Surgical treatment of symptomatic cervical venous hum

A 28-year-old woman presented with pulsating tinnitus in the right ear and a venous hum heard over the right internal jugular vein. Maneuvers which abolished the hum also eliminated the tinnitus. Permanent symptomatic relief was achieved by ligation of the right internal jugular vein.

F. James Brennan, M.D.,* and Tomas A. Salerno, M.D.,** Kingston, Ontario, Canada

The cervical venous hum, a common finding in children and young adults, is usually asymptomatic and of no clinical significance except for the fact that it may be mistaken for other murmurs. We report herein the case of a patient in whom a venous hum caused annoying tinnitus which was abolished by ligation of the internal jugular vein.

Case report
A 28-year-old woman was referred from the Neurological Service of Queen's University for evaluation of pulsating tinnitus in the right ear. This was described as a "rushing" sound, synchronous with her pulse, which had been present for 3 years. Initially it had been present only when she turned her head to the left; by the time she presented, however, it was present constantly except when she turned her head to the extreme right. It persisted even in the recumbent position. She had found that light manual pressure on the right side of her neck abolished the symptom and, in order to sleep, she would have to lie with her hand or some other object pressing there. Previous investigations included a complete blood count, thyroid function studies, electrocardiogram, tomography of the internal auditory canals, skull and chest roentgenograms, computerized tomography of the head, an audiogram, a right carotid angiogram, and a right retrograde brachial angiogram, all of which showed no abnormalities. The only remarkable finding on physical examination was a bruit heard in the right supraclavicular fossa at the lateral edge of the sternocleidomastoid muscle. It was low pitched, crescendo-decrescendo in character, synchronous with the cardiac cycle, and peaked at approximately the time of the second heart sound. It was accentuated by turning the head to the left and abolished by light pressure over the right internal jugular vein and by the Valsalva maneuver (Fig. 1). The patient's tinnitus disappeared when the bruit was abolished. There were no signs of local disease such as venous distention, warmth or discoloration of the skin, local swelling, or a thrill.

A diagnosis of symptomatic cervical venous hum was made. The patient was offered a prosthetic device designed to be worn on the neck and to apply continuous pressure over the right internal jugular vein, but she refused this as being cos-

Fig. 1. Preoperative phonocardiograms recorded simultaneously over the left and right internal jugular veins. Electrocardiographic Lead II is also displayed on each panel. Time lines are at 40 msec intervals. Each panel shows the loud venous hum recorded on the right side. Panels A and B document its disappearance during light manual compression of the right internal jugular vein and during the Valsalva maneuver, respectively.
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metrically unacceptable and a nuisance. Ligation of the right internal jugular vein was then carried out under local anesthesia. Both the venous hum and the symptom of tinnitus were abolished immediately. The postoperative course was uncomplicated and at 3 months she remains free of symptoms.

Discussion

The cervical venous hum is believed to be due to turbulent flow of blood in the internal jugular vein as a result of kinking of the vein against the transverse process of the atlas. It occurs in all children and in 27% to 66% of young adults, and it is common in patients with high cardiac output states such as anemia, thyrotoxicosis, and pregnancy. Because it is common in young adults, its presence in this patient was not surprising. The unusual feature, however, was the fact that the patient was aware of, and bothered by, the venous hum. It was not difficult to establish that the patient’s tinnitus was caused by the venous hum, since all maneuvers which abolished the hum also eliminated the tinnitus. Why the hum should have been audible to this patient, while most other patients with one are unaware of it, remains unanswered. We can only note that an extensive investigation failed to reveal any evidence of local disease.

We are aware of only one other case report of a patient with a symptomatic cervical venous hum. In that case, symptomatic relief was obtained by the use of a prosthetic device which our patient was not willing to consider. Because it was clear that occlusion of the right internal jugular vein relieved our patient’s symptom, ligation of the vein was recommended and was carried out with a successful result. This method of therapy, though previously untried to our knowledge, was suggested by Cary in his original case report as a possible treatment for symptomatic venous hum.

Finally, it should be noted that pulsating tinnitus is not an uncommon symptom. It often bothers nervous or introspective patients who hear their pulse when lying with one ear on the pillow, and occasionally it may be a symptom of an intracranial vascular malformation. This case illustrates that a symptomatic cervical venous hum should also be considered in the differential diagnosis of such a complaint, since this condition is both easily overlooked and easily treated.

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REFERENCES