

A Dedicated Space and New Momentum for Wide-Awake Hand Surgery

Hand surgery without tourniquets, sedation, or general anesthesia—once unthinkable—is in the midst of a remarkable renaissance thanks to a burst of recent research demonstrating the safety, efficacy, and benefits of a technique once limited by misconceptions.

Wide-awake hand surgery with only local anesthesia—first championed by Canadian surgeons—has been implemented by a few U.S. institutions, and is becoming a growing topic of discussion among hand surgeons. NYU Langone will become one of the first centers in the country to formalize a wide-awake hand surgery program, with a dedicated check-in area and surgery room at its Outpatient Surgery Center opening in January 2017. “One key advantage of the technique is the ability to dispense with general anesthesia and sedation that can lead to negative side effects and complications for the patient,” says S. Steven Yang, MD, MPH, clinical associate professor of orthopaedic surgery, who led the launch of the center.

REMOVING THE EPINEPHRINE SAFETY BARRIER

Anesthesia is currently administered routinely to counteract the intense discomfort of sustained tourniquet pressure—up to 200 to 250 mm Hg—used to provide a bloodless field for hand and arm surgery. As a vasoconstrictor, epinephrine limits bleeding and prolongs the anesthetic effect by delaying its dissipation through the blood stream, but was thought to be hazardous. “We were always taught that we shouldn’t use epinephrine,” Dr. Yang says, based on the mistaken belief that an overwhelming vasoconstrictive effect in the fingers’ small vessels could lead to ischemia and necrosis. But recent studies now suggest that the true culprit of epinephrine-related complications was likely impurities in the anesthesia formulations, lending the concept of wide-awake hand surgery a major boost by eliminating the tourniquet.

Based on this new insight, doctors are using a large dose of local anesthetic such as lidocaine, mixed with epinephrine, to numb the surgical site and constrict the blood vessels. The high volume of incoming medication offers a secondary benefit by reducing bleeding via the tamponade effect. “Almost like inflating a balloon inside the arm or the hand, it pinches off the blood vessels,”

Dr. Yang says. “The combination of those features enables us to do the surgery without a tourniquet. And if we don’t use the tourniquet, we don’t need to give the sedation or general anesthesia drugs.”

“If you don’t need to give the drugs, you don’t have to have patients doing all of this preoperative testing, which is costly and inconvenient for patients,” adds Dr. Yang.

CONFIRMING SURGICAL EFFICACY IN REAL TIME

Although a wide variety of surgeries may prove amenable to the surgical technique, the department is beginning by offering the approach for smaller procedures, such as releases of carpal tunnel, trigger finger, De Quervain’s, and wrist tendinitis, as well as excisions of ganglions and cysts around the wrist.

Beyond improved safety, efficiency, and cost savings, patients who remain awake during the procedures can provide constructive feedback to their surgeons, Dr. Yang says. After surgery to release a patient’s trigger finger, for example, he can ask the patient to make a fist and slowly straighten out the affected finger to determine whether the tendon is still catching.

Likewise, for patients who have had tendon lacerations repaired, surgeons can ask them to move their hands and fingers to assess the strength and quality of the repairs and determine whether more work is required. “We can actually check patients’ movements while they’re on the operating table, where the hand is still open,” Dr. Yang adds. “There is obviously a significant advantage there.”

In conjunction with the surgical program’s official launch, Dr. Yang and colleagues are initiating several prospective studies to assess patient satisfaction, clinical outcomes, and potential cost savings of wide-awake hand surgery. For patients, he says, the eventual payoff could be a safe and effective procedure that makes hand surgery akin to going to the dentist for a filling.



↑ S. Steven Yang, MD, MPH