INTRODUCTION

The confluence of intracranial venous sinuses that drains through the temporal bone into internal jugular vein in the neck is defined as the jugular bulb. It is hypothesized that dilatation of the jugular bulb occurs with the attainment of an upright posture after the age of two years. The jugular bulb can become pathologic when it is enlarged and causes local audiolinguistic or vestibular symptoms, including dizziness, conductive hearing loss, sensorineural hearing loss, vertigo, and pulsatile tinnitus. Additionally, irregular outpouchings off of the jugular bulb, jugular bulb diverticula, can cause symptoms from dehiscence with the same inner ear structures.

The prevalence of high riding jugular bulb has been cited from 8-32.5%, and the prevalence of jugular bulb diverticula ranges from 3-7.9%. It has been hypothesized that the size of the jugular bulb is influenced by increases in flow through it, and therefore, that internal jugular vein sacrifice might influence the size of the jugular bulb. In this study, the authors sought to determine if internal jugular vein ligation influenced the size of the contralateral or ipsilateral jugular bulb, which might have implications for treatment of patients with symptomatic jugular bulb abnormalities.

RESULTS

110 patients met the criteria for inclusion in the study and had a unilateral neck dissection with preoperative and postoperative CT scans available for review. Of these 110 patients, 19 (17.3%) underwent surgical ligation of the internal jugular vein during the procedure. 63 patients had right sided surgery, and 47 patients had left sided surgery. The jugular bulb was dominant on the right side in 55/110 (50%), left in 2/100 (22%), and equal in 33/100 (30%). 6 patients had a high riding jugular bulb (5.5%), of which 5 were on the right side and 1 was on the left side.

Overall, mean preoperative jugular bulb cross sectional area on the right was 65.0 mm², and on the left 51.5 mm². Mean preoperative sizes based on surgical side and performance of ligation is detailed in Table 1. Analysis of variance was used to compare the average change in jugular bulb size between surgery with and without ligation of the internal jugular vein, and surgery contralateral to the measured jugular bulb with and without ligation of the jugular bulb. This revealed a statistical difference (p=0.03) in the means. Further analysis demonstrates that the mean change in size of the jugular bulb ipsilateral to surgery with sacrifice of the internal jugular vein to be -10.0 mm² (95% CI +/- 3.81 mm²), ipsilateral to surgery without sacrifice of the internal jugular vein -0.42 mm² (95% CI +/- 3.21 mm²); contralateral to surgery with sacrifice of the internal jugular vein -1.65 mm² (95% CI +/- 10.16 mm²); and contralateral to surgery without sacrifice of the internal jugular vein 0.67 mm² (95% CI +/- 2.80 mm²).

REFERENCES