



UNIVERSITY of  
**ROCHESTER**  
MEDICAL CENTER

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### DEPARTMENT OF IMAGING SCIENCES

## Imaging Sciences Interesting Cases

### CASE 23

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**CLINICAL PRESENTATION:** Patient is a one-day-old female with known neural tube defect and suspected myelomeningocele.

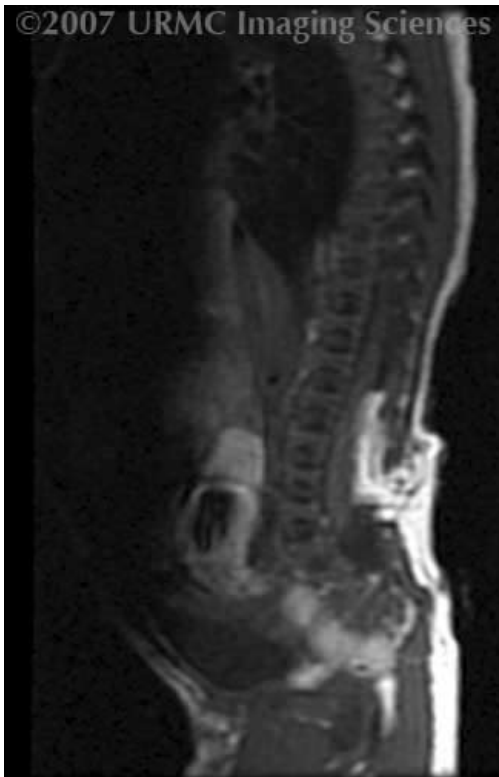
#### IMAGING FINDINGS:



**Figure 1:** Radiograph of the abdomen shows widening of the interpedicular distance at the L3 through L5 levels with an L3 hemivertebra and dysplastic L4 vertebra.



**Figure 2:** Sagittal T2-weighted image of the lumbar spine demonstrates a dorsal osseous dysraphism with a subcutaneous mass at the posterior elements (open arrow) which is isointense to the adjacent fat. The mass narrows the spinal canal and is continuous with a neural placode (arrowhead) which is isointense to the cord. In addition there is linear T2 hyperintensity centrally within the spinal cord (white arrow).



**Figure 3:** Sagittal T1-weighted image shows that the dorsal mass maintains high-signal which is comparable to the subcutaneous fat.



**Figure 4:** A sagittal T1-weighted image of the brain shows a normal craniocervical junction.

**DIAGNOSIS: Dorsal osseous dysraphism associated with lipomyelomeningocele and tethered cord**

**DIFFERENTIAL DIAGNOSIS:** Terminal lipoma, dorsal meningocele, myelocele/myelomeningocele

**DISCUSSION:** Lipomyelomeningoceles (LMMC) are similar to meningoceles except, as the name implies, a lipoma is attached to the surface of the dorsal placode. This is always seen with tethering of the cord which inserts into the cord at the dysraphic defect. The etiology of the associated lipoma is secondary to induction of mesenchymal fat formation by the ependymal lining of the primitive neural tube. This occurs in approximately 20-56% of spinal dysraphism. Interestingly though, its incidence is not impacted by folate supplementation during pregnancy, in contrast to myelomeningoceles.

Imaging findings will show a subcutaneous fatty mass that is continuous with a neural placode through a posterior dysraphism. There may be associated terminal hydromyelia as in this case. Fat suppressed MR images are useful to demonstrate the fatty components of the mass. Clinically, there may be overlying abnormalities including a dimple, dermal sinus, skin tag, or hairy patch. The skin mass may be large or clinically occult. There may be associated vertebral segmentation abnormalities (as in this case), such as butterfly vertebra, hemivertebra, and fused vertebra. Other associated abnormalities include sacral anomalies, GU anomalies, and terminal diastematomyelia.

The treatment of these lesions is surgical resection of the lipomas and untethering of the cord. Retethering is commonly seen after repair, and as a result these patients require long term follow-up. If untreated the infant may develop progressive irreversible neurologic damage.

**REFERENCES:**

1. Ross J, Brant-Zawadzki M, Chen M, Moore K. Diagnostic Imaging: Spine. Amirsys 2004.