe bronchus arose above the main pulmonary artery and was supplied by 3 pulmonary arteries which arose from the main pulmonary artery superior and anterior to the bronchus from where one would expect a left trunus anterior to arise (Fig. 2). There was a single vein draining the lobe. The upper lobe bronchus ran posterior to the main pulmonary artery (Fig. 3). There was no other arterial supply to the upper lobe. The lingula bronchus arose from the left lower lobe bronchus opposite the superior segmental bronchus and was supplied by an artery arising from the pulmonary artery opposite the superior segmental artery. The anatomy of the lung in this case was the exact replica of the normal anatomy of the

![Diagram](http://journal.publications.chestnet.org/pdfaccess.ashx?url=/data/journals/chest/21334/)

FIGURE 2: Diagram of the operative findings, showing the left eparterial bronchus and the abnormal origin of the lingula bronchus as seen with the patient in the prone position.

![Diagram](http://journal.publications.chestnet.org/pdfaccess.ashx?url=/data/journals/chest/21334/)

FIGURE 3: Diagram showing the origin of the arteries to the left upper lobe. The upper lobe has been retracted posteriorly.
right lung. The position of the heart was normal. The lobe was removed, using the individual ligation technique, the bronchial stump being closed with interrupted catgut sutures—(00 on an atraumatic needle).

The patient had an uneventful convalescence. In May bronchographic studies were carried out which revealed the anatomy of the right lung to be normal (Fig. 4). He was discharged on May 24, 1968.

FIGURE 4: Lateral view of a right bronchogram which reveals a normal distribution of the bronchi to the right lung.

DISCUSSION

Minor variations in the segmental distribution of the bronchi are normal but it is rare to have such a major abnormality. The first thought that comes to mind is whether this patient had a "situs inversus" but the stomach and heart are in their normal position as seen in the plain film of the chest. This latter finding was confirmed at operation. The postoperative bronchogram revealing a normal right lung further negates this possibility and so it must be concluded therefore that this case is a very rare abnormality of the left lung with an eparterial bronchus and a complete horizontal fissure dividing the left lung into three lobes.

BIBLIOGRAPHY