The treatment of choice in most intradural tumors is a complete surgical resection. However, in the case of pronounced infiltrative growth in the intramedullary region, the tumor must be left marginally in order not to risk additional permanent neurological deficits. In principle, as soon as possible a surgical intervention is indicated in the case of neurological failures, since the forecast depends on the gravity and duration of the pre-existing deficits. Spine tumor is the atypical teratoid rhabdoid tumour (ATRT). Mainly occur in pre-mature body, less chance of occurring in adult.

Giant cell tumour (GCT) of the spine is rarely encountered in daily clinical practice. Most of the tumors occur at the sacrum instead of at spine above sacrum, which has been reported to account for 1.3-9.3% of all spine. They occur mainly in long bones. It takes 5 months to get cure. Mostly it is treated with the surgery method and this is the most common method nowadays. There are so many demerits of this method. Approximately 20% of all skeletal metastases accounts for Non-spine bone metastasis accounts, but data been focused on bone metastasis to pelvis is less.
INTRODUCTION:
Intradural spinal tumors are classified in extra- and intramedullary tumors. The most frequent intradural-extramedullary tumors are meningiomas and neurinomas. Among the intradural-intramedullary tumors are the most frequent ones are ependymomas and astrocytomas. Independent of their origin, spinal tumors usually manifest with progressive local or radicular pain and neurological deficits. The treatment of choice for most of these tumors is a complete surgical resection. In tumors with infiltrative growth into the intramedullary area, a marginal tumor tissue has to be left in situ in order to avoid additional neurological deficits. Spinal intradural extramedullary tumors account for 2/3 of all intraspinal neoplasms and are mainly represented by meningiomas and schwannomas, with the former accounting for the 25-46% of all primary intraspinal tumors. Technical advances in imaging technique, magnetic resonance imaging (MRI) and surgical procedures have brought about significant better clinical results in the last 2 decades. Nevertheless, a small percentage of patients still present poor postoperative outcome mainly related to the duration of clinical history, the severity of preoperative neurological deficits and to some specific anatomo-surgical aspects. Intradural extramedullary tumors account for two-thirds of primary spinal tumors (Figure:1). Most intradural extramedullary tumors are benign, and they exhibit no specific symptoms. Radicular pain and worsening sensory and motor loss are common manifestations. Therefore, most of the patients are wrongly diagnosed with cervical spondylopathy or intervertebral disk herniation. MRI is very crucial to confirm the diagnosis of intradural extramedullary tumors. Once the diagnosis is confirmed, the best treatment for non-malignant intradural extramedullary tumor is surgery. The goal of surgery is complete surgical resection while preserving spinal stability, without worsening the preoperative neurological status. All the processes of conventional surgical tumor resection are carried out without using microscope, which may lead to a greater likelihood of incomplete tumor resection, as well as more damage to the spinal cord and vessels surrounding the spinal canal. With the improvement of medical devices, surgeons are increasingly using microscopy to perform surgical tumor resection. MIS can provide a clearer visual operative field and more delicate operative maneuvers, which can avoid the damage to the spinal cord and peripheral nerves as far as possible, reduce intraoperative blood loss and postoperative complications, and increase the rate of complete removal of tumors. It was reported that MIS allowed removal of the tumor with minimal impairment from cutting of nerve fibers at the nerve root.

However, when lesions grow, they result in compression of the spinal cord, which can cause limb dysfunction, motor and sensation loss, and, possibly, lead to death. Spinal tumors are classified based on their anatomic location as related to the dura mater (lining around the spinal cord) and spinal cord (medullary) as epidural, intradural extramedullary, or intradural intramedullary. Primary spinal tumors are typically intradural in location, where extradural spinal tumors are typically due to metastatic disease. Intradural spinal tumors are classified in extra- and intramedullary tumors. The most frequent intradural-extramedullary tumors are meningiomas and neurinomas. Among the intradural-intramedullary tumors the most frequent ones are ependymomas and astrocytomas. Independent of their origin, spinal tumors usually manifest with
progressive local or radicular pain and neurological deficits. The treatment of choice for most of these tumors is a complete surgical resection. In tumors with infiltrative growth into the intramedullary area, a marginal tumor tissue has to be left in situ in order to avoid additional neurological deficits (Figure 2). In particular if neurological deficits appear, a fast-surgical intervention is indicated, since the prognosis depends on duration and severity of the preoperative existing deficits. Traditionally, the surgical resection of a spinal cord tumor has been performed through total laminectomy. This facilitates access and visualization. Sepalla et al. 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 also reported similar results for 66 patients with a 9% surgical complication rate and a 1.5% mortality rate. However, it has been reported by a number of researchers that total laminectomy may bring several complications. According to their reports, the most common complication was kyphosis. Bilateral damage to the ligamentum flavum and disruption of the ligamentum interspinosum were considered to play an important role. Stripping, dissection, and denervation of the posterior paraspinal muscle complex were also suggested to be responsible for post-laminectomy deformities. Post-laminectomy kyphosis may occur within weeks to years after a laminectomy for a tumor or trauma, especially in children that have not reached bone maturity. 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 the spinal cord. The other reported probable complications were cerebrospinal fluid leak and wound infection.

Figure 2 Spinal tumors may be (left to right) intramedullary, intradural-extramedullary, or extradural.

Spinal cord tumors can occur within or adjacent to the spinal cord. They are considered to be intraaxial in location and can be either primary or metastatic. Primary spinal cord tumors account for 2 to 4 percent of all primary central nervous system (CNS) tumors, one-third of which are located in the intramedullary compartment. Spinal cord tumors can be classified according to their anatomic location:

- **Intramedullary** – Intramedullary tumors arise within the spinal cord itself. Most primary intramedullary tumors are either ependymomas or astrocytoma’s. Metastases are being recognized with increasing frequency, primarily because of improvements in imaging modalities.

- **Intradural-extramedullary** – Tumors arising within the dura but outside the actual spinal cord are termed intradural-extramedullary. The most common tumors in this group are meningiomas and nerve sheath tumors.

- **Extradural** – Extradural tumors are usually metastatic and most often arise in the vertebral bodies. Metastatic lesions can cause spinal cord compression either by epidural growth that results in extrinsic spinal cord or cauda equina compression or less frequently by intradural invasion.

**FREQUENCY**

Intramedullary spinal cord tumors account for approximately 2% of adult and 10% of paediatric central nervous system neoplasms. In adults, 85-90% of intramedullary tumors are the glial subtypes, astrocytoma or ependymoma. Ependymomas account for approximately 60-70% of all spinal cord tumors found in adults, while in children, 55-65% of intramedullary spinal cord tumors are astrocytoma’s. Hemangioblastomas account for 5% of tumors, whereas paragangliomas, oligodendrogliomas, and gangliogliomas account for the remaining lesions.
The pathogenesis of spinal neoplasms is unknown, but most arise from normal cell types in the region of the spinal cord in which they develop. A genetic predisposition is likely, given the higher incidence in certain familial or syndromic groups (neurofibromatosis)\(^7\). Astrocytoma’s and ependymomas are more common in patients with neurofibromatosis type 2, which is associated with an abnormality on chromosome 22. In addition, spinal hemangioblastomas can develop in 30% of patients with von Hippel-Lindau syndrome, which is associated with an abnormality on chromosome 3.

**INDICATIONS**

Intramedullary spinal cord neoplasms or tumors are typically histopathologically "benign" or slow growing. However, patients can have more aggressive neoplasms as well as morbidity due to the location of the lesion. Consequently, compared with similar intracranial neoplasms, patients may have a prolonged survival after diagnosis. Optimal treatment options depend on the patient's clinical symptoms and neurologic finding. When and whether to treat these lesions as well as perform radiosurgery or surgical excision of lesions remains controversial. However, cures have been reported only after complete surgical resection\(^8\). Therefore, patients with neurologic symptoms and confirmatory findings from imaging studies may benefit most from surgical excision, with the surgical goal of total gross resection of the lesion.

**DISCUSSION**

The incidence of intradural extramedullary tumors is 0.3 out of 100,000 people, accounting for 84% of intradural tumors found in 45% of patients with spinal cord tumors with no gender preference. More than 50% of these tumors are found in the thoracic spine, and they occur in the cervical and lumbosacral spine at a similar rate, 22% and 18%, respectively. Histopathological diagnoses include schwannoma in 23-48%, meningioma in 9.6-35%, neurofibroma in 4-23%, and metastatic tumors in 6.4-25% of the total number of cases\(^9\). Common clinical symptoms in patients with tumors are pain and paresthesia in the abdomen and the lower limbs, motor abnormality, and dysuria.\(^2,3\)

According to Shin et al., the abdominal pain is the first subjective symptom, most patients complain of paresthesia and motor abnormalities at the time of admission. This was attributed to the difficulty in making an early diagnosis because the tumors grow slowly, produce vague symptoms in the early stages, and present with pain and radiating pain similar to those found in lower lumbar disc diseases\(^20\). There was a delay from the development of subjective symptoms to admission in this study, an average of 59.4 months in the present study. Therefore, it is believed that spinal cord tumors should also be taken into consideration as a possible diagnosis when a patient complains of symptoms that are usually found in lower lumbar disc diseases, such as intervertebral disc herniation and spinal stenosis.

Many intradural extramedullary tumors are benign and are treated primarily with an aggressive surgical excision because they can be separated easily from the spinal cord due to the developments of diagnostic and surgical instrumentation as well as microsurgical and neuroanesthesia techniques. As the tumors in most of the patients were surrounded by a capsule with a well-defined margin, they could be easily dissected. During the procedure, posterior lumbar interbody fusion and instrumentation were also performed in two cases where the tumors were so large as to cause posterior instability. The nerve roots that course through the tumor and attached dura mater should also be excised in order to prevent relapse of the tumor. Therefore, the intradural tumors as well as the attached dura mater and nerve roots were removed. During this resection, care was taken to remove the sensory nerve branch without damaging the motor nerve branch using the nerve excitability test. However, the sensation of the removed branch was not easily restored. When it comes to tumors, complete surgical removal is the ultimate treatment method and the treatment outcome is dependent on the neurological condition, the extent of the excision, and histopathological findings\(^21\).

**CONCLUSION:**

Intradural extramedullary tumors, which are detected by MRI and tend to be histopathologically benign, can be separated completely from the spinal cord without difficulty by surgery. In addition, good treatment outcomes and prognoses can be expected after surgical removal of intradural extramedullary tumors. Therefore, aggressive surgical approaches for the treatment of intradural extramedullary tumors by orthopedic surgeons are recommended. Intradural-extramedullary spinal cord tumors that are not extended to the vertebral foramen can be resected safely and completely by a unilateral limited laminectomy. Although this small series of consecutive patients with a short follow-up, we have demonstrated that it is possible to completely resect intradural-extramedullary spinal cord tumors safely.
with the reductions in postoperative back pain, instability, degenerative changes and operative blood loss.

REFERENCES:

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