

Case Report

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Website: www.eurasianjpulmonol.com
DOI: 10.4103/ejop.ejop_4_18

Meandering pulmonary vein: Very rare incidental finding

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Abstract:

Meandering pulmonary vein (MPV) is a rarely seen pulmonary vascular anomaly and confused with the scimitar syndrome which is more commonly seen. In this paper, we presented a case of left MPV which mimics arteriovenous malformation. A 30-year-old man was referred to our clinic for pulmonary nodule detected in routine evaluation before employment examination. Diagnosis of MPV was made by Pulmonary CT angiography. It showed abnormal drainage of upper lobe pulmonary vein to the inferior pulmonary vein and form abnormal common pulmonary vein which shouldn't be exist. Because of any symptoms no further examination was recommended. According to our best knowledge to date only 17 cases reported in the literature. MPV diagnosis has been significantly changed by the means of advances in CT technology. Non-invasive diagnosis is possible with modern multisectonal CT that clearly shows the anatomy of veins and enables the detailed MPV examination. Hereby, unnecessary radiological examination or surgery can be prevented.

Keywords:

Arteriovenous malformation, meandering pulmonary vein, scimitar

Introduction

Meandering pulmonary vein (MPV) is a rarely seen pulmonary vascular anomaly and confused with the scimitar syndrome or solitary pulmonary nodules. In both conditions, there is an abnormal pulmonary vein that courses in a way different from normal. These veins generally form a scimitar sign or a view mimicking arteriovenous (AV) malformation on the chest X-ray. MPV normally ends in the left atrium as opposed to scimitar splitting into inferior vena cava. The most significant point in differential diagnosis with AV malformation (AVM) is the absence of a feeding artery.^[1,2] In this paper, we presented a case of left MPV which mimics AV malformation.

Case Report

A 30-year-old male was referred to our clinic because of pulmonary nodule detected in his

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routine X-ray evaluation performed for this job entrance examination. Posterior-anterior lung roentgenogram showed linear opacity on the left lung [Figure 1]. Pulmonary computed tomography (CT) showed dilated venous structure without any feeding vessel. The venous structure drained to normal localized inferior pulmonary vein. The patient underwent angiography for exclusion AVM, but no feeding vessel was detected [Figure 2]. Angiography confirmed normal inferior pulmonary veins and abnormal drainage of the left upper lobe pulmonary venous system. Diagnosis of MPV was made under existing findings. Colored three-dimensional volume rendering images of CT angiography was reconstructed using workstation, and it showed abnormal drainage of upper lobe pulmonary vein to the inferior pulmonary vein and form abnormal common pulmonary vein which should not be existed [Figure 3]. No additional monitoring was recommended for the patient as he did not have any complaint. Written informed consent was obtained from patient who is presented in this paper.

How to cite this article: Aygun MS, Çalık M, Çalık SG. Meandering pulmonary vein: Very rare incidental finding. *Eurasian J Pulmonol* 2018;20:43-5.

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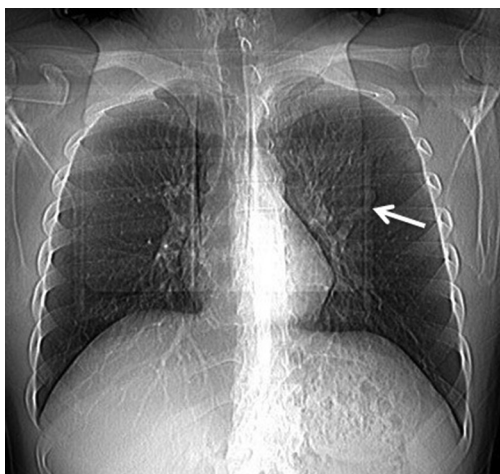


Figure 1: Scanogram before computed tomography revealed tubular-shaped vascular structure on the left lung

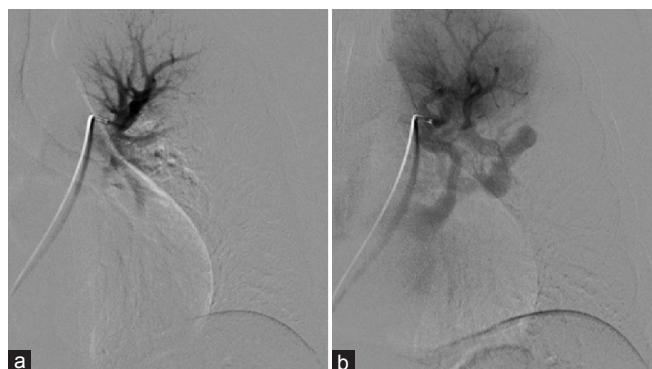


Figure 2: Pulmonary angiography showed (a) normal arterial vessels but (b) abnormal vein that drain to inferior pulmonary vein



Figure 3: Colored three-dimensional volume rendering of the pulmonary veins and heart illustrating abnormal drainage of the left superior pulmonary vein to inferior pulmonary vein. The abnormal course of upper pulmonary vein is shown with white arrow

Discussion

The term “meandering pulmonary vein” has firstly been used by Goodman *et al.* in the presence of scimitar sign to define the abnormal right pulmonary vein splitting into left atrium.^[3] Scimitar sign describes a curved shadow on

chest X-ray, which courses along the right cardiac border toward the right cardiophrenic angle. However, apart from the scimitar’s syndrome, there is neither pulmonary hypoplasia nor shunt because drainage of the abnormal vein is orthotropic, means there is an abnormal coursed vein that drains to normal the left atrium, so there is no shunt.

On the contrary to scimitar syndrome and AVM that are commonly occur, the number of left MPV cases reported in literature is very low. According to the best of our knowledge, only 17 cases being right, left, and bilateral have been reported in literature up to now. However, only three cases on the left-sided MPV have been found in the literature so far.^[4]

Predisposing factors or embryogenetic factors are not well described in MPV because of limited reports. MPV seems to be not related with hypogenetic lung, in contrast to scimitar. Furthermore, it is known that there are many pulmonary venous variations and it is possible that MPV is one of them, but rare type.

MPV diagnosis has been significantly changed by the means of advances in CT technology. In some cases, angiography can be optionally performed to differentiate it from scimitar syndrome and AVM which usually has to be treated.^[5] Noninvasive diagnosis is possible with modern multisectional CT that clearly shows the anatomy of veins and enables the detailed MPV examination. Hereby, unnecessary radiological examination or surgery can be prevented.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Engelke C, Brown K, Sabharwal T, Reidy JF. Anomalous unilateral single pulmonary vein masquerading as a pulmonary arteriovenous malformation. *AJR Am J Roentgenol* 2001;176:1333.

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2. Gilkeson RC, Haaga JR, Ciancibello LM. Anomalous unilateral single pulmonary vein: Multidetector CT findings. *AJR Am J Roentgenol* 2000;175:1464-5.
3. Gwinn JL, Barnes GR Jr. The scimitar syndrome. Anomalies of great vessels associated with lung hypoplasia. *Am J Dis Child* 1967;114:585-6.
4. Rodrigues MA, Ritchie G, Murchison JT. Incidental meandering right pulmonary vein, literature review and proposed nomenclature revision. *World J Radiol* 2013;5:215-9.
5. Tsang TK, Kwan TL, Wong WK, Fung HS, Wai AMW. Anomalous unilateral single pulmonary vein – a rare mimicker of pulmonary arteriovenous malformation. *J HK Coll Radiol* 2007;10:16-8.