Right bronchial artery from left common carotid artery: A rare anomalous origin

INDEX CASE

A 42- year-old male presented to the Emergency Department with complaints of recurrent bouts of hemoptysis, approximately 300–400 ml per episode, for the last three days. The patient had a history of pulmonary tuberculosis two years prior, for which he had taken complete antitubercular treatment. He had complaints of streaky hemoptysis since then, which had increased in severity for the last three days before his admission to the Emergency Department. Computed tomography bronchial angiography (CTBA) was done for delineation of the abnormal bronchial and nonbronchial vascular supply. CTBA showed a dilated bronchial artery on the right side arising from the descending thoracic aorta. In addition, another bronchial artery was seen arising from the left common carotid artery (LCCA), which was dilated and tortuous in its course [Figure 1]. The artery was seen entering through the right pulmonary hilum, hence, was labeled as an anomalous bronchial artery. The patient was taken up for endovascular embolization, which confirmed the findings of the CTBA [Figure 2]. The right bronchial artery was embolized using polyvinyl alcohol particles (300 – 500 microns) and gel foam slurry. Attempts were also made to selectively cannulate the bronchial artery arising from the LCCA using a 5Fr Picard catheter and a Progreat Coaxial Microcatheter System (2.7 Fr), however, it could not be done due to acute angulation. A decision was taken not to proceed further, after the failed initial attempts to cannulate the anomalous vessel, so as to reduce the possible risk of carotid injury as well as embolus in the intracerebral circulation. The patient was kept under observation for two days and discharged in a satisfactory condition, without any fresh episode of hemoptysis.

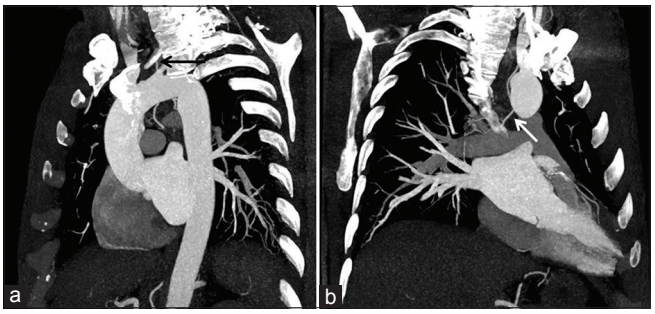

Figure 1: Oblique sagittal (a) and coronal (b) reconstructed thick maximum intensity projection (MIP) images from computed tomography angiography (CTA), showing the origin of the right bronchial artery from the left common carotid artery (CCA) (arrow in A) and the tortuous course toward the right hilum (arrow in B)

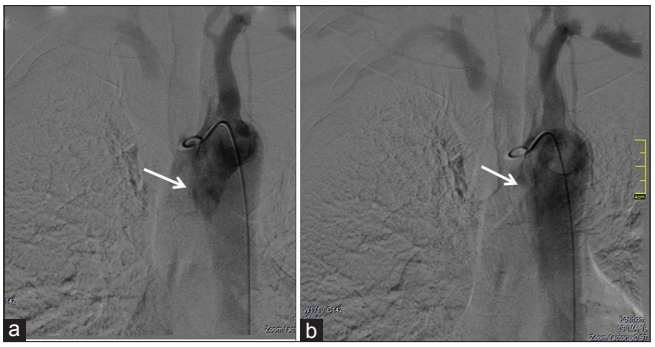

Figure 2: Angiography run with catheter at the origin of the left common carotid artery (CCA) showing the anomalous right bronchial artery (arrows in A and B)

DISCUSSION

The knowledge of the anomalous origin of the bronchial arteries is essential during endovascular embolization procedures for treatment of hemoptysis.[1] Nonrecognition of the anomalous origin during diagnostic or therapeutic angiographic procedures can be a source of failed embolization.[1] A large number of variations in the origin of the bronchial arteries have been described in literature, which have been detected on cadaveric dissection, computed tomography angiography, and catheter angiography.[2] The most common anomalous origin of the bronchial arteries is from the aortic arch, followed by the origin from the subclavian arteries, which is the second most common.[2] The aberrant bronchial arteries can be distinguished from the nonbronchial systemic collateral vessels, in that, they extend along the course of the major bronchi. However, the nonbronchial systemic collateral vessels directly enter the lung parenchyma, as the course is not parallel to the major bronchi.[3]

A large number of anomalous origins of the bronchial arteries have been described previously in literature.[2] However, to best of our knowledge, the anomalous origin of the bronchial artery from the carotid artery has not been previously described.

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