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## Case Report

# Wandering carotid arteries: Reciprocating change between normal and retropharyngeal positions on serial CT studies

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## ABSTRACT

Positional change in the retropharyngeal carotid artery, a rare phenomenon over time, is even rarer in previous reports, and it is important to be aware of this before any neck surgical procedure. A woman in her 50s underwent an anterior maxillectomy for upper gingival cancer, without neck dissection. The patient had medical histories of diabetes mellitus and liver dysfunction, with unremarkable family histories. Serial neck contrast-enhanced computed tomography for detecting locoregional recurrence had been performed as a follow-up during 4 years. A radiological course of moving carotid arteries in serial computed tomography studies showed reciprocating positional changes (wandering) between normal and retropharyngeal regions. There was no locoregional recurrence of the gingival cancer. This is the first case to describe a so-rare presentation of wandering carotid arteries. It is important for clinicians to be aware of a wandering carotid artery to avoid potentially fatal complications.

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## Introduction

Variations in the anatomic position including that of the retropharyngeal carotid artery (RCA) are relatively rare [1,2]. These anatomic variations can cause fatal complications during biopsy or surgery in the head and neck region including the pharynx.

A few cases have been reported that describe positional changes in the carotid artery from the lateral region to the retropharyngeal space (RPS) or vice versa [1,3]. However, none has described arteries to move back to its original position. This is the first case to describe a so-rare presentation that bilateral carotid arteries show positional changes from the normal position to the RPS and a reposition to the normal position over time.

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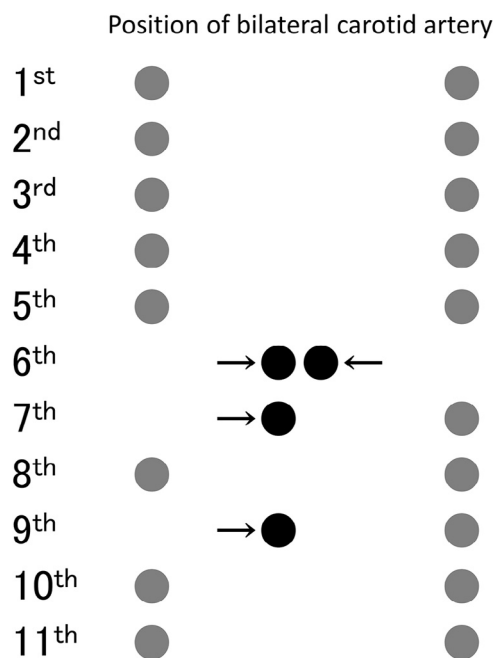
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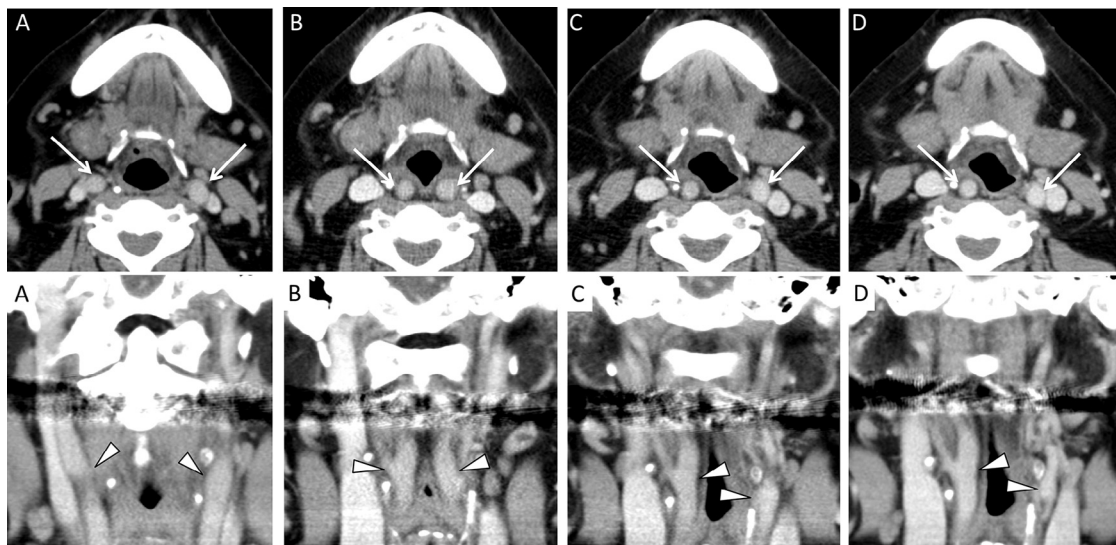
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## Case report

A woman in her 50s underwent an anterior maxillectomy for upper gingival cancer (squamous cell carcinoma) classified as T4aN0M0, without neck dissection. There was no radiation therapy or chemotherapy. The patient had medical histories of diabetes mellitus and liver dysfunction, and presented with a normal blood pressure. The patient had a postmenopausal status and had unremarkable family histories. A regular neck contrast-enhanced computed tomography (CECT) was scheduled as a follow-up. During 4 years of follow-up, 11 serial CECTs with 2- to 4-month intervals were performed in total. None of the follow-up CECTs showed any signs of recurrence. However, the series of CECTs showed changes in the position of the bilateral carotid arteries. All CECT studies were performed with the same head position. The chronological transition of both carotid arteries' positions is simplified in Figure 1. Both carotid arteries had persistently stayed in a normal position until the fifth CECT for 1 year (Fig. 2A). On the sixth CECT (performed 3 months after the fifth CT), medialization of both carotid arteries-RCA was demonstrated (Fig. 2B). The seventh CECT (performed 5 months after the sixth CT) revealed a reposition of only the left carotid artery (Fig. 2C), with the right carotid artery remaining medialized. The eighth CECT (performed 6 months after the seventh CT) showed a normal anatomic position of both carotid arteries. On the ninth CECT (performed 4 months after the eighth CT), a medialization of only the right carotid



**Fig. 1** – Schematic drawing of the position of both carotid arteries in each computed tomography of the series showing the reciprocating positional changes between the normal and the retropharyngeal regions.



**Fig. 2** – (A) Fifth axial and coronal CECTs demonstrated the normal position of both carotid arteries (arrows and arrowheads). (B) The sixth axial and coronal CECTs demonstrated a medialization of both carotid arteries (arrows and arrowheads). (C) The seventh axial and coronal CECTs revealed a medialization of only the right carotid artery, and the normal position (reposition) of the left carotid artery (arrows and arrowheads) was confirmed. (D) The ninth axial and coronal CECTs revealed a medialization of only the right carotid artery, and the normal position (reposition) of the left carotid artery (arrows and arrowheads) was confirmed. (A) The fifth coronal CECT demonstrated a normal position of both carotid arteries (arrows). (B) The sixth CECT demonstrated a medialization of both carotid arteries (arrows). (C, D) The seventh and ninth CECTs revealed a medialization of only the right carotid artery, and a normal position (reposition) of the left carotid artery (arrows) was confirmed. CECT, contrast-enhanced computed tomography.

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