Pelvic-repair device developed by UT Southwestern surgeons enables minimally invasive trauma surgery

DALLAS – March 21, 2011 – A device developed by UT Southwestern Medical Center surgeons offers precise repair of pelvic fractures with minimal postsurgical scarring, pain and infection risk and is available for broad adoption by the nation's 200 level I trauma centers.

UT Southwestern orthopaedic surgeons Drs. Adam Starr and Charles Reinert developed the Starr Frame, its associated accessories and the Reinert fracture reduction, or realignment, instruments. Already in use at clinical locations in the U.S., Canada and Europe, the Starr Frame system was commercialized through the UT Southwestern Office for Technology Development and its BioCenter at Southwestern Medical District.

The device and instruments attach to the operating table and then to the intact portion of the pelvis using steel pins. The Starr Frame serves as an anchoring point for surgeons to control and re-align multiple fractures in various planes. The minimally invasive surgery option offers an advanced alternative to traditional pelvic repair through a large incision, said Dr. Starr.

"The 'open' approach to fracture reduction of the posterior pelvic ring has a high wound complication rate – almost 10 percent for people of average size, and up to 30 percent for obese patients," said Dr. Starr, associate professor of orthopaedic surgery. "Because our approach is minimally invasive, wound infections are almost nonexistent."

An estimated 60,000 people a year in the U.S. sustain a fractured pelvis resulting from trauma, such as a traffic accident or fall. Most pelvic-fracture patients face complicated major surgeries, as much as a one-in-three chance of developing postsurgical infections, and lengthy, painful recoveries.

"Repairing a fractured pelvis can be a physical struggle in the operating room," said Dr. Reinert, professor of orthopaedic surgery. "You access the fracture through a major incision, and manually line up and anchor the pieces of the pelvis to enable proper healing. There is a lot of stress, a lot of strain, and it can be a real struggle to get the pieces back where they belong."

The minimally invasive approach using the Starr Frame and Reinert reduction tool system generally results in faster recovery. Patients are encouraged to initiate postsurgical activities within a day or two of the procedure, and often begin rehabilitation in a pool within a week, Dr. Starr said.

"The beauty of the frame is that it takes the procedure and breaks it down to a series of steps that are easy to understand. It allows you to set the fracture, check it in multiple views, and tweak it as necessary," he said. "Using the frame approach, you can complete what can be a complex operation in a more controlled fashion."

Dr. Starr presented David Ewing, a Dallas-area finance executive, with the option of the frame approach after Mr. Ewing was seriously injured in an automobile accident in early 2009. Mr. Ewing chose the frame procedure and within two days was able to sit in a wheelchair. Six weeks later, he was swimming. Now, about two years after the accident, he feels no residual effects.

"With the traditional, open surgical procedure, you have to remain immobile for an extended period of time – weeks," Mr. Ewing said. "You are able to become mobile quicker with the frame."

Medical device entrepreneurs Bob Sudol and Frank Gerome worked with Drs. Starr and Reinert and Dr. Joe Allred of UT Southwestern's technology development office to apply for the system's patent and to form Starr Frame LLC to market and distribute the innovation. A recent visiting surgeon from England, Dr. Peter Bates, teamed with Drs. Starr and Reinert to publish a textbook on the frame approach.

"Starr Frame delivers superior patient benefits that ultimately can lower the cost of quality medical care," said, Dr. Dennis Stone vice president for technology development at UT Southwestern.

"Beyond the dramatic patient benefits of a minimally invasive procedure using the Starr Frame system, an open reduction of a pelvic fracture through major surgery can take twice as long as doing the procedure with the Starr Frame," said Dr. Stone,. "The savings in time for the surgeons, staff and OR facilities can make a real economic difference."

Dr. Stone cited Starr Frame as an example of the Office for Technology Development meeting its mandate "to advance new technologies and therapies for the benefit of patients and society."

More information is available at www.starrframe.com. Visit http://www.utswtechdev.org to learn more about the technology development office and BioCenter, or www.utsouthwestern.edu/utsw/cda/dept28115/files/63853.html for information on orthopaedics at UT Southwestern. .

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