

Symptomatic small schwannoma is a risk factor for postoperative neurological deficits

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Background: Predicting postoperative neurological deficits in schwannoma is crucial; however, the risk factor of it including the preoperative symptoms and neurological findings have not yet been fully clarified.

Questions/purposes: We analyzed clinical features and postoperative neurological deficits of 131 schwannomas in the extremities and trunk from 107 patients and asked: (1) What kind of schwannoma was symptomatic? (2) What factors influenced the postoperative neurological deficits? (3) Were clinical symptoms correlated with the difficulty of enucleation without neurological deficits?

Methods: The correlation between clinical features and postoperative neurological deficits were analyzed.

Results: One-hundred three tumors (78.6%) had the preoperative neurological symptoms; these symptoms were detected in 93.3% of small tumors (<4 cm³). The postoperative neurological deficits were detected in 21 cases (16%). In statistical analysis, small tumors were significantly correlated with Tinel sign ($p < 0.001$), and were marginally significant with postoperative deficits ($p = 0.05$). Moreover, small tumors accompanying numbness were significantly correlated with postoperative deficits ($p = 0.04$). One-hundred six schwannomas were easily enucleated without neurolysis, the other 25 schwannomas showed the normal nerve bundles widely splayed over the tumor's capsule. Moreover, 14 of the 25 cases developed the postoperative neurological deficits. These findings might be correlated with the tumor location, for instance the central or peripheral.

Conclusion: In this study, symptomatic schwannomas were usually detected within the small size (<4 cm³). Preoperative numbness of small tumors was significantly correlated with postoperative neurological deficits, which may be a novel risk factor. Our findings suggest that this symptom might be correlated with the tumor location (central).