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The postoperative complications peculiar to thyroidectomy are crisis, bleeding, inadequate airway, and tetany. The one being reported is another consideration, namely vertebral artery insufficiency.

Powers' records four principal complexes that characterize the clinical features of vertebral artery insufficiency. These are (1) cochlear-vestibular symptoms, including vertigo, tinnitus, and nerve deafness; (2) vascular headache, usually unilateral and pounding in character with or without an aura and frequently associated with blackout spells; (3) visual symptoms of the perceptive type including diplopia, visual claudication, and transient bilateral field defects; and, finally (4) numbness and paresthesia of the arms. The case being presented fits into Powers second category.

### **Report of Case**

The patient was a 54-year-old white male, admitted to the Milwaukee County General Hospital in June, 1962, because of an episode of transient headache, lightheadedness, and near syncope occurring spontaneously while sitting. Similar episodes had occurred in the past, associated principally with turning his head to the right. The patient dated these symptoms back to 1958 after which time he underwent a **right subtotal thyroidectomy for a nodular nontoxic goiter.**

In reviewing the patient's hospital record at the time of his thyroidectomy, it was noted that the patient had a hemorrhage postoperatively and was returned to the operating room for control of bleeding from the right inferior thyroid artery.

Physical Examination.—This showed a blood pressure 114/80 right, 104/70 left; pulse 80. The neck was free of masses or bruits. Compression of the left carotid artery produced lightheadedness. The rest of the examination was essentially unremarkable. The patient had a neurological work-up including bilateral carotid angiograms, which showed no abnormalities.

On July 16, 1962, the patient was readmitted because of persistence of symptoms. Aortic arch studies were performed employing retrograde brachial angiography, and an occlusion of the right vertebral artery was noted. This occlusion was visualized only when the patient turned his head to the right .

On Aug 6, 1962, the patient underwent a neck exploration. Cicatricial bands were noted about the right vertebral artery, which twisted and occluded the artery at the point of fixation when the head was turned to the right. These cicatrices were lysed. The postoperative course was uneventful. The patient has been followed in the outpatient department for seven months and has had no recurrence of symptoms.

### Comment

In Cole's book, Operative Technic in General Surgery, the following is stressed in the procedure of thyroidectomy: "In this region, the blood supply to the thyroid, the lymphatic drainage, the position of the recurrent laryngeal nerves and the location of the parathyroid glands are of particular importance." However, if one scrutinizes the **"anatomical abode" of the thyroid gland, the contiguous structures of the carotid sheath and its contents, the vertebral artery and its close proximity to the thyrocervical trunk are also of importance.** In the case presented, bleeding was encountered postoperatively involving the inferior thyroid artery on the right side and it required a second exploration and control. Operative findings at the time of vertebral artery exploration showed cicatrices involving the thyrocervical trunk and the proximal segment of the vertebral artery. When the head was turned to the right twisted the vessel at its point of fixation cutting off its flow into the head.

Evidently the complication of bleeding with secondary cicatricial formation and fixation of the proximal segment of the vertebral artery was this man's difficulty. **What was an important consideration in this man's case is that he had bilateral carotid angiograms and yet his pathology was not determined. In patients who manifest cerebral symptoms, and where angiography is indicated, one is remiss in working up a patient completely if only the carotid systems are visualized, for visualization of the entire brachiocephalic axis which includes the vertebral artery and the proximal segment of the carotid must be demonstrated.** The technique of retrograde brachial angiography as described by Kuhn has served as an ideal approach for complete visualization of the brachiocephalic run-off, as was illustrated in this case.

### Summary

A case of vertebral artery insufficiency is presented. The causative factor was cicatrices about the vertebral artery due to hemorrhage after a thyroidectomy. Of prime concern is the importance of visualizing the entire brachiocephalic run-off in patients suspected of having cerebral symptoms due to extra-cranial vascular disease, and how retrograde brachial angiography is an excellent procedure in one's armamentarium for such study.

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## **REFERENCES**

1. Powers, S. R.; Drislane, T. M. and Iandoli E. W.: The Surgical Treatment of Vertebral insufficiency, Arch Surg 86 :60-64, 1963.

2. Cole, W. H., editor: Operative Technic in General Surgery, ed 2, New York: Appleton Century-Croft, Inc., 1955, pp 834-854.