



Postero-Lateral (Percutaneous) Endoscopic Lumbar Discectomy (PELD) & Foraminoplasty (PELF)

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A very thin endoscope is passed directly in the region of nerve compression.



The endoscope is passed directly at the site of the disc prolapsed (blue) keeping the remaining spine structures intact.

For many years medical science has tried dealing with the issues of lumbar disc herniation in the least invasive manner. PELD and PELF are the techniques which have not only made these intervention minimally invasive, but have added a new dimension to the philosophy of treating Sciatica and Neurogenic claudication.

To briefly recapitulate the procedure, under local (or general) anesthesia, a long needle is introduced 10 to 12 cm lateral to midline aiming towards entering the desired disc at the intervertebral foramen level. This is done under continuous biplanar fluoroscopic control. After passing a guide wire, a dilator and working sheath are serially introduced using the Seldinger technique. A spinal endoscope of 20 to 30 degrees angulation is then passed with continuous irrigation. The nerve roots (exiting and transiting) are directly visualized. The offending disc fragment is then shrunk using radio-frequency waves and then removed mechanically with microscopic shaver. Laser can also be used to vaporize the herniated disc under direct vision. Endoscopic drills are used to remove the under-surface of the facet joint and clear the osteophytes. The lateral and foraminal part of the ligamentum flavum is removed with endoscopic punches and rongers. The disc fragment which is

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A large piece of the herniated disc removed from Mr Bharat's spine via the thin endoscope. This piece was severely compressing on the nerve causing sciatica. His pain vanished after this piece was removed.



Shows how a thin endoscope is passed AT FAR LATERAL PARAMEDIAN SITE (10CM FROM MIDLINE) without taking a large incision.

The herniated disc is removed through this endoscope.

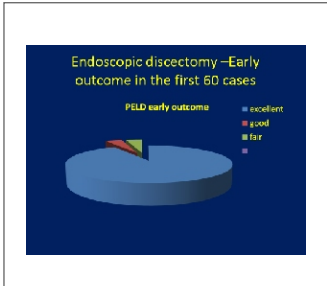
central or centro-lateral can also be removed by placing the endoscope at the perfect angle. The undersurface of the decompressed and pulsating thecal sac can be visualized to confirm the decompression. Bleeding is controlled by trigger-flex radio frequency apparatus.

After the procedure is over, the small opening in the skin is closed simply by taping it. So this virtually becomes stitchless surgery. If the disc prolapse is causing bilateral root compression, this procedure can also be done bilaterally (simultaneously).

The obvious advantages of PELD and PELF are :

- 1. Stitchless Surgery**
- 2. Completely new approach.** Does not disturb the important paraspinal muscles, spinal bones and ligamentum flavum. No retraction of thecal sac and nerve roots is required.
- 3. Preservation of ligamentum flavum** maintaining the sanctity of the sac and epidural space. Prevents post operative epidural scarring.
- 4. Foraminal Stenosis** due to disc, osteophytes and the ligamentum can only be addressed directly by this procedure. (this is impossible by routine posterior approach unless the facet joint is removed partly or completely.
- 5. Early (immediate) mobilization** and resumption of duties is possible.

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One has to Remember

- a) PELD and PELF procedures are extremely useful if the patient selection is perfect.
- b) Conventional (Porterior) Endoscopic Spine Surgery does not have all the advantages of PELD and PELF (One should remember to differentiate the two)
- c) PELD and PELF are Conceptually not very new, but due to the advancement in instrumentation, they have become super effective and are proven so by experience in the last four to five years.
- d) They have to be viewed as one of the many modalities useful for treatment of Spinal Problems.

Before concluding I would like to thank our Endoscopic spine Surgery team which has made this work possible. I would also like to thank Sigmund Opferkuch, my counterpart of our Indo-German foundation for helping us start this branch.

(I would sincerely request Manman to develop the minimally invasive motorized Indian instruments to be used through Spinal Endoscope.)

