Tethered Cord with Intraspinal Lipoma
Joseph Junewick, MD FACR
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History
Newborn with lumbar dermal sinus.

Diagnosis
Tethered Cord with Intraspinal Lipoma

Discussion
A dorsal dermal sinus is an epithelium-lined tract from the skin to the thecal sac. Most are located in
the lumbosacral region and less often in the occipital or other midline regions. Dorsal dermal sinus is
caused by incomplete separation of the superficial ectoderm from the neural ectoderm, resulting in a
focal adhesion. Later the spinal cord ascends relative to the spinal canal and stretches the adhesion
into a long, tubular tract. There is no genetic predominance. Dorsal dermal sinus manifests as a small
midline dimple often associated with other skin anomaly (altered pigmentation, hemangioma or
hypertrichosis). Since the sinus provides an avenue for infection, meningitis, epidural or subdural
abscess, and myelitis may occur. A paramedian dermal sinus is often associated with an intraspinal
dermoid or epidermoid cyst.

Intraspinal lipomas are classified as lipomyelocele/lipomyelomeningocele, fibrolipoma of the filum
terminale, and intradural lipoma. Neurologic symptoms include sensory deficits, paresis, and
bowel/bladder dysfunction. Premature separation of the superficial ectoderm from the neural
ectoderm results in mesenchymal infiltration which differentiates into fat. In
lipomyelocele/lipomyelomeningocele, the lipoma lies adjacent to the dysplastic spinal cord and
extends into the spinal cord causing tethering. The lipoma is continuous with the subcutaneous fat
and covered by intact skin. Lipomyelocele is always associated with spina bifida and often associated
with segmentation anomalies of the vertebrae.

Findings
US-Dysplastic conus medullaris is tethered at the lumbosacral junction in an intraspinal lipoma.
Dermal sinus tract is present.
MR-Intraspinal fat engulfs the dysplastic cord and is continuous with the subcutaneous fat. Dermal
sinus tract extends into the spinal canal superior to the lipoma.

Reference
Findings, Variants, Congenital Anomalies, and Acquired Diseases. RadioGraphics (2000); 20:923-
938.
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