A Case Of Ossified Ligamentum Flavum Presenting With Acute Neurology

Harkeerat S, Trevor AF, Chan SK, Jaffar MSA, Foo CH
Department of Orthopaedics & Traumatology, Hospital Queen Elizabeth, Kota Kinabalu, Sabah.

INTRODUCTION:

Ossifications over the posterior spinal elements has always haunted patients with never-ending pain and radiculopathy symptoms. The most common structure to ossify in the posterior elements is the posterior longitudinal ligament.[1] We report a rare case of a ossified ligamentum flavum.

CASE REPORT:

A 40-year-old lady presented with an acute history of inability to walk due to bilateral lower limb weakness. She was otherwise well and denied any history of trauma or fall. Her motor function below L1 was impaired with sacral sparing and upper motor neuron lesion symptoms. Sensory deficit was patchy with the highest level at T9. Blood works and routine x-rays were normal. An MRI scan of the whole spine revealed a rounded well encapsulated hypointense mass over the posterior elements at the T9 level which was compressing onto the cord. The mass had no contrast uptake and was hypointense on both T1 and T2 phases.

The patient was then subjected to decompressive laminectomy surgery with posterior stabilization. Intra-operatively there was a 3cm x 3cm flesh like covering below the lamina encapsulating the spinal cord. The mass was not adherent to the dura and after excision, the cord was seen pulsating healthily.

Post-operatively, the patient regained some sensory and motor function which recovered well on her 3 month follow-up visit.

Histopathology studies of the mass revealed a mixture of bony trabeculae, fibrocartilage and ligament like tissue. No malignant or suspicious cells were encountered.

DISCUSSIONS:

The relative incidence of ossified ligamentum flavum (OLF) occurs at the thoracic spine 38.5%, lumbar spine 26.5%, cervical spine 1%.[1] The three types of ossifications are, beaked type, diffused and nodular (as seen in our patient). The treatment of choice is for decompressive laminectomy one level above and below the lesion with posterior stabilization if necessary.[1,3] A study on mice revealed that by injecting bone morphogenic proteins into the lumbar extradural space, researchers were able to recreate ligamentum flavum ossification that protrudes into the spinal canal of mice.[2] A group of Japanese researchers also reported that OLF occurs predominantly via endochondral ossification, they theorize that the initial swelling of the collagen fibers lead to hypertrophic ligamentum flavum which attracts fibrocartilage cells and ossification occurs over the superficial layers of the hypertrophic ligamentum flavum.[3]

CONCLUSION:

Despite OLF presenting with acute neurology, early treatment gives patients a good chance of recovery.

REFERENCES:

1. U. Singhal et. al. Unilateral ossified ligamentum flavum in the high cervical spine causing myelopathy. Indian J Orthop. 2009 Jul-Sep; 43(3): 305–308
2. S. Miyamoto et. al. Ossification of the ligamentum flavum induced by bone morphogenetic protein. An experimental study in mice. JBJS 1992; 74:2
3. Okada Kozo et. al. Thoracic Myelopathy Caused by Ossification of the Ligamentum Flavum Clinicopathologic Study and Surgical Treatment. Spine 1991; Volume 16: Issue 3