CASE REPORT

Endoscopic Posterior Cervical Laminoforaminotomy: Minimally Invasive Relief for Cervical Radiculopathy

Jitin Bajaj[1], Shailendra Ratre[1], Vijay S Parihar[1], Yadram Yadav[2]

1 Netaji Subhash Chandra Bose Medical College, Jabalpur, India
2 Independent researcher

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Abstract

This case report highlights the use of endoscopic posterior cervical laminoforaminotomy, a minimally invasive surgical technique, to relieve cervical radiculopathy in a 56-year-old male patient. Preoperative imaging confirmed left-sided foraminal stenosis at C5-6 and C6-7, and the procedure was performed using endoscopic tools. Postoperative outcomes showed significant pain relief without complications. The case demonstrates the potential benefits of this procedure in avoiding complications associated with the anterior cervical approach while achieving excellent clinical outcomes.

Jitin Bajaj[1,*], **Shailendra Ratre**[1], **Vijay S Parihar**[1], and **Yadram Yadav**[2]

[1]*Department of Neurosurgery, Superspeciality Hospital, NSCB Medical College, Jabalpur, India*

[2]*Department of Neurosciences, Apex Hospital and Research Center, Jabalpur, India*

[*]**Corresponding author**: Dr. Jitin Bajaj, Professor Neurosurgery, Room no. 6, Third floor, Department of Neurosurgery, Superspeciality Hospital, NSCB Medical College, Jabalpur, India. Email: bajaj.jitin@gmail.com

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Posterior cervical laminoforaminotomy is a minimally invasive surgical procedure designed to treat cervical foraminal stenosis and cervical disc protrusions[1][2]. By creating a small opening at the laminofacet junction, the procedure decompresses the affected nerve root and widens the neural foramina, effectively relieving nerve compression. Additionally, a soft disc herniation can be easily removed during the procedure. This approach avoids the potential complications associated with the anterior cervical approach, such as injuries to the trachea, esophagus, carotid artery, recurrent laryngeal nerve, sympathetic plexus, etc[3]. The use of endoscopy in this procedure offers significant

advantages, including enhanced illumination and magnification, which allow for more precise visualization of the surgical field. The 30-degree angled endoscope provides an added benefit by minimizing the size of the bony opening required for decompression.

This case report follows the CARE guidelines, detailing the patient's clinical presentation, diagnostic process, surgical procedure, and outcomes. In Video 1, a 56-year-old male patient presented with left-sided C6-7 radiculopathy accompanied by periscapular pain, with no signs of myelopathy. Preoperative CT and MRI scans confirmed left-sided foraminal stenosis at the C5-6 and C6-7 levels. The surgical procedure was performed using the EasyGO endoscopic system by Karl Storz (Tuttlingen, Germany). The patient was placed in a prone position, and endoscopic decompression of the C5-6 and C6-7 foramina was successfully completed. The patient experienced excellent pain relief postoperatively, with no complications.

Audio transcript

- 00-0:07 – This video demonstrates a case of endoscopic cervical laminoforaminotomy for a case of cervical foraminal stenosis
- 0:08-0:19 – The patient was a 56-year old man who presented with left sided C6-7 radiculopathy and periscapular pain. On examination, he had intact power with absence of myelopathy
- 0:20-0:27 – His MRI showed foraminal stenosis at C5-6 and C6-7 levels.
- 0:31-0:41 – His CT scan showed foraminal stenosis from both anterior and posterior sides, more at C6-7 level, which is marked with red arrows.
- 0:43-0:55 – The patient was given option of either of anterior or posterior approaches. He agreed for the posterior approach. He was positioned prone under GA. The incision was marked as shown after confirmation of the levels under fluoroscopy.
- 0:56-1:02 – The endoscopic system used was 15mm diameter EasyGO (from Karl Storz, Tuttlingen, Germany).
- 1:03-1:10 – Firstly, the endoscope was docked over the left-sided lamina-facet junction of C5-6 level. Orientation can be seen.
- 1:11-1:19 – Drilling was performed in a 'V' shaped area formed by the junction of cranial and caudal lamina medially and facet laterally.
- 1:20-1:24 – Drilling intermixed with saline is necessary to prevent transmission of heat.
- 1:46-1:50 – After thinning of lamina, a no. 1 Kerrison can be used.
- 1:50-1:57 – Ligamentum flavum is excised after dissecting it from underlying dura. Minor bleeding can be controlled using Surgicel.
- 2:14-2:20 – Drilling over the neural foramina is commenced. Here we are seeing the neural foramina is tight.
- 2:35-2:39 – Epidural bleeding can be controlled using endoscopic bipolar forceps.
- 2:44-2:46 – Further unroofing of the neural foramina is done.
- 2:49-2:50 – The nerve root is clearly seen here.

- 2:54-2:57 – A blunt hook is passed around the root to see for any residual compression.
- 3:09-3:12 – The hook can be passed easily at the cranial end now.
- 3:18-3:21 – More drilling is done around the foramina at the caudal end.
- 3:34-3:48 – Nerve hook is again passed at the caudal end. Good epidural bleeding is seen. Hook can also be passed easily at the caudal end now. No herniated disc material was found. Similar procedure was done at the C6-7 level.
- 3:50-3:56 – The postop scan confirmed good decompression of C5-6 and C6-7 neural foraminae. Preop and postop comparison can be seen.
- 3:58-4:04 – The patient had an uneventful recovery. His pain got resolved, and power was completely intact.
- 4:05-4:07 – These are our references
- 4:08-4:08 – Thank you

Video

Video 1: https://youtu.be/bpOBmxkACio

Surgical steps of Endoscopic Posterior Cervical Laminoforaminotomy

Statements and Declarations

Conflicts of interest: The authors declare no conflicts of interest related to this study or the use of specific surgical tools or systems.

Informed consent: Informed consent was obtained from the patient for the publication of both the clinical details and the accompanying video, ensuring compliance with ethical standards for patient privacy and patient anonymity

References

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