

## UM CMG Neurosurgery Clinicians Make Changes to Minimally Invasive Spine Surgery Leading to Major Improvements in Patient Outcomes

### Innovation and Clinical Integration

*Minimally invasive spine surgery is paving a safer way for patients to get back on their feet faster than ever before. Likely due to the already low rate of complication, few changes have been made to spinal fusion techniques since their adoption in the early 2000s — until now.*

Traditional “open” spine surgery can have many complications — the surgeon must cut the spinal muscle and tissue and move it out of the way to access the bone, which can cause damage. With a minimally invasive approach, surgeons access the spine via a small tube and make a much smaller incision. This approach is also less likely to damage the surrounding tissue or cause major complications.

A common complication of any spine surgery (both open and minimally invasive) is the accidental tearing of the dura mater, a thin layer of tissue that covers the spinal cord. Tears can be easily fixed during surgery, but if not treated the Cerebral Spinal Fluid (CSF) can leak out and cause symptoms such as severe headaches.

One particular technique in spine surgery, Minimally Invasive Transforaminal Lumbar Interbody Fusion (MITLIF), is used to treat patients with back pain and leg pain as well as other issues by joining the vertebra together to stabilize it and reduce pain.

Neurosurgeon **Khalid Kurtom, MD**, and nurse practitioner **Wendy S. Towers** of University of Maryland Community Medical Group – Neurosurgery, have introduced a novel modification to the standard MITLIF approach which significantly reduces the risk of tearing the dura mater during surgery. The modification leaves the bony structure covering the spinal canal intact during part of the fusion surgery, which reduces the risk of tearing the dura mater. Dr. Kurtom and Towers have performed this technique on more than 400 patients at the UMSore Medical Center in Easton.



Wendy Towers and Khalid Kurtom, MD

“This modification takes an already advanced form of minimally invasive spine surgery to another level of expertise,” said Dr. Kurtom. “We are pioneering the highest quality techniques to get our patients back on their feet and feeling better with little to no risk.”

Dr. Kurtom and Towers [recently published](#) an investigational review, "Modified Minimally Invasive Transforaminal Lumbar Interbody Fusion Technique Can Potentially Improve Safety of Interbody Graft Placement," in the journal *Operative Neurosurgery*, which highlights the most advanced neurosurgical techniques from around the world.

In the review, Dr. Kurtom and Towers analyzed the surgical cases of 83 of their patients on whom they performed the modified procedure between November 2011 and December 2013, looking at patient demographics, estimated blood loss, operative time, complications during surgery and length of stay. Like the standard MITLIF procedure, most modified MITLIF patients left the hospital the same day or next day. Only four patients experienced complications (4.8%) and zero patients experienced tears of the dura mater or CSF leaks.

"Our retrospective study showed that performing the modified MITLIF technique enhances overall patient safety and outcomes," Dr. Kurtom added, noting he and Towers hope to further clinical research on this topic.