A 56-year-old woman was admitted to the hospital because of progressive paresis of the left arm. Clinical examination revealed upper brachial plexus palsy and complete anesthesia and analgesia in segments C5–7. MRI demonstrated diffuse tumorous infiltration of the left brachial plexus with centrifugal growth from the dorsal spinal root of segment C6. Biopsy of the lesion revealed a malignant schwannoma and resection was performed. Two months postoperatively, tumor recurrence was suspected on MRI in the left axilla and the supraclavicular part of the brachial plexus. However, it was not possible to define the extent of tumor recurrence exactly owing to limitations of MRI in differentiating viable tumor from postoperative scar tissue. PET imaging, conversely, provides functional data for detection of viable tumor regions and is considered a sensitive tool in the diagnosis of schwannoma. Accurate anatomic localization of focal tracer uptake is, however, difficult because of the reduced spatial information. Therefore, we decided to perform dual-modality PET/CT imaging using [18F]-2-fluoro-2-deoxy-d-glucose as a radioactive tracer. By combining function and anatomy, PET/CT was able to detect residual tumor in the dorsal roots of C4–7 and to define different sites of viable tumor along the axis of resection extending to the proximal left arm (figure). Based on the PET/CT data, operative exploration was extended into the spinal canal to obtain complete tumor resection.

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