FALSE NEGATIVE BRONCHIAL ARTERY CALIBER ON MULTI-DETECTOR COMPUTED TOMOGRAPHY IN PREDICTING OUTCOME OF BRONCHIAL ARTERY EMBOLIZATION IN PATIENT WITH HAEMOPTYSIS

T. H. Soo[1], A. Tharek[1], I. Ibrahim[1], M. H. Zakaria[1], M. N. Mohd Yaakob[1], M. F. A. K. Kamis[1], M. A. Malik[2]

[1]Department of Radiology, Hospital Pengajar Universiti Putra Malaysia, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, 43400, Serdang, Selangor, Malaysia.
[2]School of Medicine, KPJ Healthcare University College, 71800, Nilai, Negeri Sembilan, Malaysia.

***Corresponding author:**
T. H. Soo, Department of Radiology, Hospital Pengajar Universiti Putra Malaysia, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, 43400, Serdang, Selangor, Malaysia. Telephone: +60397695001. Email: suzyhui88@upm.edu.my

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ABSTRACT:
Bronchial artery embolization was first performed in 1973 by Remy et al with widespread acceptance since then. Multi-detector computed tomography (MDCT) CT angiography (CTA) is currently the gold standard imaging modality used to identify the site and cause of bleeding in patient presented with haemoptysis. Bronchial artery anatomies and precise location can be obtained by scrutinizing CTA prior to interventional procedures. CTA has the advantage of not only can preclude the need of digital subtraction angiography (DSA) in inappropriate cases, but also can shorten the intervention procedure timing. We present a case of false negative bronchial artery caliber seen on MDCT which was abnormal in DSA.

Keywords: Angiography, Arterial cannulation, Angioseal.

NARRATIVE:
67-year-old woman with underlying bronchiectasis referred from private medical center for recurrent episodes of streaky hemoptysis for 5 months duration. Her full blood count parameters were within normal limits: hemoglobin of 11.1 g/dl and platelet count of 200 × 10^3 /µL. Renal and coagulation profile were normal. Multi-detector computed tomography (MDCT) revealed bilateral lungs bronchiectasis predominantly involving right lower lobe, middle lobe and lingular segment of left upper lobe (Figure 1(A) and (B)). She has type IV bronchial arteries anatomy: 1 left bronchial artery and 2 right bronchial arteries. 1 All the arteries arise from anteromedial aspect of descending thoracic aorta at T5-T6 level. The 2 right bronchial arteries were dilated ranging 2-3 mm with tortuous course distally (Figure 1(C)-(E)). The left bronchial artery is normal in size measuring 1.5 mm and no evidence of aneurysm (Figure 1(F)). Subsequent

selective bronchial artery catheterization demonstrates tortuosity the left (Figure 2(A)) and one of the right bronchial arteries (Figure 2(B)) which were successfully embolized with polyvinyl alcohol and coil. There was failure to cannulate one of the right bronchial arteries.

Bronchial artery embolization was first performed in 1973 by Remy et al with widespread acceptance since then. MDCT CT angiography (CTA) is currently the gold standard imaging modality used to identify the site and cause of bleeding in patient presented with haemoptysis. It is fast and important prior to interventional procedures. Meanwhile, other cause of haemoptysis for instances pulmonary thromboembolism or pulmonary sequestration that eliminate the need of BAE can be detected as well. (2) CTA also can replace the routine preliminary flush aortography. Although the importance of CTA cannot be overemphasized, our case reveals false negative left bronchial artery caliber on MDCT which was proven to be abnormal on digital subtraction angiography (DSA). Therefore, MDCT should be complemented with DSA in managing patient with haemoptysis.

STATEMENT OF ETHICS:

Informed consent was obtained from the patient for the publication of this work.

CONFLICTS OF INTEREST:

The authors have no potential conflicts of interest to disclose.

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DATA AVAILABILITY STATEMENTS:

Further information regarding the data used for this work can be found from the link provided: https://interventionjournal.padimedical.com/external/osimis/e9be1f6c-ae6ce4f4-eb7d1547-0e842c4f-bd8b4b3b.

The access password can be retrieved from the corresponding author upon reasonable request.

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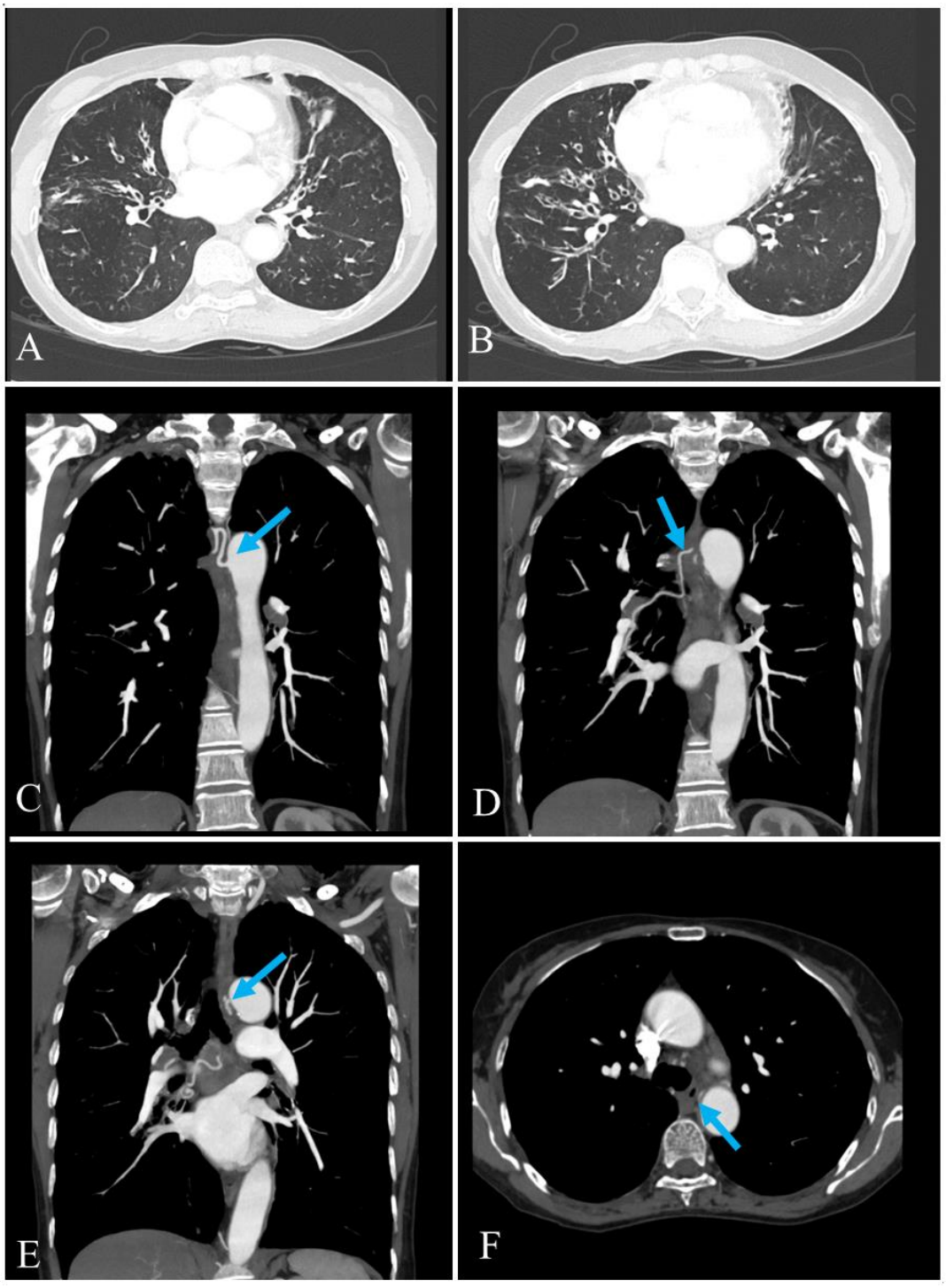

Figure 1: Multi-detector computed tomography CT angiography (CTA) with lung window reconstruction in axial view (A) and (B) demonstrates bilateral lungs bronchiectasis predominantly involving right lower lobe, middle lobe and lingular segment of left upper lobe. CTA with maximum intensity projection revealed type IV bronchial arteries anatomy: 2 right bronchial arteries and 1 left bronchial artery. The 2 right bronchial arteries are dilated ranging 2-3mm in diameter with tortuous course distally (arrows in (C), (D) and (E)). The left bronchial artery is normal in size measuring 1.5mm and no evidence of aneurysm (F).

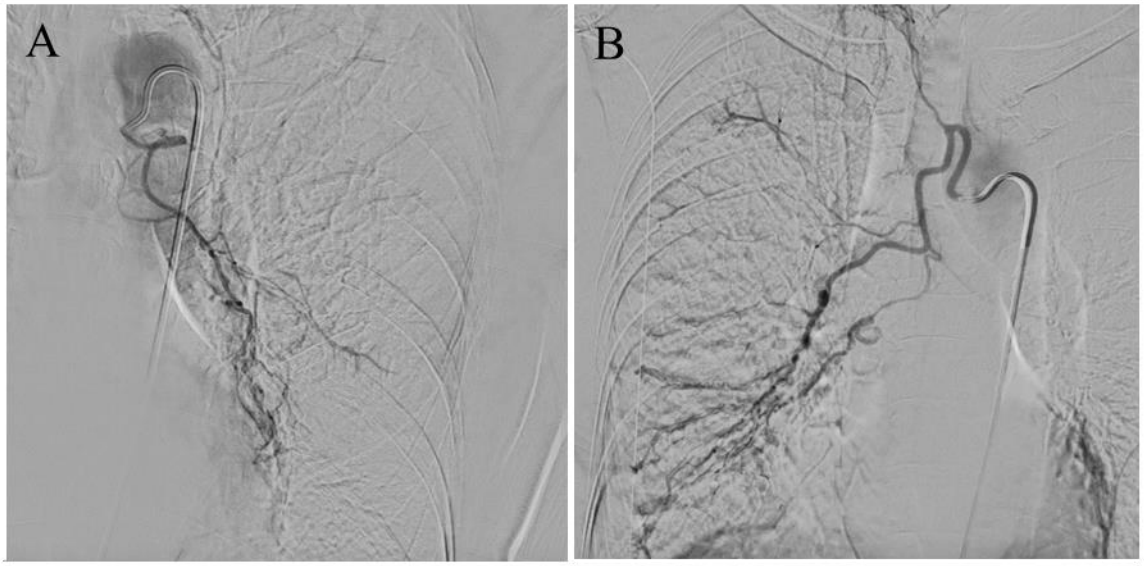

Figure 2: Digital subtraction angiography with selective bronchial artery catheterization confirmed dilated and tortuous left (A) and one of the right bronchial arteries (B) which were successfully embolized with polyvinyl alcohol and coil. There was failure to cannulate one of the right bronchial arteries.