

Case Report

ACCESSORY FISSURE OF RIGHT LUNG: A REPORT OF TWO CASES

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ABSTRACT

Right lung is divided into upper (superior), middle and lower (Inferior) lobes by an oblique and a horizontal fissure. Oblique fissure passes spirally from posterior border to inferior border deep into the lung separating the lower lobe from upper and middle lobes. A short horizontal fissure passes horizontally forwards from the oblique fissure at midaxillary line to meet the anterior border at 4th costochondral junction. This separates the upper lobe from the middle lobe. During routine dissection in 2010-11 undergraduate batch, we came across two cases of right lungs where an accessory fissure was extending horizontally backwards from the oblique fissure at mid axillary line towards the vertebral part of medial surface. In the 1st case, this accessory fissure was not meeting the normal horizontal fissure where as in the 2nd case it was meeting. This accessory fissure separates the lower lobe into a superior and an inferior segment. Knowledge of different types of accessory fissures is important because it may mislead the radiological findings, may act as a barrier to spread of infection creating a sharply marginated pneumonia which can wrongly be interpreted as atelectasis or consolidation. Identification of completeness of fissure is important prior to lobectomy, because individuals with incomplete fissures are more prone to develop postoperative air leak. Considering the clinical importance of such anomalies, anatomical knowledge and prior awareness of accessory fissures in the lungs may be important for clinicians and radiologists.

KEYWORDS: Accessory fissure of lung, Oblique fissure of lung, Horizontal fissure of lung.

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INTRODUCTION

Right lung is divided into upper (superior), middle and lower (Inferior) lobes by an oblique and a horizontal fissure [1]. Oblique fissure passes spirally from the posterior border to the inferior border deep into the lung. This fissure separates the lower lobe from upper and middle lobes. A Short horizontal fissure passes horizontally forwards from the oblique fissure at midaxillary line to meet the anterior border at 4th costochondral junction, then backwards to the hilum on the mediastinal surface [1]. This separates the upper lobe from the middle lobe.

EMBRYOLOGY

Defective pulmonary development gives rise to variation in lobes and fissures. Fissures are spaces present between bronchopulmonary segments or buds in foetal life. Later on they get obliterated except along two planes which persist after birth as oblique and horizontal fissures. Non-obliteration of some of these spaces is responsible for the presence of accessory fissures [2].

CASE REPORT

During routine dissection in 2010-11 undergraduate batch, we came across two cases of

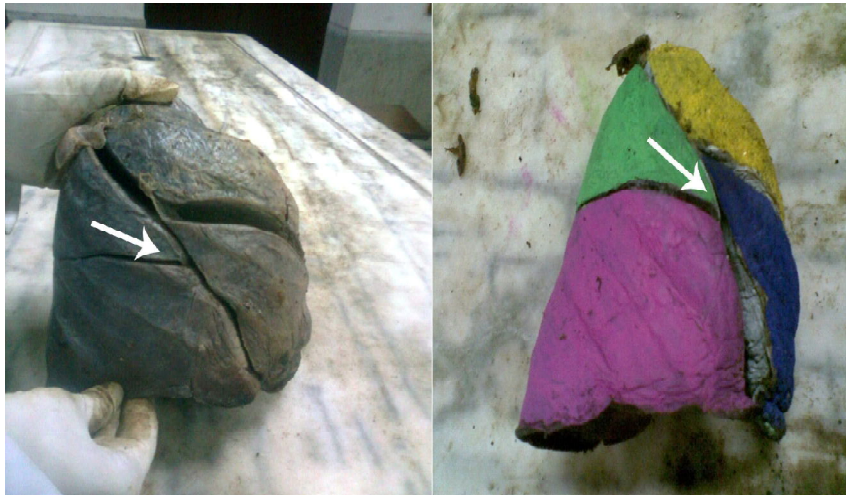


Fig. 1: Photograph of right lung showing accessory fissure not meeting original horizontal fissure.



Fig. 2: Photograph of right lung showing accessory fissure meeting original horizontal fissure.

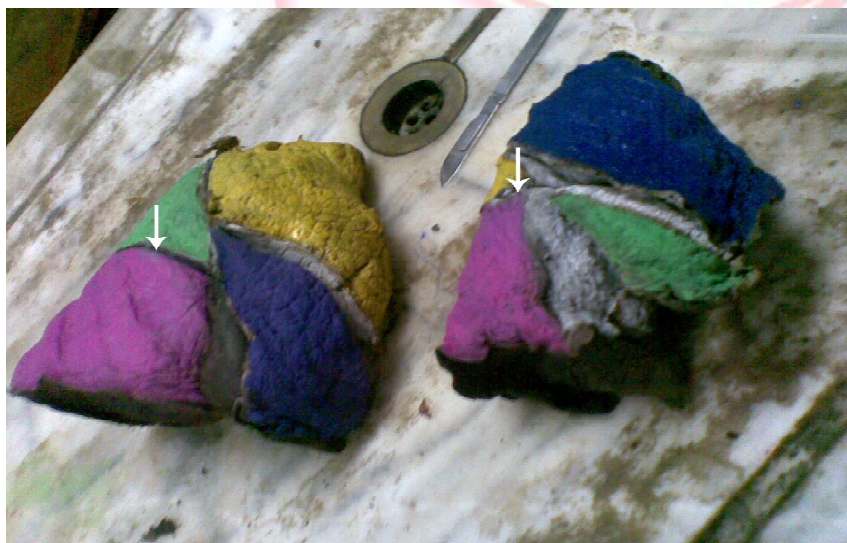


Fig. 3: Photograph of both the right lungs showing the accessory fissures.

right lungs, where three distinct fissures were found instead of two. In each of the two cases, the position & extent of oblique fissure was normal, separating the lower lobe from the rest. There was a normally placed horizontal fissure extending forwards from the oblique fissure separating a cuniform middle lobe from the upper lobe. Apart from these two fissures, an

accessory fissure was extending horizontally backwards from the oblique fissure at mid axillary line towards the vertebral part of the medial surface. In the 1st case, this accessory fissure was not meeting the normal horizontal fissure, whereas in the 2nd case it was meeting. This accessory fissure was separating the lower lobe into a superior and an inferior segment in both the cases.

DISCUSSION

Absence of one of the fissures or presence of accessory fissures have earlier been reported by many authors. Azygos fissure (partially separating medial part of upper lobe i.e. lobe of the azygos vein from the rest), superior accessory fissure (separating the apical segment of the lower lobe from all the basal segments) and inferior accessory fissure (separating the medial basal segment from rest of the lower lobe) are the common variants [1]. We found superior accessory fissure in both the cases as it was present in the lower lobe separating the apical segment from the rest. Incidence of superior accessory fissure is found to be 5-30% in autopsy studies where as high resolution CT scan detects it to be 3% [3]. Many a time, the accessory fissures fail to be detected on CT scan, because of their incompleteness, thick sections and orientation to a particular plane [4]. Further, superior accessory fissure is reported to be more common in right lung as compared to left one which is consistent with our reports [3].

Knowledge of different types of accessory fissures is important because it may help in clarifying the confusing radiographic findings like extension of fluid into an incomplete major fissure or spread of various diseases through different pathways [5]. It may act as a barrier to spread of infection, creating a sharply marginated pneumonia which can wrongly be interpreted as atelectasis or consolidation [3]. Identification of completeness of the fissure is important prior to lobectomy, because individuals with incomplete fissures are more prone to develop postoperative air leaks and may require further procedures such as stapling or pericardial sleeves [1, 6, 7].

CONCLUSION

Considering the usefulness of these anomalies, clinicians and radiologists should have the anatomical knowledge and prior awareness of such accessory fissures in the lungs.

Conflicts of Interests: None

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