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Unusual pharyngo-esophageal dysphagia compressed by high riding of right brachiocephalic artery

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High riding of right brachiocephalic artery and subclavian artery is a very rare vascular variation and is usually asymptomatic. We report a case with high riding of right brachiocephalic and subclavian arteries causing compressive pharyngeal and cervical esophageal dysphagia. An 82-year-old woman with past medical history of hypertension, iron deficiency anemia, and chronic bronchitis visited the Department of Otolaryngology for swallowing difficulty, nonproductive cough, sputum and hoarseness for the previous a month. She ate soft blend diet for the meal because swallowing difficulty became more severe with solid food. During the last month, she had weight loss from 55kg to 42kg. Otolaryngologist examined her, and left vocal fold palsy was diagnosed. A pulsatile mass was seen at her right side of neck. Other general medical examinations showed no definite abnormality. Neck CT was done for further evaluation, and referred to Department of Rehabilitation Medicine for the evaluation of the swallowing difficulty. A videofluoroscopic swallowing study (VFSS) showed filling defect in the lower pharynx through the upper esophagus at the C4-7 level during swallowing tests, and no penetration or aspiration of food materials into the airway were identified. In the neck CT, high riding of right brachiocephalic and subclavian arteries and tortuous common carotid artery were observed. Right brachiocephalic artery coursed along the just lateral to the trachea up to C4 vertebral level, and right subclavian artery and common carotid artery were branched from the brachiocephalic artery. After branching, right subclavian artery coursed downward just posterior to the brachiocephalic artery. Both right brachiocephalic artery and subclavian artery occupied right neck area compressing the midline neck structures with left side deviation of the larynx and the trachea. At the C7 vertebral level, the trachea gained the midline position. The esophagus run along left side of the trachea and focal outpouching diverticulum was seen in cervical esophagus at C6-7 vertebral level. High riding of right brachiocephalic and subclavian arteries is a very rare variation and most of these cases were asymptomatic or only a pulsatile anterior neck mass. In our case, high riding of right brachiocephalic and subclavian arteries presented next to the trachea in the cervical area and the cervical midline structures were deviated to the left side of the neck. Tracheal deviation in cervical area suggests the presence of a large neck mass. Our patient complained swallowing difficulty and we found filling defect in pharynx and upper

esophagus during swallowing on VFSS. Neck mass effect is commonly due to the tumor of the cervical area, but vascular variation like high riding of right brachiocephalic and subclavian arteries can also be the cause.

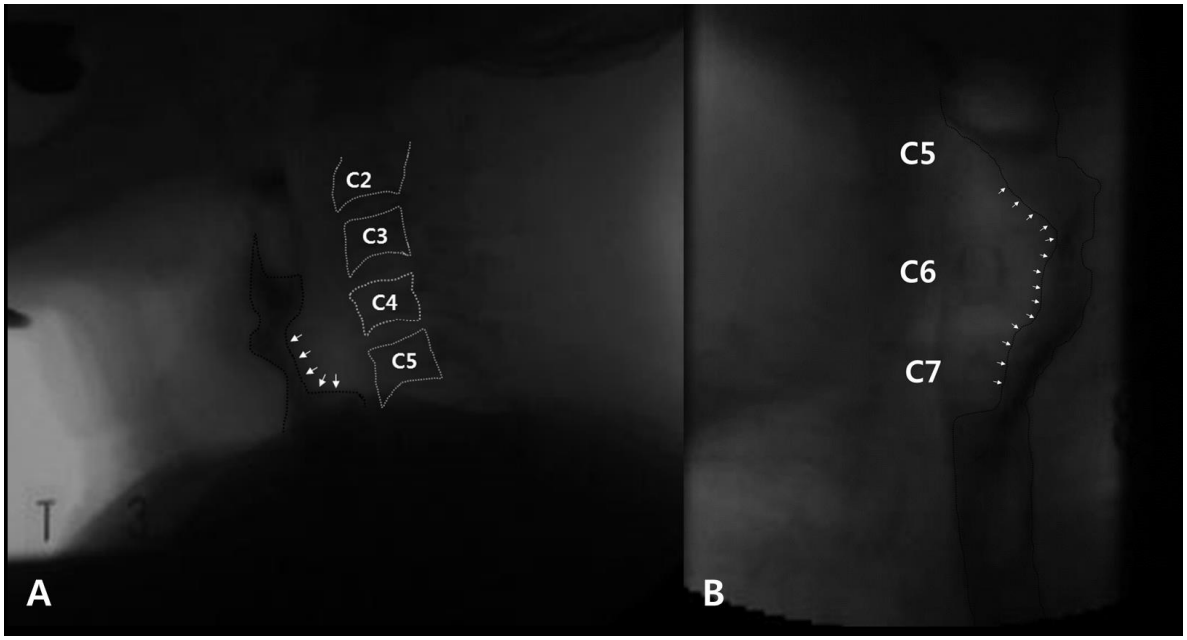

Figure. 1 Esophageal phase of thin fluid swallowing during videofluoroscopic swallowing study. Both lateral projection view (A) and anterior-posterior view (B) show filling defect (white arrow) in the lower pharynx through the upper esophagus at the C4-7 level. Black dotted line delineates the bolus of thin fluid.

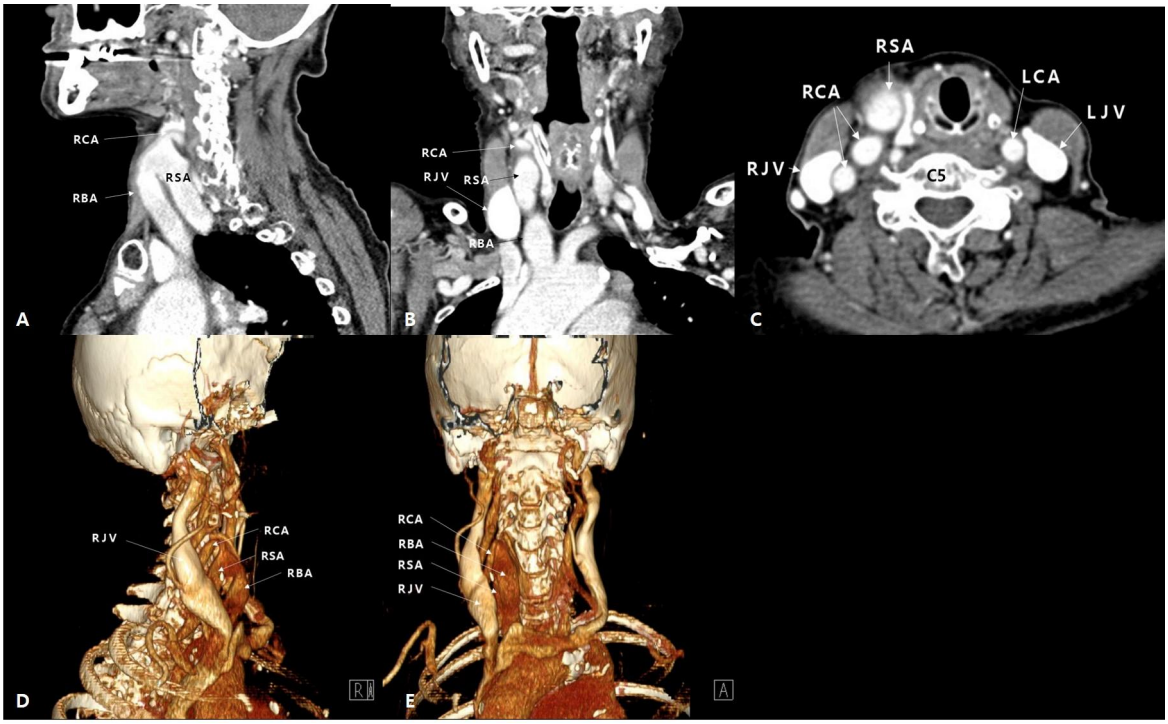

Figure. 2 Enhanced Neck CT shows high riding of right brachiocephalic artery (RBA) and right subclavian artery (RSA). (A, sagittal 2D view; B, coronal 2D view; C, axial 2D view; D-E, 3D reconstruction angiography image) A, D) RSA was branched from RBA at C5 vertebral level and coursed downward just posterior to the RBA. B, E) RSA occupied right neck area just lateral to the trachea. C) RSA compressed the midline neck structures and the trachea was deviated to the left side at C5 vertebral level. RJV, right jugular vein; RCA, right common carotid artery

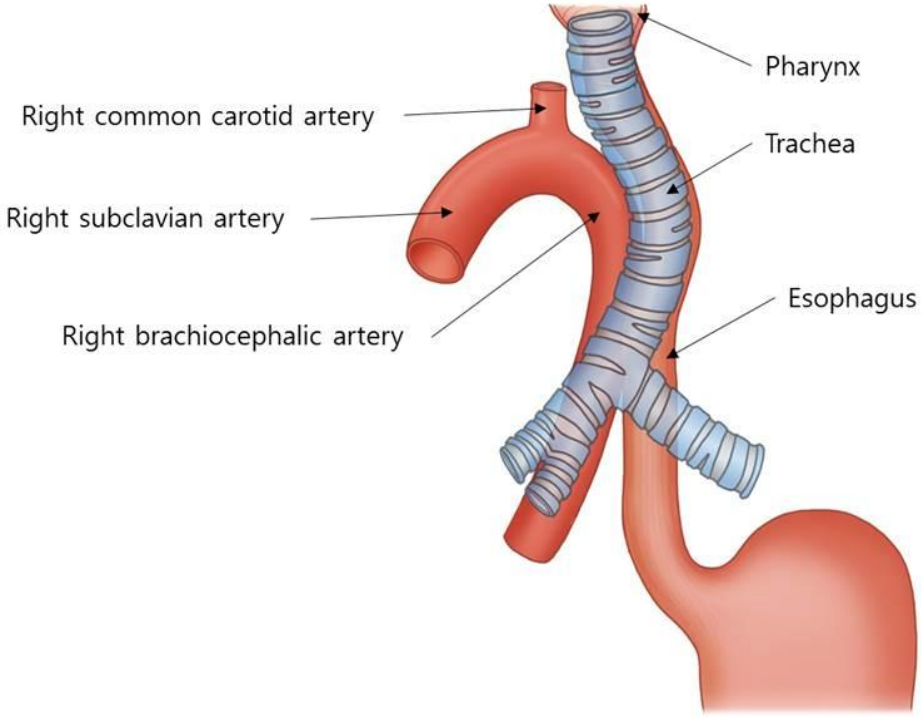

Figure. 3 Diagram shows compression of the trachea, pharynx, and esophagus by high riding of right brachiocephalic and subclavian arteries.