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Removal of IntaDural ExtraMedullary(IDEM) tumor at C3-C4 level through unilateral lamino-foraminotomy

Neurosurgery

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ABSTRACT

Total laminectomy for the removal of idem tumor has been widely used , but postoperative complications often develop like kyphosis,spinal instability and pain. In this case we perform unilateral lamino-foraminotomy with purpose to preserve musculoligamentous attachments and posterior bony elements as much as possible. Patient was mobilized on second post operative day with no neurological symptoms and at followup after 2 months there was no spinal deformity or spinal instability.

KEYWORDS:

lamino-foraminotomy, idem

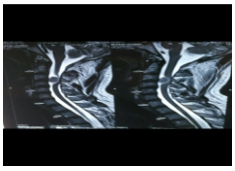
INTRODUCTION

Spinal cord tumor occur rarely,at an incidence of 10 per 100000 people[14] . The most common spinal cord tumors are nerve sheath tumors such as schwannoma andneurofibroma(30%),which are followed by meningioma(25%) and othrs, like astrocytoma and angioblastoma[7]

Spinal cord tumors have usually been removed through total laminectomy and this method is still used widely[3]. Seppala et al[12] . analysed 187 pateints who had total spinal cord tumors and reported satisfactory prognoses. However , total laminectomy may cause spinal instability and kyphosis due to damage to mus culoli gamentous structures and posterior bony elements. And these complications may produce neurologic symptoms by compressing the spinal cord or nerve roots[17]. In order to prevent such complications , unilateral lamino-foraminotomy,which was reported to be useful by Yasargil et al.[16] in 1991, often has to be performed in this case we describe our experience in use of unilateral lamino-foraminotomy to idem along with a review of literature.

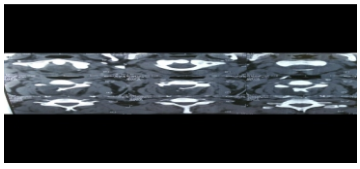
CASE REPORT

Patient , Mukesh S. Jaiswal , 32 years ,male presented with a 6-month history of right sided UL and LL weakness. MRI cervical spine revealed a well-enhanced mass at right side of column?



Under general anesthesia , the patient was placed in prone position. A midline skin incision was made and dissection carried out,C3-C4 rigth lamino-foraminotomy done. The dura was then opened and tumor localized and was compressing the cord posteriorly , adhesions over tumor were separated and tumor excised, dura closed loosely and muscle graft kept over dura and remainder of wound was closed in anatomic layers. Schwannoma was confirmed histopatholy.

Postoperatively scan showed that tumor was totally removed.



Patient was mobilized on post operative 2nd day and discharged within 10 days with no neurological deficits or complications postoperatively. At follow up evaluation ,the patient showed normal alignment and no instability in post-operative period after 2 months.

DISCUSSION

Traditionally, the surgical resection of spinal coed tumor has been performed through total laminectomy[3]

Sepalla et al.[12] reported a series of 187 patients that underwent surgical resection for spinal schwannoma. In this series, 90% were completely resected,with a 10% surgical complication rate and 1.5% surgical fatality rate. Levy et al[6]. Also reported similar results with 66 patients with 9% surgical complication rate and a 1.5% mortality rate. However, it has been reported by a number of researches that total laminectomy may bring several complications. According to their

reports, the most common complication was kyphosis[1-4-10-11] . Bilateral damage to the ligament flavum and disruption of ligamentum interspinosum were considered to play an important role[4] . Stripping,dissection and denervation of posterior paraspinal muscle complex were also suggested to be responsiblr for post-laminectomy deformities[1-11] Post lamictomy kyphosis may occur within weeks to years after a laminectomy for a tumor or trauma, especially in children that have not reached bone maturity[1-10].Another reported complication was progressive myelopathy, which was preceded by other problems, including spinal deformity,instability,epidural fibrosis and the absence of osseous protection for spinal cord[17] . The other reported probable complications were csf leak and wound infection[8].

Unilateral laminectomywas reported at thr beginning of spinal surgry and was popularized by Eggert et al.in the 1980's with the advance of operating microscope[4-5] .In 1991,Yasargil et al.[16] suggested unilateral laminectomy for intradural and Oktem et al.[8] described their experience with 20 patients undergoing unilateral hemilaminectomy for intradural tumor resection. Of these patients, none exhibited spinal instability after two years of follow up.

The advantage of a unilateral lamino-foraminotomy are that it reduces postoperative pain,prevents instability ,avoids the use of external bracing,and allows early mobilizationof the patient[9]. In addition,unilateral laminectomy has been associated with less blood loss,better wound healing,less risk of postoperative infection and shorter hospital stays than traditional total laminectomy.[2-15]

Sarioglu et al.[11] reported their experience with 40 spinal tumors that were removed by unilateral hemilaminectomy. They concluded that the unilateral laminectomy could be applied to all spinal tumors,except bilateral extensive invading extradural tumors,with the aid of microneurosurgical techniques. Some authors have considered that an intradural tumor could be removed unilaterally even if it was situated in the ventral to the coed or midline lesion[4-15]. But we do not include tumors,which are located on the ventral to the spinal cord or extended to the vertebral foramen and also intramedullary spinal cord tumors as indication.

CONCLUSION

Intradural-extramedullary spinal cord tumors that are not extended to the vertebral foramen can be resected safely and completely by a unilateral limited laminectomy. In this case ,we have demonstrated that it is possible to completely resect idem spinal cord tumor safely with the reductions in postoperative pain,instability,degenerative changes and operative blood loss.

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