A CASE OF VERTEBRAL ARTERY DISSECTION ASSOCIATED WITH THE USE OF A HANDHELD MASSAGER IN A 36-YEAR-OLD ACTOR

Mohammad H Bawany[1] BS; Victoria Kung[2] MD; Heather Ma[2] MD

[1] University of Rochester, School of Medicine and Dentistry, Rochester, NY, USA

[2] Department of Physical Medicine and Rehabilitation, University of Rochester Medical Center, Rochester, NY, USA

BACKGROUND

- Dissection of the carotid or vertebral arteries accounts for approximately 2 percent of all ischemic strokes, but is responsible for 10 to 25 percent of cases in younger patients.
- The vertebrobasilar circulation feeds the brain stem, cerebellum, occipital lobes, posterior temporal lobes, and thalamus.
- Patients usually present with a constellation of brainstem signs, specifically lateral medullary (Wallenberg) syndrome. The most common symptoms include ipsilateral facial dysesthesia (pain and numbness), dysarthria and dysphagia, contralateral limb or trunk numbness, vertigo, nausea, and diplopia.
- Vertebral artery dissection may be associated with trivial neck trauma, and there are reports of it occurring after neck manipulation and massage gun use.
- The outcome of VAD is usually benign, with most patients making a complete recovery.

MATERIALS AND METHODS

- Health Insurance Portability and Accountability Act (HIPAA) authorization was obtained for this case report. The report is devoid of patient identifiable information, it is exempt from IRB review requirements per University of Rochester policy

RESULTS/CASE REPORT

Case description: presentation to acute rehabilitation admission

A 36 year old male stage performer with history of recreational edible marijuana use presented with sudden onset neck pain and occipital headache, followed by right sided weakness, slurred speech, blurred vision, and dizziness. He had returned home from performing a few hours prior and had used a 3000 rotations per minute handheld massage gun on his neck area for an unspecified amount of time. The moving elements consisted of two approximately 2-cm-diameter spheres that percuss the skin.

CT angiography showed occlusion/non-visualization of the right vertebral artery origin and moderate narrowing in its V1 segment with surrounding wall thickening/intramural hematoma, concerning for vertebral dissection. Decreased caliber and mild irregularity of the right V2 was also noted. MRA showed small foci of abnormally restricted diffusion in the right cerebellar hemisphere and right lateral medulla consistent with small late acute early subacute infarcts.

Case description: acute rehabilitation admission to discharge

Exam after transfer to the acute rehabilitation unit was notable for persistent right sided weakness, slightly slurred speech, right sided dysmetria, and dizziness. The patient required moderate assistance to ambulate without a device and had an ataxic gait.

The patient spent 10 days on the acute rehabilitation floor and participated in at least 3 hours of therapy during weekdays, including physical therapy, occupational therapy, and speech therapy. On discharge, patient's blurred vision, dysarthria, dizziness, and dysmetria had resolved, and the patient was able to ambulate unassisted with a cane.

Case diagnosis

Vertebral artery dissection due to massage gun.

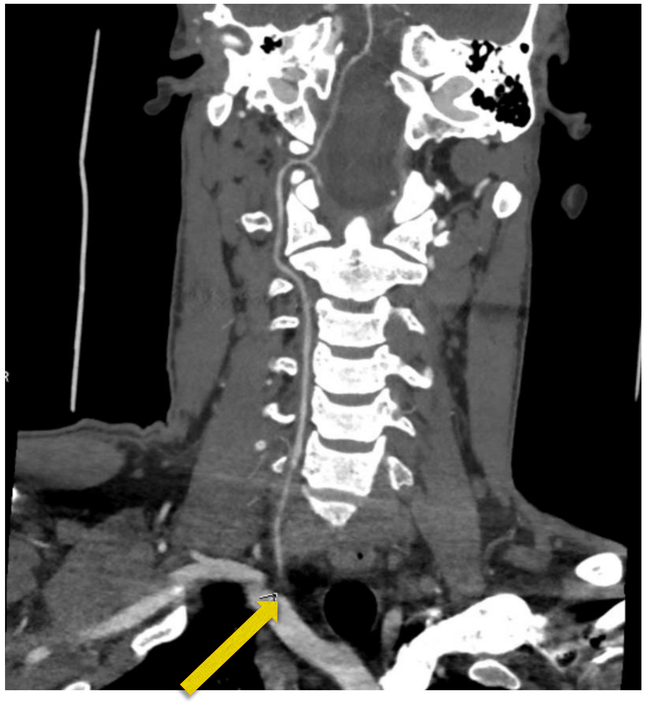

Figure 1: CT angiography shows occlusion/non-visualization of the right vertebral artery origin and moderate narrowing in its V1 segment with surrounding wall thickening/intramural hematoma, concerning for vertebral dissection

DISCUSSION AND CONCLUSION

- This report discusses a case where sudden, high amplitude forces from an electric massager applied to the neck may have led to an ischemic stroke from a vertebral artery dissection.
- Handheld electric massagers may come with potential hazards if used for neck massage, such as vertebral artery dissection and acute stroke.
- Although mechanisms are not completely clear, a relationship between arterial dissection and minor trauma from percussion massagers may exist.
- Efforts to promote proper use of these devices are necessary, including warning populations predisposed to vascular pathology, and altering graphics of massagers being used on vulnerable areas, such as the neck.

REFERENCES

- Grant AC, Wang N. Carotid dissection associated with a handheld electric massager. South Med J. 2004. 97(12):1262-3.
- Sethi N, et al. Vertebral Artery Dissection Due To The Use Of A Hand Held Electric Massager. The Internet Journal of Neurology. 2005. 5(2).
- Dutta G, Jagetia A, Srivastava AK, Singh D, Singh H, Saran RK. "Crick" in Neck Followed by Massage Led to Stroke: Uncommon Case of Vertebral Artery Dissection. World Neurosurg. 2018. 115:41-43.
- "Handheld neck massager." Https://www.health.com/mind-body/flyby-f1pro-deep-tissue-massage-gun. Retrieved 1/20/2021