

Perineural spread of pelvic tumors
mechanism and diagnosis

Abstract

Neoplastic lumbosacral plexopathies are infrequent affections of the lumbosacral plexus. Cases with minimal or non-specific finding on imaging can be particularly puzzling to diagnose. We describe a series of patients with perineural spread from the site of the primary tumor along the visceral autonomous nerves to the lumbosacral plexus and further proximally to the spinal nerves and even intradurally and also distally to the sciatic nerve. On series of 17 patients diagnosed with perineural spread of pelvic malignancy we describe characteristic clinical presentation and imaging finding. In many of these cases a tissue biopsy is necessary to finalize the diagnosis. We describe operative technique of targeted fascicular biopsy of the sciatic nerve and our experience with this procedure. On series of 117 patients, we report the outcome and complication: diagnostic yield was 84.8% and complication rate was 2.7 %. If a tissue sample is needed to conclude the diagnosis, targeted fascicular biopsy does increase the yield at an acceptable complication rate. Perineural spread of pelvic cancer is a new clinical-pathological entity with an unknown natural history or ideal treatment strategy. Based on the imaging finding in this group we present a first mathematical model of perineural spread. We believe that our experience will lead to improved diagnosis of similar patients as the risk of misdiagnosis is high and leads to irreversible damage.