Team explores surgery technology resulting in fewer incisions

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Through the use of a newly developed needle arthroscope, incisionless and single-incision surgical procedures are possible for repairing certain types of knee and shoulder injuries suggests a series of Marshall University studies published in *Arthroscopy Techniques*, a companion to *Arthroscopy: The Journal of Arthroscopic and Related Surgery*.

The NanoScope needle arthroscopy system, developed by Arthrex, is both diagnostic and therapeutic in that it allows for direct visualization of intraarticular pathology and nanoscopic instrumentation to treat that pathology, making it a substitute for regular arthroscopy in certain cases.

In the *Arthroscopy Techniques* articles, Chad D. Lavender, M.D., lead author and assistant professor of orthopaedic surgery at the Marshall University Joan C. Edwards School of Medicine, and his team use the NanoScope to perform three types of repair procedures—a single-incision rotator cuff, incisionless partial medial meniscectomy and a single-incision anterior labrum repair. The 1.9 mm NanoScope allowed for fewer to no incisions, resulting in decreased loss of and need for fluid, less swelling and pain and decreased risk of wound infection. However, viewing angles were found to be more limited, meaning the use of a traditional arthroscope may be needed during certain procedures.

"We have yet to fully realize the full potential of the NanoScope as its small size and function make it a prime candidate for other procedures," Lavender said. "Future studies will explore these possibilities."

To date, Lavender and his team have successfully completed more than 15 NanoScope procedures. Patients have reported less pain as well as easier early recovery and return to function. Additional team members include Dana Lycans, M.D., assistant professor of orthopaedic surgery at the school of medicine, and orthopaedic residents, Syed Ali Sina Adil, M.D., Galen Berdis, M.D., Adam Kopiec, M.D., Ardalan Sayan, M.D. and Thomas Schmicker, M.D.

More information: Chad Lavender et al. Nanoscopic Single-Incision Anterior Labrum Repair, *Arthroscopy Techniques* (2020). DOI: 10.1016/j.eats.2019.10.010

Chad Lavender et al. Incisionless Partial Medial Meniscectomy, *Arthroscopy Techniques* (2020). DOI: 10.1016/j.eats.2019.11.003

Chad Lavender et al. Single-Incision Rotator Cuff Repair With a Needle Arthroscope, *Arthroscopy Techniques* (2020). DOI: 10.1016/j.eats.2019.11.012

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