

Surgical Treatment of Peripheral Nerve Tumors

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Purpose: Neurogenic tumors are classified as various subentities, and a cautious diagnostic approach is necessary. Schwannoma is a benign, encapsulated tumor originating from Schwann cells of the peripheral nerve sheath. Granular cell tumor is a rare neoplasm derived from Schwann cells, characterized by distinct pathologic findings. The tumor has been called “granular cell myoblastoma,” since the biologic origins of this lesion were unclear. Nonetheless, Fisher and Wechsler et al. demonstrated histiogenesis of the lesion from Schwann cells using immunohistochemistry, including S100 protein. The tumor should be treated to avoid recurrence or metastasis. In this study, we present patients with Schwannomas and granular cell tumors that exhibit atypical features.

Methods: Data on 37 patients with Schwannoma and 4 patients with granular cell tumors were reviewed. Among the Schwannoma patients, three did not show typical signs, such as numbness or aching pain. Among the four granular cell tumors, one tumor arose from a previous neurofibroma site. Notably, one granular cell tumor exhibited malignant features, necessitating in-depth analysis.

Results: Clinical presentation and imaging studies of significant patients are described.

A 71-year-old patient presented with a palpable mass on the wrist. For a diagnostic imaging study, computed tomography (CT) was performed. There was a round, homogeneous mass in

the volar wrist, superficial to the flexor tendons/muscles, and the impression was a ganglion cyst or schwannoma. During the operation, the lesion was connected with median nerve branches, and the pathologic report showed schwannoma.

A 66-year-old patient presented with a mass on the left thigh. MRI showed a high-signal mass within the muscle. The impression was a hypervascular soft-tissue tumor or sarcoma. Intra-operative findings exhibited a connection to femoral nerve branches, and the pathologic report showed schwannoma.

A 43-year-old patient showed a recurrent mass (previous neurofibroma) on her abdomen. Ultrasonography showed increased vascularity. Recurrent neurofibroma or angioleiomyoma was possible. After surgical excision, a granular cell tumor was diagnosed.

A 51-year-old patient presented with a mass on her mid-back. MRI showed heterogeneous enhancement, and a soft-tissue sarcoma was possible. A wide surgical excision was performed with safe resection margins, and the pathologic report showed a malignant granular cell tumor.

Conclusion: Neurogenic tumors typically show symptoms based on the tumor's location. Characteristic MRI findings include a highly hyperintense lesion, or the "target Sign". Nonetheless, patients who do not reveal typical symptoms and images showing other tumor characteristics can also be diagnosed as schwannoma or granular cell tumor. In this regard, a wide range of considerations is necessary during the interview and preoperative examination.