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Postoperative carotid sinus syndrome presenting as sinus pause in an oral cancer patient: A rare but clinically significant case

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Oral cancer;
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Sinus pause

Oral cancer is a prevalent malignancy in Taiwan, with surgical intervention representing the gold standard of treatment. Although various complications occur following surgery, carotid sinus syndrome (CSS) is an exceedingly rare occurrence. In this article, we presented a Taiwanese female oral cancer patient who developed CSS presenting as a sinus pause one day postoperatively after neck dissection, triggered by neck movement during repositioning of the patient.

This 61-year-old female patient with type II diabetes mellitus was diagnosed as having a stage IV (cT4aN0M0) squamous cell carcinoma of the left maxilla. The patient subsequently underwent wide excision of the tumor, an ipsilateral modified radical neck dissection (type III), and free flap reconstruction. One day after the surgery, while the nurse was repositioning the patient in bed, she suddenly experienced desaturation with an 8-s sinus pause and loss of consciousness (Fig. 1). After spontaneous recovery, the patient reported no discomfort or other symptoms. In response to this event, transcutaneous pacing was applied. An initial workup was performed, including blood gas, electrolytes, cardiac biomarkers, thyroid function tests, an electrocardiogram, and a bedside cardiac echocardiogram; all results were unremarkable. For further investigation, a head and neck computed tomography scan and a 24-h Holter monitor were performed, both of which showed no significant findings. After several days of monitoring and upon discussing with the cardiologist, the permanent pacemaker implantation was not required at this time, suggested by the cardiologist. Following discharge, the patient was under regular outpatient follow-ups. No recurrence of the cardiac symptoms was observed up to date.

Carotid sinus hypersensitivity is an exaggerated carotid sinus reflex that is often asymptomatic. In contrast, CSS is characterized by the presence of symptoms such as hypotension, bradycardia, dizziness, syncope, sinus pause, or even asystole. Common triggers for CSS include neck movement, carotid sinus massage, or external compression.[1] Review of the literatures found case reports only. One case reported by Malli et al. describes postoperative sinus bradycardia in a pediatric patient following total thyroidectomy and neck dissection, potentially attributable to postoperative hypothyroidism or carotid sinus stimulation.[2] In two other cases, immediate asystole was triggered by intraoperative neck hyperextension during repositioning of the patient.[3] Additional reports have linked CSS to either

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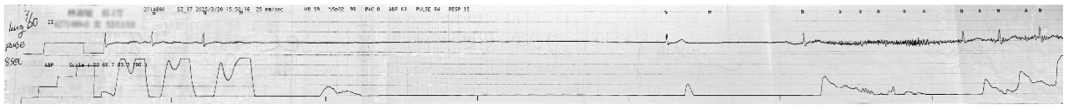

Fig. 1 Continuous bedside monitoring detected an 8-s sinus pause triggered by neck movement during repositioning of the patient, after which the heart rate returned to normal.

direct intraoperative stimulation of the carotid sinus or untreated tumor compression.[1,4,5]

To the best of our knowledge, this may be the first reported case of postoperative CSS in a patient with oral cancer. In this case, we believed that the sinus pause was a manifestation of CSS. The combination of neck movement during repositioning of the patient and the recent neck dissection surgery may serve as triggering factors. Currently, there is insufficient evidence to determine the degree of neck movement that may trigger CSS. To minimize such complications, we recommend preserving the integrity of the carotid artery and minimizing stimulation of the carotid sinus during surgery, as well as reducing neck movement postoperatively. In conclusion, oral surgeons should be aware of this rare complication and be well prepared for its management. Further research is warranted to clarify the underlying mechanisms and risk factors associated with this condition.

Declaration of competing interest

The authors have no conflicts of interest relevant to this article.

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References

1. Saparov D, Wasifusddin M, Hakobyan N, Khachik L, Aslam R. Carotid sinus syndrome with convulsive syncope in a patient with head and neck cancer. *Cureus* 2024;16:e62032.
2. Malli A, Skondras I, Vakaki M, Passalides A. Sinus bradycardia after extensive neck dissection and total thyroidectomy in a pediatric patient: a case report. *Surg J* 2020;6:e192—4.
3. Tarabanis C, Abt NB, Osborn HA. Intraoperative cardiac arrest etiologies in head and neck surgery: a comprehensive review. *Head Neck* 2018;40:1299—304.
4. Toscano M, Cristina S, Alves AR. Carotid sinus syndrome in a patient with head and neck cancer: a case report. *Cureus* 2020;12:e7042.
5. Klingenberg MG, Sinkeler SJ, Koopmans N, Plaat RE. Severe hypotension requiring resuscitation in tumour-related carotid sinus syndrome: a case report. *Eur Heart J Case Rep* 2024;8:ytae393.

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