Case Report

AZYGOS LOBE OF RIGHT LUNG – A CASE REPORT

*Ashwini H¹, Archana M Hatti² and Jaishree H³

¹Department of Anatomy KBNIMS Gulbarga, Karnataka
²Department of Anatomy department of Anatomy MRMC Gulbarga, Karnataka
³Department of Anatomy BIMS Bidar, Karnataka

*Author for Correspondence

ABSTRACT

Anatomical variations of lungs including the number, fissures, and lobes are important for clinicians to recognize their variable imaging appearances as well as related abnormalities and also alert the surgeons to avoid possible injuries. We report a rare case of Azygos lobe in the apex of right lung in approximately a 65yr old male Cadaver which was found during routine dissection for the UG MBBS students in year 2010 in the Dept of Anatomy M R Medical College Gulbarga and it was found to be a Lobe of Azygos vein, left lung was normal.

Key Words: Azygos Lobe, Abnormalities

INTRODUCTION

The lobe of azygos vein is a rare anomaly of the lung; its radiological appearance has been well defined. Clinically, the azygos lobe has been accepted as a normal variation that can simulate various diseases. Even then the knowledge about this variation is essential to avoid misdiagnosis and to prevent possible injuries during surgery. The incidence of azygos lobe of right lung in Anatomic dissections is 1% and in Chest radiograms is 0.4%. Radiographically it appears as a fine convex line which begins at the right apex and curves downwards and inwards towards the mediastinum to end just below the level of the first costal cartilage in a dense comma-shaped shadow. (George Bray, 1932)

Normal Anatomy

Azygos lobe generally means accessory lobe or supernumerary lobe of lung. There are mainly three types of Azygos lobes they are Upper Azygos lobe, Lower Azygos lobe and Lobe of Azygos vein. The Upper and Lower Azygos lobe are mentioned with reference to the hilum of lung and they posse very little clinical importance and are found rarely (Dutta, 1995) where as the lobe of azygos vein is different from other accessory lobe of lung, here the aberrant azygos vein crosses the apex of lung rather than its border (Cimen et al, 2005) and splits the apex of the lung into medial and lateral parts by a fissure (vertical / oblique) and the arch of azygos vein lies in the bottom of the fissure which in turn is suspended by the pleural septum, the meso-azygos. The medial part of split apex forms the lobe of azygos vein. The lobe of azygos vein is not an independent segment but rather a variably separated portion of the right lung suggesting that the term “lobe” virtually is a misnomer.

Embryology

During fetal development normally the right posterior cardinal vein, precursor of the thoracic segment of the azygos vein, normally migrates over the apex of the right upper lung to occupy a medial mediastinal position. In some cases, a migration anomaly occurs and the vein penetrates into the right upper lobe. The vein along with it carries the parietal and visceral layers of pleura to form an accessory fissure comprising a total of four pleural layers, called mesoazygos. The lung parenchyma positioned mediially to the accessory fissure is called azygos lobe or Adam’s lobe. (Lenoir V et al, 2013).
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CASES

During routine dissection for the 1st MBBS students in the Department of Anatomy, M. R. Medical College Gulbarga, for the year 2010-2011 batch, we found a rare case of Azygos lobe in the apex of right lung in a male cadaver of approximately 65yr old. It was found to be a Lobe of Azygos vein of right lung. The left lung was normal.

Measurements of fissure-
- Position of fissure - vertical, cutting the apex of the lung.
- Depth of fissure - midway between the apex and hilum.

Measurements of the lobe:
- Length – 6cms
- Breadth (from inside)-7.5cms
- Breadth (from outside)-6cms
- Width (from within out) - 1.5cms.

DISCUSSION

Weisberg in 1777 was the first person to describe the lobe of the Azygos vein in a 3yr old boy cadaver since then it is also known as “Lobe of Weisberg” and in the same cadaver an additional accessory lobe was found in the left lung which was in relation to the left superior intercostal vein (AGN, 1931; George Bray, 1932; Mather, 1928).

Geddes (1910) and Holtby (1915) studied the branching of the eparterial bronchus in lobe of azygos vein and they said that this accessory lobe clearly belongs to the region of the apex and represents a portion of the upper lobe which has been imprisoned by the azygos vein. (Mather, 1928) Thus we can say that the lobe of the azygos vein is a small accessory lobe situated at the apex of the right lung, which arises during embryonic life in relation to a faulty position of the azygos vein.

Figure 1: Showing the Lobe of Azygos vein (Anterior view)

The Lobe of Azygos vein when viewed on chest roentgenogram appears like a fine convex line which begins at the apex of right lung and curves downwards and inwards towards the mediastinum to end.
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just below the level of the first costal cartilage as dense comma-shaped shadow. The line in the skiagram represents the azygos fissure where as the comma shaped shadow consists of a fold, the meso-azygos and in the free edge of which lies the arch of azygos vein, a comma-shaped shadow at the apex of the right lung was first described by Wessler and Jaches (1923), they suggested that it was due to some congenital abnormality and Velde (1927), suggested that the line might represent the fissure that cuts off the so-called "Azygos lobe" from the rest of the upper part of the right lung. Bendick and Wessler (1928), studied the skiagram of two postmortem cases and noticed a comma shaped shadow; they concluded that the fine convex line marked the boundary of an accessory lobe. (George Bray, 1932)

Some authors have mentioned about the migrating azygos vein in the literature, in such cases the azygos vein displaces out of the fissure and goes and lies in a paramediastinal position due to various etiologies such as lung collapse, increased intrathoracic pressure, spontaneous or iatrogenic pneumothorax, or even during sudden development of kyphosis. (Lenoir et al, 2013)

Though Azygos lobe is a common variation, its importance should be considered clinically as (Lupu G et al, 2012).

• Any patient with insufficient or wrong imaging studies can become a victim of a false diagnosis, such as a malignant space substituting lesions.
• The presence of the azygos vein in pulmonary parenchyma can complicate the evolution of some erosive or infiltrative processes from the superior lobe of the right lung.
• Any surgical procedure in this region has to consider the possibility of this anatomical variation, to avoid possible injury to the azygos vein or its tributaries.
• The discovery during the necropsy of a haemorrhage made by accidental injury to the azygos vein, in its aberrant trajectory, suggests a pre-operative misdiagnosis.

Conclusion

The lobe of the azygos vein can be considered equally as an anatomical variation or a malformation with very little clinical significance. Even then the knowledge about the prevalence, morphology, and location of the azygos lobe is essential for diagnostic and surgical procedures of the lungs related to mediastinal pathologies, especially to minimize intraoperative vascular injuries, shock, possible thoracotomy, and sometimes the possibility of pulmonary torsion.

REFERENCES