

# 'Water jet' treatment at Sartell clinic offers chance to wash away that disc pain

Written by Frank Lee

Sep. 29, 2013 |

sctimes.com



*Dr. Thomas Kowalkowski, medical director of the Interventional Pain and Physical Medicine Clinic in Sartell, shows a new device called HydroCision Sept. 17. The device is a minimally invasive treatment that uses high-speed water to remove herniated disc tissue without invasive surgery. / Jason Wachter, [jwachter@stcloudtimes.com](mailto:jwachter@stcloudtimes.com)*

## Who is a good candidate for HydroCision?

- Those with a bulging spinal disc that has not ruptured into the spinal canal.
- Someone whose pain has not improved after four or more weeks of conservative care, which typically consists of physical therapy, pain medications, and if necessary, epidural steroid injections.
- A person with signs of nerve damage in the leg (severe weakness, loss of coordination, loss of feeling).

Source: HydroCision Inc.

## After undergoing HydroCision for herniated discs

- In most cases, you will be able to go home the same day as your procedure.
- Plan on bed rest with gentle stretching for several days.
- You may need over-the-counter or prescription pain medication for several days.

Source: HydroCision Inc.

**SARTELL** — What if you could “wash away” back and leg pain using a “blade” that never gets dull?

A powerful water jet cutting device can be used for minimally invasive treatment of herniated discs, and Dr. Thomas Kowalkowski is the only physician in Central Minnesota to offer the procedure.

“It’s basically a high-velocity water jet eroding system,” Kevin Staid said about the medical device that his North Billerica, Mass.-based company makes. “And this is our first entry into the area.”

With HydroCision, a jet of saline solution comes out of a nozzle that is 0.005 inches in diameter — “slightly larger than a hair” — and can cut away protruding disc tissue that can cause the back and leg pain without an actual blade.

“Just the energy of the jet would be doing the cutting,” said Staid, an engineer. “In our case, the water is going about 600 miles an hour and has the ability to cut quite effectively.”

The advantages of the 20-minute outpatient procedure are: No hospitalization, quicker recovery times, less pain, no surgical trauma to the back muscles and no general anesthesia.

“There is no muscle damage, no bone removal, no nerve root manipulation ... and the size of the wound is approximately 4 mm,” Kowalkowski said.

Kowalkowski began offering HydroCision a few years ago to his patients; he is the medical director of the

“The procedure and the study I have completed on it was published in a pain journal this summer,” he said of the official publication of the International Association for the Study of Pain.

## **HydroCision**

Water-based tools previously have been used outside the medical field. “They were used in the aerospace industry and automotive industry for cutting and preparing things ... because the blade never gets dull or gunky,” Staid said.

HydroCision Inc. brought its cutting device into the medical field in 2005, and disc treatment is one of the uses.

When the outer wall of a spinal disc becomes damaged or weakened through age or injury, the inner part of the disc may bulge out in what is known as “disc herniation” or a “slipped” disc.

The water jet comes out of a tiny tube at the end of a spark plug-like tip and is collected — along with the blasted tissue — in another tube built into the same probe, completing a circuit of sorts.

“When the physician’s foot is not on the control pedal, it’s nothing but a benign metal probe,” said Staid, who came up with the concept with Tim Moutafis, a colleague.

Staid is the chief technology officer and vice president of application development at HydroCision Inc., a developer and manufacturer of fluidjet-based surgical tools.

“He (Moutafis) came upon the idea of using high-velocity water jets as a tool, which had been used extensively in industry but not had been developed for use in medicine at all,” Staid said.

Kowalkowski said, “I really became intrigued with the technology, to a point that we’ve performed probably over 50 procedures, and many of those patients have been offered surgery as an option for their disc herniation.”

## **Spinal discs**

Only spinal discs that have not ruptured may be treated with the water-based procedure, according to Kowalkowski.

HydroCision costs about \$2,000 to perform at his Sartell clinic and may be covered by insurance — compared with the estimated \$15,000 it would cost for surgery, he said.

“There is a week’s recovery time versus, many times, eight weeks or more with surgery,” Kowalkowski said.

He also said that in the worst-case scenario that HydroCision does not work, the patient could still have surgery; HydroCision has between a 73 and 98 percent success rate.

The physician uses a fluoroscope, which is a machine that projects live X-ray images onto a monitor, to place the water-dispensing probe within the disc.

“The patient is not even fully anesthetized. They’re awake and alert on the table,” Staid said.

The system has been used in more than 45,000 spinal, arthroscopic and wound debridement procedures, according to HydroCision Inc.

“We’ve been able to document a physiological reduction in the size of the disc immediately after the procedure,” Kowalkowski said.

### **Harnessing physics**

Most people in the United States will experience lower back pain at least once during their lives, and more severe leg pain can affect one’s ability to walk, according to the Mayo Clinic.

“At the end of the day, it was hard to even walk because I just ached so bad, and I couldn’t do the activities that I used to be able to do,” said Amy Rasmussen, a patient of Kowalkowski’s.

The 36-year-old registered nurse from Zimmerman said based on her work in a health care setting, she believes not a lot of physicians are aware of HydroCision Inc.

“I work in patient care, and I was lifting a patient and that kind of ruined my back,” Rasmussen said. Her injury occurred when she was working with a 350-pound patient.

She said she has experienced lower back pain, swelling, and achy hips and legs because of the injury and had a lot of frustration before she tried HydroCision in August.

“I figured it was worth it to try this procedure because when you are in that much pain, you’re willing to do anything, and the minute the procedure was done, that pain was gone immediately,” she said.

**Follow Frank Lee on Twitter @fclgannett.**