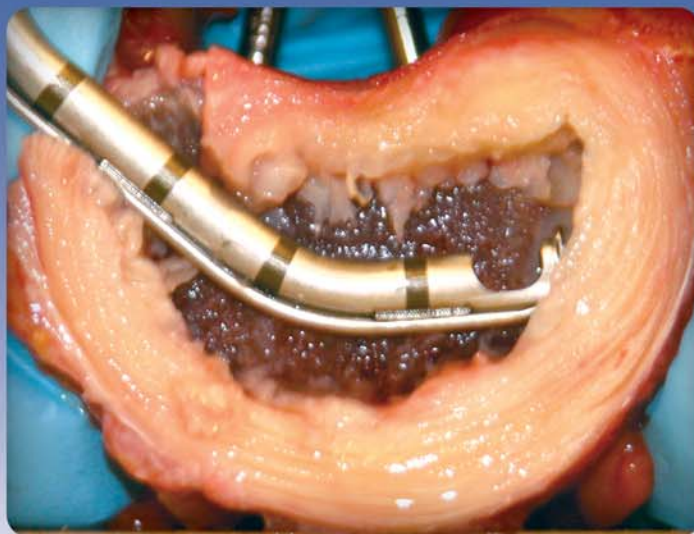


SpineJet[®] XL TLIF *Surgical Technique*



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TLIF Surgical Technique

Equipment

- SpineJet XL Power Console
- MIS TLIF: SpineJet 20° XL MIS, 30° XL MIS
- Open TLIF: SpineJet 20° XLS, 75° XLS
- Universal Quick Connect

Setup

- Connect power to Power Console and outlet.
- Connect Foot Switch to Power Console.
- Deliver the SpineJet XL to the sterile field.
- Deliver the Quick Connect to the sterile field.
- Connect the saline supply hose to a saline bag.
- Connect the evacuation hose to an evacuation canister.
- Connect the Pump Cartridge to the Power Console.
- Turn Console speed to 3.
- Prime the System by covering the end of the Quick Connect with a towel or 4x4 and activating Foot Pedal until saline reaches end of Quick Connect.
- Deactivate the Foot Pedal.
- Connect the SpineJet XL handpiece to the Quick Connect.
- Turn the Console speed to 10.

For more information, refer to the SpineJet XL System Setup.

Patient Preparation

Prepare the patient pre-operatively to standard procedures.

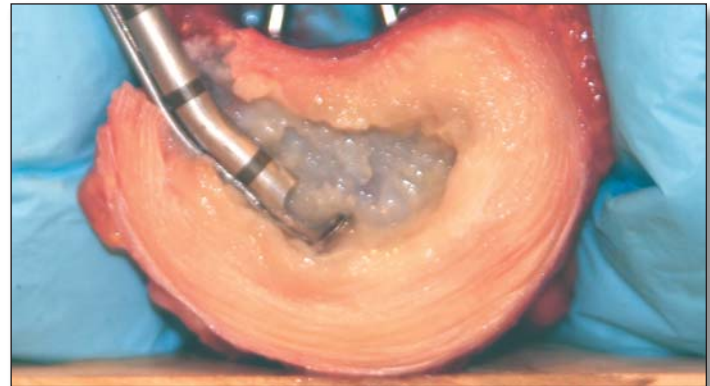
The SpineJet XL tip has been specifically designed with four cutting surfaces. Annular thinning is accomplished using a windshield wiper motion to scrape the heel and toe of the device along the inner surface of the annulus. The lateral cutting sides are used to scrape cartilage off of the endplates to increase the surface area for interbody lumbar fusion. The SpineJet XL is available in 20°, 30°, and 75° angles to allow complete access to the disc space.

TLIF Surgical Technique

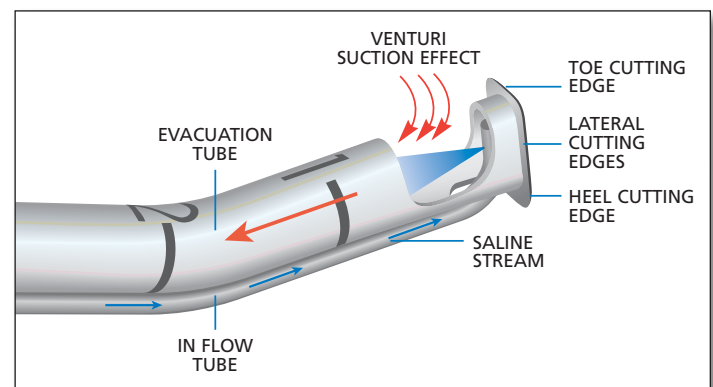
The disc space is most efficiently, thoroughly and reproducibly prepared for interbody fusion by using a three-step process.¹ First, the nucleus pulposus is evacuated. Second, the annulus is thinned. Lastly, scraping the endplates clean of cartilage completes the disc preparation.

Nucleus Removal:

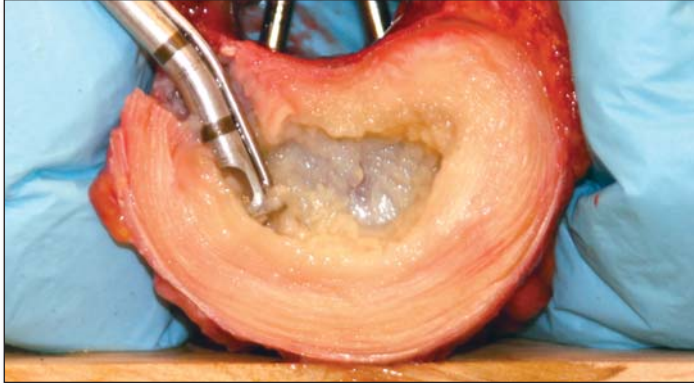
1. Create an annulotomy and remove a small amount of nucleus with a pituitary rongeur. Remove any posterior osteophytes from the annulotomy site. Use a paddle shaver or box curette if additional room is needed to safely insert the device.
2. Insert the 20° device angled toward the center of the disc. Use a gentle piston and sweeping motion to remove the nucleus pulposus. Continue the motion while advancing toward the anterior disc space. Fluoroscopy can be used to verify the location of the device within the disc space.



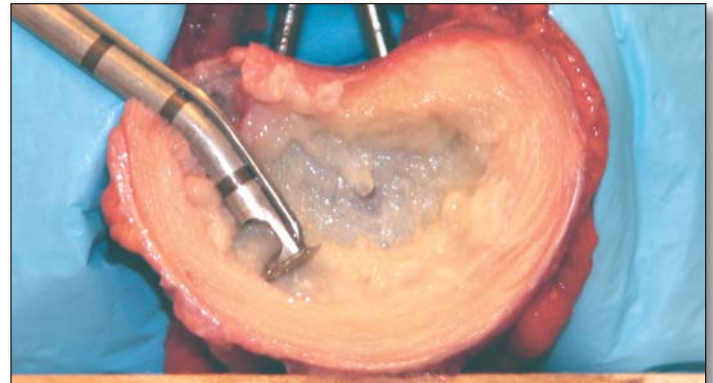
3. Once the central nucleus is evacuated to the border of the annulus, remove the device from the disc space and rotate the tip 180° with the angle facing the ipsilat-



eral disc space. Avoid rotating the device within the disc space to prevent inadvertent endplate damage. Reinsert the device and remove the nucleus from the ipsilateral disc space using the same piston and sweeping motion.



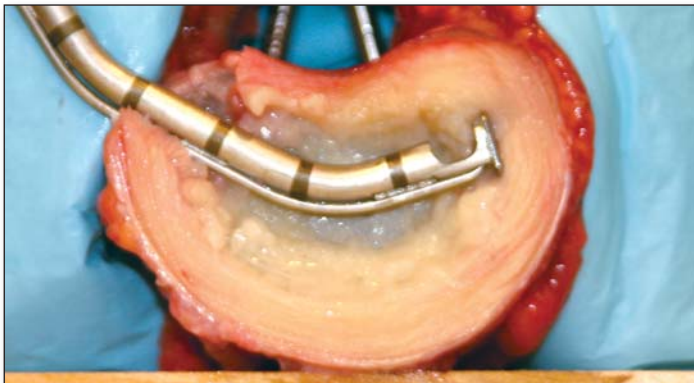
2. Insert the 20° device angled toward the ipsilateral side. Use the toe with a gentle pulling motion to thin the annulus. Care should be taken while working close to the annulotomy.



4. To remove disc material from the difficult to reach contralateral, posterior disc space, use the 30° (MIS) or 75° (Open) device. Insert the device angled toward the contralateral disc space. Use the same piston and sweeping motion to evacuate the remaining nucleus to the contralateral border of the annulus. Markings on the shaft aide in determining the distance the tip is within the disc space.

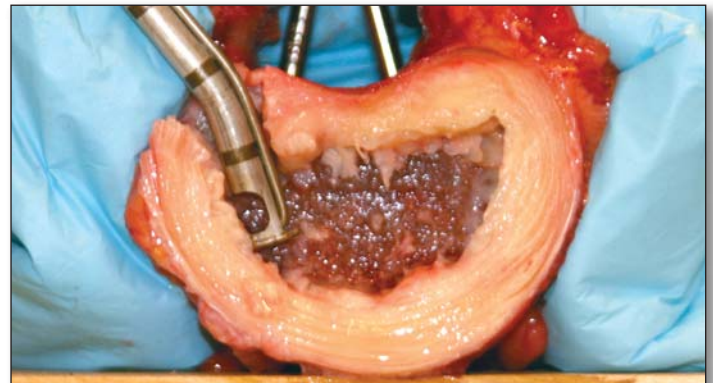
Annular Thinning:

1. The toe and the heel on the tip of device are specially designed to dissect through the layers of the annulus to allow safe and controlled excision of the inner rings of the annulus to maximize surface area for fusion. Continue to use the 30° or 75° device angled toward the contralateral disc space. Use a windshield wiper motion to scrape the heel and toe of the tip along the inner surface of the annulus. This will result in delamination of the annulus and thinning of the contralateral and posterior disc wall. Fluoroscopy can be used to verify the location of the device within the disc space.



Endplate Cartilage Removal:

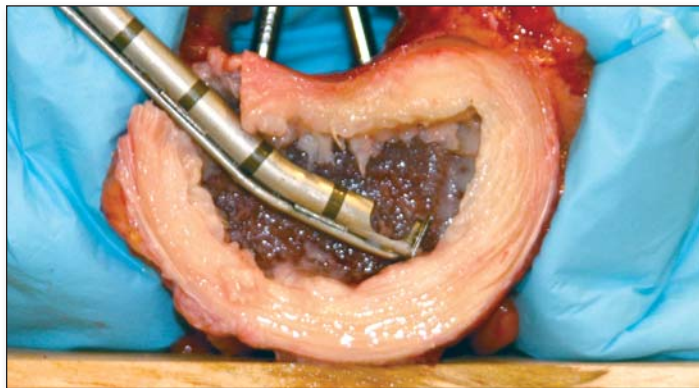
1. The lateral edges of the tip are specially designed for removal of cartilage from the endplates. With the 20° device still angled toward the ipsilateral side and the jet turned off to improve tactile sensation, begin removing cartilage. Use a downward pushing motion jet working toward the anterior annulus. Turn on the jet to evacuate the detached cartilage.



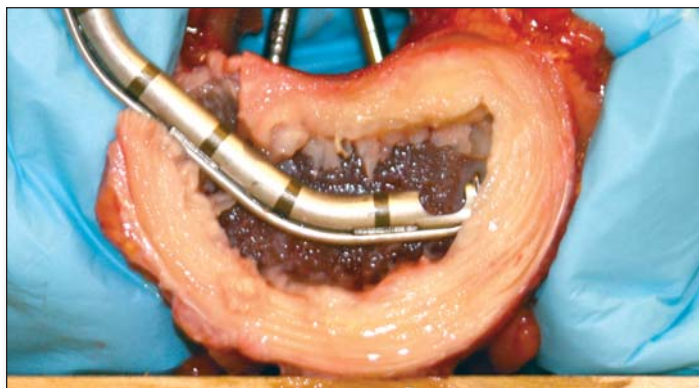
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Endplate Cartilage Removal (continued):

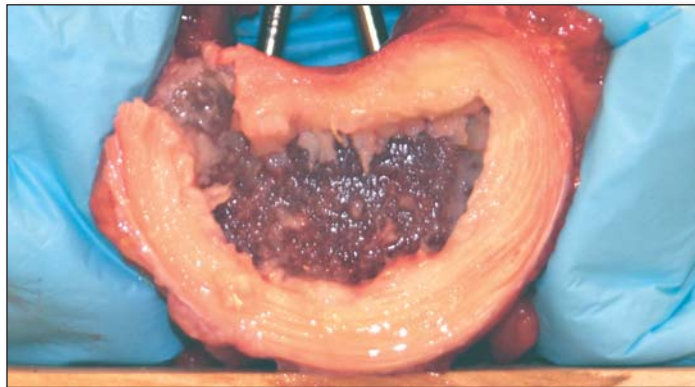
2. Insert the 20° device angled toward the contralateral side. Again, with the jet off, remove endplate cartilage with a pushing motion beginning posteriorly at the annulotomy site and working toward the center of the disc space. Turn on the jet to evacuate the detached cartilage.



3. To remove cartilage from the contralateral disc space, insert the 30° or 75° device with the tip angled toward the contralateral side. Again use a pushing motion with the jet off to scrape the endplate clear of cartilage. To ensure complete endplate preparation, systematically remove the cartilage beginning at the ipsilateral disc space and fanning toward the contralateral side. Turn on the jet to evacuate the detached cartilage.



4. Utilize a small curette or probe to inspect the endplates to insure thorough preparation for fusion. Use pituitary rongeurs to inspect the disc space for any loose fragments that may remain.



Disclosures

Please refer to the SpineJet XL Instructions For Use (IFU) for warnings and precautions.

¹ Cadaveric studies. Data on file.

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©2004-2006. All rights reserved. Patent Nos. 6,216,573, 5,944,686, 6,375,635, 6,960,182, 7,122,017, 6,923,792 other foreign and domestic patents are pending.
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