

The Relationship Between Pregnancy and Vestibular Schwannoma: A Historically Ignored Aspect of Tumor Management



Ahmed Alnemari, MD, MPH, Michael S. Harris, MD; Karl Doerfer, MD; Nathan T. Zwagerman, MD; Erin Harvey, MD

Medical College of Wisconsin

Background:

Vestibular schwannomas are benign tumors that take origin from the vestibulocochlear nerve and represent a significant problem due to the effects they can have on hearing and balance. Pregnancy poses a unique challenge in VS management, where in physiological changes may alter tumor behavior and symptomatology. Historically, there has been an actual lack of awareness about the relationship between pregnancy and VS. This study will test the hypothesis that pregnancy will either exaggerate symptoms or promote tumor growth with exploration of differences between sporadic VS and NF2-associated VS in pregnant patients.

Results

The review and cohort study establish that VS in pregnant women can be more symptomatic than in non-pregnant patients. The effect of increased blood volume and hormonal fluctuation is suspected to predispose to worsen the symptoms of vertigo and hearing loss in this period. Moreover, in some cases, a growth rate increase in the tumor during pregnancy was noticed, suggesting a direct effect of physiological changes related to pregnancy on the dynamics of the VS. In the longitudinal cohort study, it emerged that the pattern of growth during pregnancy differs for both sporadic VS and NF2-associated VS. Sporadic VS showed variable growth; some remained stable, whereas others increased in size. By contrast, the NF2-associated VS showed an increased pattern of growth, which was consistent in the majority, suggesting this could be due to the predisposing germline mutation.



Methods and Materials

Discussion

Literature review with regard to presentation, behavior, and

Results underscore the need for specialized VS surveillance and

management of VS in pregnancy was taken into account in the form of case reports, longitudinal studies, and systematic reviews. This was accompanied by the longitudinal follow-up of a cohort of consecutive pregnant patients diagnosed with VS, with regard to changes in tumor size and symptom severity. Detailed imaging studies were complemented by hormonal assays and molecular genetic analyses in an attempt to understand physiological and molecular changes influencing VS during pregnancy.

management strategies in pregnancy. Exacerbation of symptoms and potential accelerated tumor growth call for tight interdisciplinary collaboration between otolaryngologists, neurosurgeons, obstetricians, and genetic counselors. Imaging and hormonal monitoring should be regularly performed to follow up tumor behavior and guide clinical decisions. This, therefore, underlines the importance of sporadic VS and the pregnancy effect on the NF2associated VS: this must be guided by individualized care. It would be very useful to find out genetic and molecular profiling of tumors for individual tailored treatment strategies that bring optimum benefit to both the mother and the fetus.

Conclusions

Pregnancy significantly influences the presentation and behavior of vestibular schwannomas, necessitating revised management strategies. This study highlights the need for longitudinal assessments and comparative research to understand VS growth during pregnancy, especially in NF2-associated cases. Enhanced awareness and comprehensive guidelines are recommended to improve diagnosis and care for pregnant patients with VS.

Keywords

Vestibular Schwannoma, Pregnancy, Neurofibromatosis Type 2, Tumor Growth, Symptom Exacerbation, Longitudinal Study, Personalized Medicine, Interdisciplinary Collaboration.

Contact

Ahmed Alnemari, MD, MPH, FRCSc Medical College of Wisconsin 8701 W Watertown Plank Rd, Milwaukee, WI 53226 aalnemari@mcw.edu 4144065951

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