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Limited unilateral partial laminectomy and lateral dural incision: One of the best approaches for spinal meningioma in selected cases

Sir,

Meningioma is second most common intra spinal tumor, accounting for 25-46% of all spinal canal tumors.[1] In most of the patients, tumor is located in extramedullary- intradural compartment. It is situated predominantly either laterally (58%) or anteriorly (18%) compared to posteriorly (24%), in spinal canal.[2] Generally, spinal meningiomas are less vascular and their incidence is high in late middle to elderly group females between the fifth and seventh decades of life, with a female-to-male ratio of 4.3 to 1.[1,3]

Traditionally, spinal meningiomas are approached by a wide multilevel laminectomy and a midline dural incision.[4-6] A wide multilevel laminectomy may cause instability, subsequent progressive kyphosis in the future, soft tissue injury and dural scaring which may cause significant post-operative pain, long hospital stay, and progressive neurological detoriation.[5,6] In elderly females, bones are generally osteoporotic, which further complicates the situation. Midline dural incision for a laterally or anterior placed lesion unnecessarily exposes the entire dorsal surface of the spinal cord.[5,6] This can increase the risk of inadvertent damage to the card due to retraction of the cord directly by dural or arachnoid stay stitch for visualization of anteriorly or laterally placed meningioma. Indirect injury to unnecessarily exposed cord by instruments and excessive use of cautery to control bleeding, can lead to vascular compromise of the cord.[5,6] A wide multilevel bilateral laminectomy also may cause intra-operative excessive blood loss.

Limited unilateral partial laminectomy and laterally placed dural incision entails bone removal, which is limited to the lateral half of the lamina on the side of the tumor and may or may not include the medial part of the facet joint.[5,6] A lateral dural flap exposes the tumor without exposing the cord and can solve above problem and provides excellent results. It is advantageous over the conventional approach in being less invasive, less blood loss, reduced chances of instability, deformity and neurological detoriation, post operative excessive pain, longer hospital stay and hospital expenses.[5,6] Use of this approach allows direct access to anteriorly or laterally placed meningiomas without cord or root retraction, and with little disturbance to the normal anatomy.[5,6] If required, the spinal cord may be displaced laterally very easily and safely by interrupting the dentate ligaments to reach anteriorly. Additional advantages are misjudged level in limited laminectomy can be extended without much risk of instability or deformity and lesser risk of cord or nerve root injury due to post–operative changes in re-operations.[7] Multilevel laminectomies may be replaced by multilevel laminotomies with laminoplasties at the end of the operation to avoid spinal deformities. Some surgeons have found difficulty in this technique in obese patients due to poor visualization in depth and it can be solved by using a microsurgical mirror or endoscope for better view to remove residual tumor.

After reviewing articles over spinal meningioma surgical approaches, it is one of the less invasive and good surgical approach for management of selective cases of spinal meningiomas (anteriorly or laterally located) with lesser complication rate and excellent postoperative results.[5-7]

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References

1. Yoon SH, Chung CK, Jahng TA. Surgical Outcome of Spinal Canal Meningiomas. J Korean Neurosurg Soc 2007;42:300-4.
2. Schaller B. Spinal meningioma: Relationship between histological subtypes and surgical outcome? J Neurooncol 2005;75:157-61.
3. Roser F, Nakamura M, Bellinzona M, Ritz R, Ostertag H, Tatagiba MS. Proliferation potential of spinal meningiomas. Eur Spine J 2006;15:211-5.
4. Naganawa T, Miyamoto K, Hosoe H, Suzuki N, Shimizu K. Hemilaminectomy for removal of extramedullary or extradural spinal cord tumors: medium to long-term clinical outcomes. Yonsei Med J 2011;52:121-9.
5. Sridhar K, Ramamurthi R, Vasudevan MC, Ramamurthi B. Limited unilateral approach for extramedullary spinal tumours. Br J Neurosurg 1998;12:430-3.
6. Sridhar K. Spinal Extramedullary Tumours. In: Ramamurthi R, Sridhar K,Vasudevan MC, Ramamurthi B, Tandon PN, editors. Textbook of operative neurosurgery. New Delhi: BI Publication Pvt Ltd; 2005. p. 1101-5.
7. Banczerowski P, Vajda J, Veres R. Removal of intraspinal space-occupying lesions through unilateral partial approach, the "hemi-semi laminectomy. Ideggyogy Sz 2008;61:114-22.

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