

# Carotid Artery and Globus. How Are They Related?

Lim Li Yun<sup>1</sup>, Norhafiza Mat Lazim<sup>1</sup>

<sup>1</sup>Department of Otorhinolaryngology- Head and Neck Surgery, School of Medical Sciences, Universiti Sains Malaysia, Kelantan, Malaysia

## ABSTRACT

Globus pharyngeus is a common symptom referred to the otorhinolaryngology department. This is a diagnosis of exclusion and is most often psychosomatic. However, organic causes should be ruled out with detailed history, physical examinations, office procedures such as endoscopy, and imaging procedures. Herein, we report an unusual case of globus pharyngeus associated with kinking of internal carotid artery in the pharyngeal region. A 55-year old woman who underwent surgery and radiotherapy for high-grade mucoepidermoid carcinoma of the right

parotid gland presented with complaints of globus sensation during her routine clinic follow up. Clinical examination found an anterior neck mass. Endoscopy showed a pulsatile mass bulging out from the left posterior pharyngeal wall. Computed tomography angiogram showed kinking of the left internal carotid artery. Diagnosis dilemma for globus sensation in patients with a history of radiation therapy includes external compression from a post-radiation thyroid disorder and secondary malignancies. Rare complication could be weakening of major vasculature walls.

Keywords: Parotid Gland; Mucoepidermoid Carcinoma; Internal Carotid Artery; Radiotherapy; Gastroesophageal Reflux

## INTRODUCTION

Throat discomfort or globus pharyngeus or “lump in the throat” is one of the common symptoms for which a patient is referred to an otorhinolaryngology clinic. The causes may vary according to the region of involvement along the upper aero-digestive tract. The lesions may involve posterior nasopharynx such as in cases of post nasal drip, oropharynx as a result of tonsillar hypertrophy, elongated uvula in supraglottic region, vallecular or epiglottic cyst in glottic region, laryngopharyngeal reflux, pedunculated vocal cord cyst, or post-cricoid or oesophageal carcinoma. It can also be due to external compression by surrounding structures such as thyroid gland enlargement, a mass, or lymph nodes.

Due to a wide range of differential diagnosis, a thorough ear, neck and throat (ENT) examination is often needed with a detailed history, clinical examination and direct visualization of upper airway with endoscopy. Imaging procedures such as barium swallow, computed tomography (CT) and magnetic resonance imaging (MRI) are

useful for diagnosis. We report an unusual endoscopy finding during workup of globus pharyngeus in a patient that was due to kinking of the internal carotid artery (ICA).

## CASE REPORT

A 55-year-old woman with a history of high-grade mucoepidermoid carcinoma of the right parotid gland presented for a routine follow-up examination. She had undergone right parotidectomy, followed by radiation therapy in 2003 for treatment of her cancer. Five years later, she presented with left nodular goiter and underwent left thyroid lobectomy.

During the routine follow up visit, she complained of throat discomfort and a feeling of foreign body sensation upon swallowing. She did not have any accompanying pain, shortness of breath or history of foreign body ingestion. She denied nasal symptoms, post nasal drip, gastroesophageal reflux or neurological symptoms.

On inspection and palpation, a 4 x 3 cm anterior neck swelling was noted, which was non tender,

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Correspondence to: Dr Lim Li Yun

Address: Department of Otorhinolaryngology- Head and Neck Surgery, School of Medical Sciences, Universiti Sains Malaysia, Kelantan, Malaysia

E-mail: [nuyil@yahoo.com](mailto:nuyil@yahoo.com)

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**Figure 1:** Endoscopic View. Bulging of a pulsatile mass at the left posterolateral aspect of the pharynx, extending from the posterior pillar to the left pyriform fossa

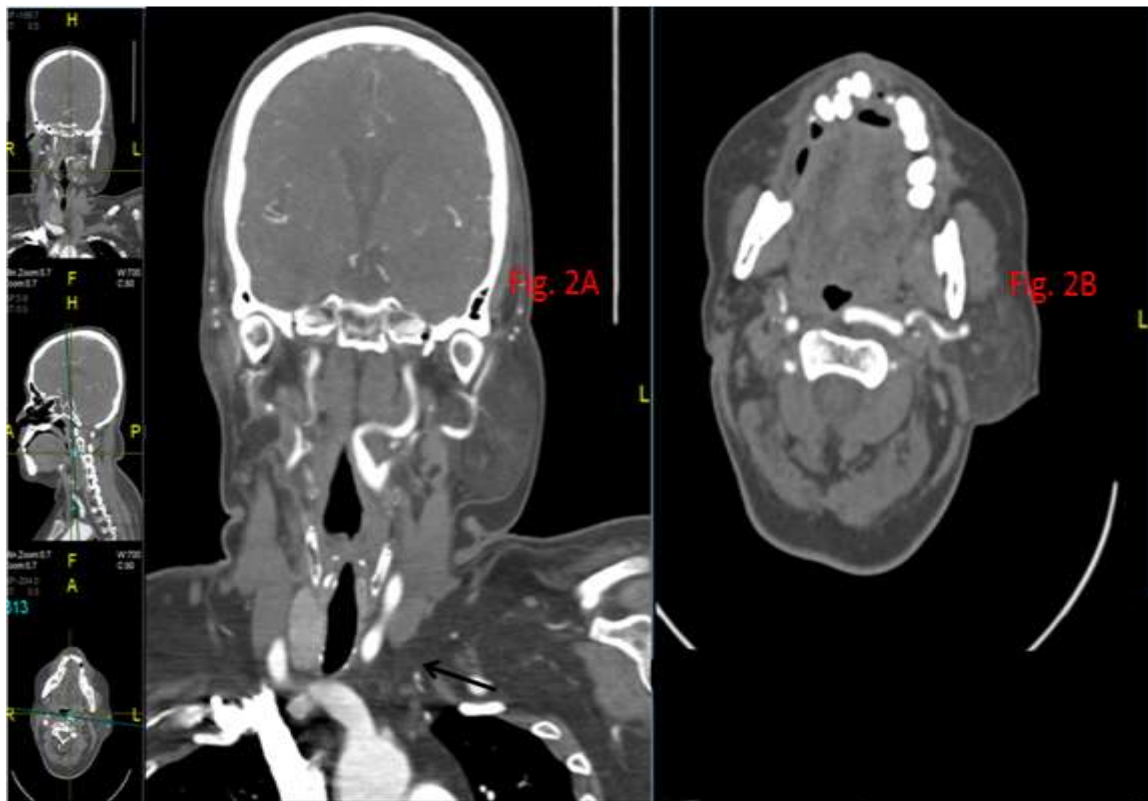


firm and did not move with tongue protrusion. There was no palpable cervical lymphadenopathy.

On endoscopy, a pulsatile mass with smooth overlying pharyngeal mucosa was noted at the left posterior pharyngeal wall, extending from the left posterior pharyngeal pillar to the left pyriform fossa. The supralaryngeal structures and the laryngeal inlet were normal without any pooling of saliva or presence of foreign body (Figure 1).

A computed tomography angiography (CTA) of the carotid artery from brain to upper thorax found medial deviation with kinked appearance of the cervical segment of left internal carotid artery at the level of C1/C2 vertebra causing medial bulging of left lateral pharyngeal wall and associated narrowing of pharynx in supraglottic region. Otherwise, both internal and external carotid arteries were well opacified without any filling defects (Figure 2A & 2B).

**Figure 2A/2B:** Images show the coronal and axial view of a computed tomography angiography (CTA) of the internal carotid artery (ICA) from head till thorax. The arrow pointing at the kinking of the cervical part of the left internal carotid artery, causing a pulsatile mass bulging from the left posterior pharyngeal wall



A fine needle aspiration for cytology (FNAC) of the right thyroid swelling was also obtained and showed colloid goiter with cystic degeneration. This patient opted for watchful waiting and is under routine follow-up.

## DISCUSSION

Globus, as a psychosomatic disorder, remains a diagnosis of exclusion [1]. Often, globus is not a stand-alone symptom and is mostly associated with other signs and symptoms suggestive of organic lesions. Globus is associated with organic lesions in only 3.7% patients and such lesions include oesophageal and pharyngeal cancer, and Zenker's diverticulum [2]. In our patient, a secondary malignancy of oropharynx and hypopharynx, apart from a thyroid disorder, was in the differential diagnosis, particularly with a history of previous neck radiation for treatment of high-grade mucoepidermoid carcinoma. Radiation therapy for head and neck tumors has its own complication such as thyroid disorder, secondary malignancy, polyneuropathy, weakening of vasculature wall and so forth. Among thyroid disorders, hypothyroidism, thyroid nodules, thyroiditis and even malignant transformation can occur within five years of radiation [3,4].

The cervical portion of ICA mostly runs a straight course from the base of skull. In 1965, Weibel and Fields first introduced a classification of abnormalities of tortuosity- a non-rectilinear stretch of an artery with angulation  $>90^\circ$ , coiling-loop or a  $360^\circ$  angulation of an artery, and kinking- the inflection of 2 or more segments of an artery with internal angle of  $90^\circ$  in ICA [5]. Ozgur et al [6] had studied the course of ICA bilaterally in cadaveric dissections in 50 Anatolian male cadavers. In his study, he classified the course of ICA as: straight, tortuosity, kinking and coiling. ICA abnormalities were found in 30% of cases, with 18% on the left. Kinking was found in five cases and two cases were located near the pharyngeal wall.

The mechanism of kinking of ICA is often associated with changes attributed to arteriosclerotic changes in arterial wall in adults. The increase in arterial pressure can cause alteration to the arterial wall over time [7,8]. Radiation causes direct damage to the arterial wall as is likely the case in our patient. In addition, radiation may also accelerate the progression of arteriosclerotic changes [9].

Congenital or idiopathic kinking of ICA is unlikely as symptoms arose much later in life.

## CONCLUSION

Finding a definite cause for globus pharyngeus has always been challenging and difficult. However, this should not deter a physician from a diligent diagnostic workup. In cases of pulsatile mass in pharyngeal region, CTA of carotid artery plays an important role in diagnosis. Globus pharyngeus in our patient due to a kink in the internal carotid artery is an unusual and interesting presentation.

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