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The perioperative approach of Dorso-Lumbar Schwannoma: A case report

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Abstract: ***Background:*** *Schwannomas are Benign neoplasm of peripheral nerves and autonomic nervous system. Dorso-Lumbar schwannomas is the benign tumours developed from insulating lining of spinal nerve cells. Being benign in nature, its also require removal whenever it creates a pressure on spine that causes pain and other clinical manifestations. If left untreated, it may cause spinal damage with long term complications. We present a case of Dorso-Lumbar schwannoma followed by discussion on its perioperative approach used in the patient.* ***Case Presentation:*** *We report a case of right Dorso-Lumbar schwannoma evident with histological findings. A 20yrs old male, is a known case of Right Dorso-Lumbar (D6-L1) Paravertebral Mass or right sided Dorso-Lumbar Schwannoma. There was no history of trauma such as fall and penetrating wound. He came to the outpatient department with swelling in mid back since the last 2 years. Therefore, the patient was in observation with regular follow ups and MRI scanning every 3 months to see the status of the tumour. Till the surgery, patient was on symptomatic management. After all preoperative evaluation, Total Excision of tumour was performed under general anaesthesia using the posterolateral transforaminal approach.* ***Conclusion:*** *Although in clinical practice, the intradural-extramedullary Schwannomas are most commonly encountered, we should also be focused of a paraspinal location as well. To our knowledge, this case is strongly expressed the perioperative care of patient and its associated clinical findings. Appropriate Perioperative care is essential for better outcome and prevention of complications in clinical practice.*

Key Words: *Schwannoma, Dorso-Lumbar schwannoma, total excision, spinal benign tumour.*

1. INTRODUCTION:

Schwannomas refer to benign, encapsulated tumors that derive from the nerve sheath. This report presents the case of a 53 year old patient with chronic back pain which was initially misdiagnosed as unilateral meningoceles but, later on, MRI scan with contrast disclosed the presence of lumbosacral schwannoma which appeared as solid heterogeneous lesion which would lie within and expand the left neural exit foramen, extending into the paravertebral soft issues with marked mass effect on the adjacent psoas muscle. Instead of surgically removing the schwannoma, musculoskeletal imaging guided nerve root injection of corticosteroid was administered to the patient as a palliative treatment. Clinical and radiological features of this rare and often misdiagnosed medical finding will be accentuated in this case report and treatment strategy will be discussed. Schwannomas are benign, encapsulated tumours that originate from nerve sheath. Healthcare professionals are not commonly encountered with Schwannomas. This comprise of around 3% of all spinal tumours. Presently schwannomas are the most common primary neoplasms of the spinal cord. Being benign in nature, a complete resection of tumour remains the gold standard for curative and surgical treatment. The most common clinical manifestations of spinal schwannomas include back pain, sciatica, fatigue, and weakness or numbness in the arms and legs [2,3]. Schwannomas are sometimes confused with neurofibromas due to their similar appearance although the two conditions are quite different. Neurofibromas are hard to remove surgically due to the ability of neurofibratomas to penetrate deep into the nerve root and become part of it. Thus, surgical removal of neurofibromas almost always results in damaging the nerve itself and neurological deficits [4]. On the other hand, schwannomas do not penetrate into the nerve root and only press against the fascicular groups without causing any damage. Therefore, schwannomas can usually be removed without causing neurological deficits [5,6]. Without high-resolution imaging techniques (such as CT scan, MRI scan), it is easy to miss the cases of lumbosacral schwannomas and misdiagnose them as lumbar (intervertebral) disk disease. This happens due to high number of cases with typical clinical presentation of a disc disease encountered by physicians among their patients. This report presents the case of a

53 year old patient with chronic back pain which was initially misdiagnosed as unilateral meningoceles but, later on, MRI scan with contrast disclosed the presence of lumbosacral schwannoma as it shall be discussed in detail in this report

Case Presentation: A 20yrs old male, is a known case of Right Dorso-Lumbar (D6-L1) Paravertebral Mass or right sided Dorso-Lumbar Schwannoma. He came to the outpatient department with swelling in mid back since the last 2 years and waiting for surgery. Patient was taking Prescribed medications- Tab. Gabapentin 300mg BD, Tab. Pregabid 75mg BD, Tab. Fefol BD, Tab. Pan D 40MG BD, Tab. Calcium 500mg OD. There was no history of trauma such as fall and penetrating wound.

Patient was apparently well 3 years back, when he noticed a swelling on back then the mother of patient herself applied hot application on his back without consulting to any doctor. Later on, swelling which was initially small in size, gradually progressive in size associated with pain and altered sensation. The swelling was slowly growing over this period. There was pain associated with the swelling. There were no constitutional symptoms like low grade fever, loss of weight or anorexia. On examination, there was a 15 cm × 25 cm sized swelling over right lower dorsal region. There was no tenderness or increased temperature over the swelling. The swelling was firm and had limited mobility. Neurological examination of both lower limbs was normal then patient came to Hospital and there CT done and diagnosed as tumour of spine and then patient shifted to tertiary care hospital for further management. There was no significant past medical and surgical history. There is no family history as well. Later on, he got admitted in Neurology ward with the chief complaints of Swelling over back for 2 years, altered sensation over right side of chest and upper abdomen for 2 years, Pain, tingling sensation and numbness over back for 2 years. All essential investigations were done. During physical examination, vitals were normal, his height was 160cm, weight was 52kg and Body mass index was 20.31(Normal). Swelling was present on his back and during neurological examination, GCS was 15, coordination test was normal, reflexes were normal, test for sensation was normal. The laboratory findings were normal. X ray report of chest revealed no cardiopulmonary abnormalities while MRI dorsolumbar spine showed a well-circumscribed lesion with lobulated outline in right paraspinal location extending from D6-D12 vertebral body levels with small extension up to the right neural exit foramen at 010-11 level, with irregular osseous erosions, patchy sclerosis and marrow Edema and associated findings as described-infective? tubercular etiology. Clinical/FNAC correlation and Follow-up were suggested. FNAC from back swelling shows scanty cellularity comprised of spindle cell singly scattered with occasional tiny fascicles along with pink fibrically material (stomal fragments) associated with atypical mitosis and necrosis seen. Overall features favour benign spindle cell lesion. Excision and minimal histopathological correlation for further categorization was advised for the patient.

Pre-operative phase: The pre-operative orders include: NPO from mid night, Optimize Hb again if hb-8 or less than 8mg/dl then transfuse 1 PRBC, Arrange 4 PRBC for intraoperative measures, Fresh CBC, informed consents, part preparation of the patient for OT. Preoperative Medications were Inj. Pantop-40mg OD, AST of Inj. Monocef before OT, OT gown and ID tag, Shift the patient to OT on call.

Intraoperative notes: Surgery procedure- Total Excision of tumour under GA using the posterolateral transforaminal approach was performed by neurosurgeon as the current size of tumour is 15*25cm. Tumour was firm to hard with well-defined plane of cleavage, highly vascular with whitish -pinkish in colour extending from L-1 vertebra and destroyed the lamina of D8 (Right side)

Post-operative phase: Patient received from Neuro OT in Neurosurgery Recovery ICU with AMBU and connected to Mechanical ventilation of FiO2 100% and PEEP-5 on PCV mode. Patient is having 1 Lumbar drain with 70ml volume, CVP and Arterial Line as invasive lines and patient was catheterized as well with 60ml urine output. The Post-operative orders were: Inj. Monocef 500mg IV BD, Inj. Amikacin 250mg IV BD, Inj. Solumedrol 500mg IV BD, Inj. Pantocid 40mg OD, Inj. Diclofenac 75mg IV BD, NS @ 80ml/hr and NPO till 6hrs followed by clear liquid diet till morning If tolerated 250ml 2nd hourly NG tube feeding.

POD 0: Patient was on Mechanical Ventilation, **temperature:**96.4F, **Pulse**:94/ min, **Respiration:**24/min, **IBP:**131/71 mmHg, **MAP**: 69mm of Hg and **SPO2**:98%. The Target Mean BP was 65mm of Hg. Drain Volume on receiving was 70ml. Comfortable position (semi-fowlers) is provided to the patient. Mode of ventilation was PCV Mode with PEEP-5 and FiO2-100%. ET was fixed at 25cm and ETT suctioning was performed. NPO status maintained up to 6hrs and then clear liquid started 100ml 2nd hourly for that day and from next morning at 6AM RT feed to be given 300ml every 3rd hourly. 24hrs intake and output of patient was maintained as negative balance.

POD1: Patient was extubated and conscious/oriented. Vitals signs were normal. Last drain volume was 150ml. Patient is on Face Mask with 7 L/min humidified oxygen therapy and having no respiratory discomfort. IV NS on flow at the rate of 80ml/hr.

POD 2 and POD 3: Patient was conscious and oriented. Vital signs were stable. He was on Face Mask at the rate 4ml/hr oxygen therapy. Patient was tolerating feed well. Spirometry 2nd hourly performed by the patient. Last drain volume was 50ml and 30ml respectively.

During Perioperative care, no complication was reported in the present case. The parents of the patient were educated related to compliance of treatment, regular check ups and early reporting of complications, if any.

2. DISCUSSION:

Spinal Schwannomas account for 30% of all spinal tumours. In this 19.5% of patients with spinal cord compression have been treated surgically. The average age of patients was 45 years, with a discreet female predominance. Spinal schwannomas had an insidious onset, then the median of consultation time was 18 months. The main symptoms were spinal and radicular pain. Half of our patients had neurological deficits. Medullary MRI was performed in all of our patients. Spinal schwannomas occurred predominantly in the chest (40%); 62% of shwannomas were intradural lesions, rarely extradural lesions (8%) and mixed lesions(4%). Complete Surgical resection was performed in 96% of cases with osteosynthesis in two cases and arthrodesis in a single case. Histological examination confirmed the diagnosis of benign neurinoma in 23 cases, malignant shwannoma in one case and neurofibroma in one case. Outcome was favorable in the majority of cases, two patients had complications, an infection of the wall and neurological worsening. The interest in the subject of our study is to highlight the features of these lesions and to compare the results of our case series with the data in the literature.

3. CONCLUSION:

Schwannoma is a slow growing benign tumour for which surgery is curative and treatment of choice. After total excision of the tumour, the complete recovery can be achieved. Although MRI can evaluate the pre-surgical evaluation but there are no clinical signs that can help in differentiation from other intramedullary tumours.

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