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PHOTO QUIZ

Low back pain and a dumbbell shaped hypodense mass on CT in a middle aged woman

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Figure 1. a,b. Axial CT image (a) shows low density mass extending from intervertebral-extradural region to the extravertebral region through the right L1-2 intervertebral foramen (white arrows). Impression of thecal sac is seen (Black arrow). Dumbbell shaped appearance and expansion of neural foramina is well seen on reformatted coronal images (b) generated from axial CT data.

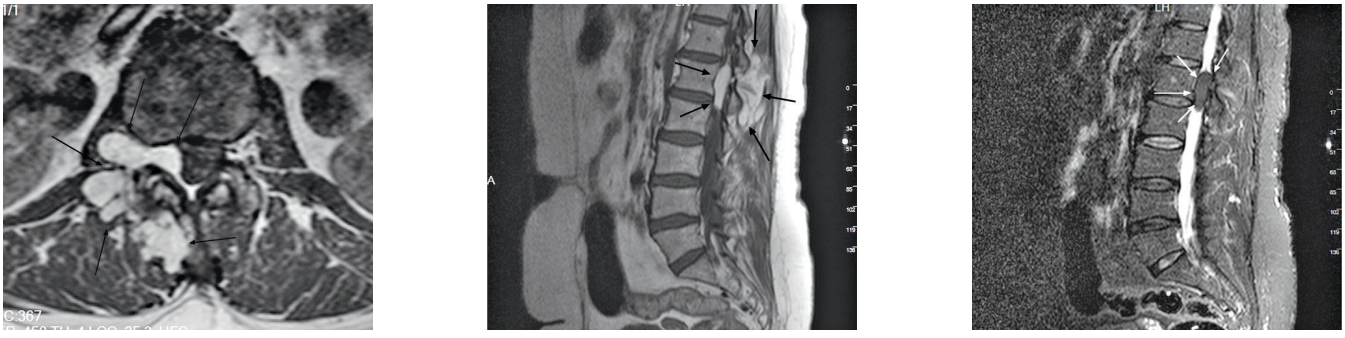

Figure 2. a-c. T1 weighted MR images in axial (TR 450, TE 8, Slice thickness 4/0,5) (a) and sagittal (TR 400, TE 9, Slice thickness 4/0,4) (b) plane shows hyperintense dumbbell shaped mass extending from intracanalicular-extradural region to the extracanalicular-extravertebral region through the intervertebral foramen and expanding the neural foramen (black arrows). Also, complete supression of signal from the fatty lesion, confirming the diagnosis of lipoma, is seen on short TI intervention recovery (STIR) image (TR 3500, TE 80, TI 165, Slice thickness 4/0,4) (c) at the sagittal plane (white arrows).

A 58-year-old woman who suffered low back and right dominant limb pain predominantly on the right for 15 years was admitted to our hospital. Physical examination revealed mild weakening of flexion strength at the right thigh. All laboratory findings were normal except hypercholesterolemia (233 mg/dl (0-200 mg/dl)). On combuted tomograpy (CT) (Figures 1a and 1b), a dumbbell shaped hypodense mass which had a density of -76 HU was detected at the level of L1-2 intervertebral foramen. The tumour extended through the ipsilateral enlarged foramen. At magnetic resonance imaging (MRI) (Figures 2a, 2b and 2c), the mass was isointense with fat tissue on both T1 and T2 weighted images (WI) and suppressed completely on the fat supressed images. It reached through the psoas muscle anteriorly and spinous process posteriorly and pushed the thecal sac to left. The lesion did not enhance with Gd-based contrast material.

What is your diagnosis?

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ANSWER to PHOTO QUIZ

Extradural spinal cord lipoma

Spinal cord lipomas are benign lesions and are seen in less than 1% among all spinal tumors. They are commonly seen at the lumbosacral area and usually appear with spinal dysraphism [1]. Forty percent of lipomas are formed at the extradural location, whereas 60% of them are located at the intradural space. Extradural lipomas are usually seen at the mid and low thoracic segments [2]. Spinal dumbbell shaped tumors originate inside or outside of the duramater concurrently or they extend to the extra-vertebral area through one or more neural foramen. The lesion typically causes symptoms of a slow growing mass with pain. It also causes hypotonia, weakness, numbness and failure in walking [3, 4]. On the CT, lipomas are seen as homogenous masses with low density (-90 -115HU). It is characteristic for lipomas to show hyperintense signal intensity on T1WI [5]. Their signal characteristic is variable on T2WI. They may be iso, hypo or hyperintense when compared with neural parenchyma. In fat suppressed images, signals of fats are suppressed and lipomas are seen as hypointense lesions [6]. Lipomas may appear hypointense in T2WI due to the short T1 and T2 value of fat. Because, the signal intensity may change depending on the adipose and connective tissue in the lipoma [7]. Also, the signal may vary depending on sequences which are turbo or fast spin echo and spin echo.

Dumbbell shaped spinal tumors which extend into the neural foramen and cause enlargement are seen very rarely [5, 6]. Only a few intradural [6, 4] and extradural [8-11] dumbbell shaped spinal lipomas, without spina bifida and caused enlargement at the intervertebral foramens, were detected in the literature.

For asymptomatic lipomas of filum terminale, surgical treatment is recommended, but no surgical treatment is necessary for the conus lipomas. Close observation will be enough, if the diagnosis is correct. The localization of the lipoma, risks of surgery, post operative likelihood of neurological deficiencies must be considered before any intervention [5, 10].

At the differential diagnosis of lipomas which extend to the neural foramen, neurofibroma, neuroblastoma, menengioma, lymphoma, myeloma, hemangioma and disk herniation should be considered. Neurofibromas are usually hypointense on T1WI, and hyperintense on T2WI. Spinal menengiomas are isointense with spinal cord on T1WI and T2WI. Hemangiomas have higher signal intensity than cerebrospinal fluid on T2WI. Most malignant tumors surround the thecal sac and cause abnormal signal intensity at the adjacent vertebraes [12, 13]. So, spinal lipomas can be easily differentiated from the other dumbbell shaped malignant and benign tumors with benign characteristics, the isointense view with fat on T1WI and T2WI and the complete supression of signal on fat supressed images.

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