Viabahn Stenting of the Carotid Arteries in the Setting of Head and Neck Cancer: A Single-Center Experience

Michael B. Silva, Jr., MD, University of Texas Medical Branch, Galveston, TX
Lily Cormier, BS, University of Texas Medical Branch, Galveston, TX
Dallin Swanson, BS, University of Texas Medical Branch, Galveston, TX

Objective:

Head and neck cancer may involve the carotid arteries and result in massive periprocedural or spontaneous bleeding.[1] Covered stenting of the carotid is appealing as a straightforward salvage option but efficacy is not entirely clear.[1,2,3,4] The purpose of this study was to evaluate the safety and effectiveness of self-expanding covered stenting (Viabahn®, W.L. Gore & Associates, Newark, Delaware) of the carotid arteries for treatment and prevention of carotid blowout syndrome (CBS) in adult patients with head and neck cancer (HNC) at our institution.

Methods:

A retrospective chart review was performed on patients with impending or acute CBS that received Viabahn stents in their carotid arteries between 2013 and 2023 at the University of Texas Medical Branch affiliated hospitals. A total of nine patients with HNC at the time of intervention were investigated with an assessment of complications and mortality at one month and one year postoperatively.

Results:

9 patients were identified to have undergone Viabahn stenting for CBS. Mean age was 57 and 100% were male. Periprocedural complications included a cerebrovascular accident (CVA) in 1 patient and recurrent hemorrhage in 2 patients. The CVA was treated with catheter-directed thrombolysis, and the re-bleeds were resolved with coil embolization of the external carotid artery (ECA). At the end of the one-year follow-up period, 3 patients were confirmed deceased, 1 was discharged on hospice and lost to documentation, and 5 were living, none of which had stent occlusion or late stroke.

Conclusion:

With low rates of post-operative re-bleeding and CVA, covered Viabahn stent deployment in the carotid arteries is a safe and effective option for both long-term treatment of carotid blowout, and as part of a palliative strategy for patients with advanced and incurable cancers.

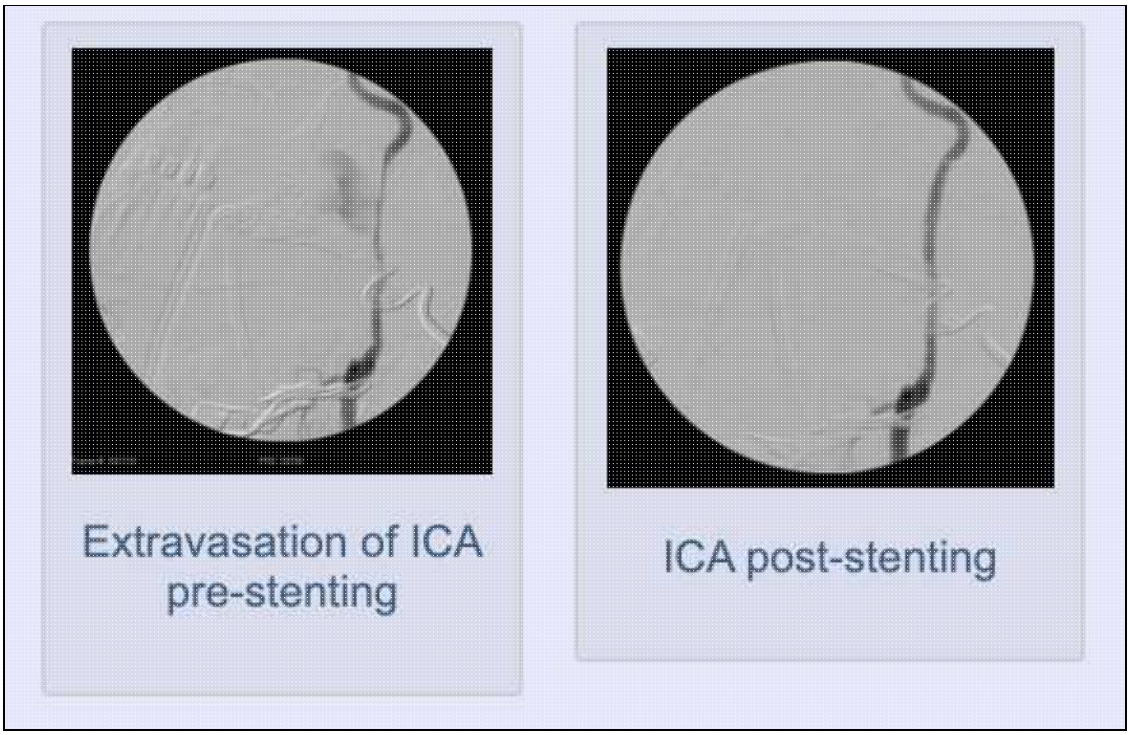

Fig 1 Figure 1. Pre and Post Fluoroscopic Imaging of Carotid Covered Stenting

Table 1. Retrospective chart review results.

Summary of patients with acute or impending carotid blowout syndrome treated with self-expandable Viabahn covered stents

Patient no./age (y)/Sex	Cancer Type & Treatment	Acuity	Location	Lesion Classification	Initial Complication	Follow-Up	Outcome
1/81/M	Oropharyngeal; R/T	Impending	CBF	Tumor encasing L carotid bifurcation	None	Not applicable	6 d. patient discharged on hospice, lost to F/U
2/62/M	Oral; resection, C/T, R/T	Acute	CCA	Extravasation of R subclavian side branches with soft tissue infiltration of the carotid spaces	None	Not applicable	2-mo, died from cancer progression
3/48/M	Laryngeal; resection	Acute	CBF	Erosion of L carotid artery at bifurcation from salivary fistula	None	Stent patency on 4-mo CDU	8-yr survival, lost to F/U
4/56/M	Oropharyngeal; C/T, R/T	Impending	CBF	Tonsillar necrosis encroaching on L carotid bifurcation	None	No F/U imaging obtained, Pt moved out of state	2-yr survival, lost to F/U
5/57/M	Hypopharyngeal; resection, C/T, R/T	Acute	CBF	Tumor encasing L carotid bifurcation and ulcerated plaque in CCA	2-mo, re-bleeding of embolized L lingual artery	Not applicable	3-mo, died from cancer progression
6/33/M	Oral; no treatment initiated	Impending	CBF	High risk of L carotid exposure	None	Not applicable	3-mo, died from cancer progression
7/65/M	Oropharyngeal; no treatment initiated	Impending	ICA	Tumor abutting L internal carotid	Same day, embolic infarct of L frontal, temporal, parietal, and occipital lobes	Stent occlusion on 6-yr CDU	Living
8/55/M	Oropharyngeal; resection, C/T, R/T	Acute	ICA	Acute bleeding from the L distal internal carotid artery adjacent to the skull base	None	No active extravasation of ICA on 1 d CTA	Living
9/56/M	Laryngeal; C/T, R/T	Impending	CBF	High risk of L carotid exposure	6 d, re-bleed of multiple branches of L thyrocervical trunk	Stent patency on 1-yr, 2-yr CDU	2-yr survival, died from cancer progression

Note.—CBF indicates carotid bifurcation; CCA, common carotid artery; CDU, carotid duplex ultrasonography; C/T, chemotherapy; CTA, CT angiography; ICA, internal carotid artery; R/T, radiotherapy.