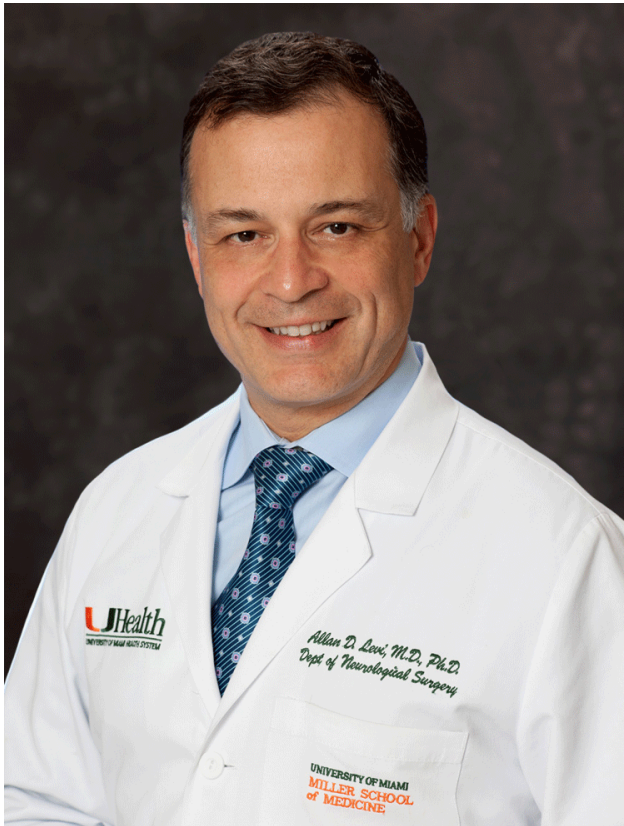


Dr. Allan Levi's Peripheral Nerve Surgery Study Named 'Paper of the Year' by Congress of Neurological Surgeons

A Miller School study led by Allan D. Levi, M.D., Ph.D., highlighting patient safety concerns with biopsies of benign peripheral nerve sheath tumors has been recognized as the "Paper of the Year" by the Congress of Neurological Surgeons (CNS) – the second year in a row that Dr. Levi has received this distinction.

"Each year, *Neurosurgery*, the highest impact journal in our field, selects top papers in each subspecialty for the year and subsequently issues an award for best overall paper," said Dr. Levi, professor and chair of neurosurgery, chief of neurosurgery at Jackson Memorial Hospital, and the Robert M. Buck Distinguished Chair in Neurological Surgery.



Dr. Allan D. Levi

“Last year’s top paper award was in the field of spinal surgery examining prospective data on the 10-year outcomes of cervical artificial discs,” said Dr. Levi, who received the award at the CNS’ Virtual Annual Meeting on November 5. “This year’s article was selected Top Paper in Peripheral Nerve Surgery and then Paper of the Year.”

Dr. Levi was the senior author of the article, “The Risk of Peripheral Nerve Tumor Biopsy in Suspected Benign Etiologies,” published in the March 2020 issue of *Neurosurgery*. Miller School co-authors were current residents Shelby S. Burks, M.D., Iahn Cajigas, M.D., and Roberto Perez, M.D., as well as Luca Debs, M.D., who was a medical student at the time of the study and is now a resident at Medical University of South

Carolina in Charleston. “This research could not have been done without the critical eye and data acquisition of our program’s excellent trainees’ contributions,” said Dr. Levi.

“Our study focused on the safety of biopsy in peripheral nerve sheath tumors (PNSTs),” he said. “PNSTs are often referred for biopsy after imaging, which can put bundles of nerve fibers called fascicles at risk. Our findings clearly indicate that biopsies are not necessary and should be avoided in patients with a suspected benign peripheral nerve tumor.”

The Miller School team reviewed a database of 225 peripheral nerve tumors including 151 PNST cases treated at the Miller School by a single surgeon between 1997 and 2019. Only 35 of the patients underwent preoperative biopsy, but 42.9 percent of those patients experienced new or worsening neurological signs immediately following the biopsy.

After controlling for other variables, the researchers found that only biopsy was associated with a high rate of nerve deficits following the diagnostic procedure as well as after surgical treatment. “In benign tumors, biopsy poses an unacceptably high risk for neurological deficits,” said Dr. Levi.

Benign PNSTs are usually slow-growing lesions along the nerve that are painful to patients, but do not create muscle weakness or movement problems. In contrast, malignant PNSTs, also known as neurofibrosarcomas, tend to be rapidly enlarging lesions that cause severe pain and progressive motor deficits. If malignancy is suspected, a percutaneous ultrasound-guided needle biopsy should be performed, said Dr. Levi.

“Careful selection is imperative prior to proceeding with biopsy of nerve sheath tumors exhibiting benign features given the unacceptably high rate of neurological decline,” he said. “Early referral and evaluation by surgical specialists with expertise in peripheral nerve tumors can mitigate negative long-term outcomes.”

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