Objective(s): Surgical exposure of high carotid bifurcations (HCBs) for carotid endarterectomy (CEA) can be technically challenging due to the presence of bony structures in the most cranial portion of the neck. Techniques performed to obtain adequate exposure in these patients are associated with significantly higher rates of cranial nerve injuries. For these reasons, practitioners may prefer carotid artery stenting for patients with HCBs and carotid artery disease requiring intervention. We present a high transverse neck incision with subplatysmal flaps as an alternative to the standard surgical exposure of the carotid bifurcation to facilitate CEA in these patients.

Methods: We report our experience with CEA in four patients with carotid bifurcations more cranial than the C2-C3 vertebral interspace. Preoperative imaging included carotid artery duplex scanning followed by computed tomography angiography to quantify the degree of stenosis and define the anatomy of the carotid bifurcation. The transverse cervical incision was marked in an existing skin crease, 3 cm below the inferior border of the mandible at the level of the hyoid bone, from the posterior auricular fossa to the anterior neck. Incision and access was performed by a vascular surgeon, and in two cases, an oral maxillofacial surgeon. Subplatysmal flaps were elevated caudally and superiorly. One patient was nasoendotracheally intubated. CEA was performed with bovine pericardial patch.

Results: Two patients were symptomatic upon presentation. One patient concurrently underwent carotid body tumor excision. Two patients had the posterior belly of the digastric muscle divided. There were no perioperative complications. Primary patency was 100% in the 3 patients with follow-up surveillance studies (mean follow-up 32 days). Two patients reported numbness, one confined laterally, and the other localized around the ear. Incidence of symptomatic cranial nerve injury was 0%. There was one postoperative hematoma managed non-operatively, and there were no infections. No patient required conversion to an endovascular procedure due to inaccessibility of the lesion or subsequent interventions for incomplete endarterectomies.

Conclusions: A high transverse incision with subplatysmal flaps is a safe, effective, and cosmetic surgical approach in patients with high carotid bifurcations requiring carotid artery intervention and may be considered an alternative to carotid artery stenting.