Case Report

Noncontiguous Double Spinal Lipoma with Tethered Cord and Polydactyly: Two Different Embryological Events in One Patient

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Abstract

Lumbosacral lipoma is reported to occur in 4–8/100,000 of the general population. It is reported as the most common cause of tethered cord syndrome. In addition, lipomyelomeningocele (LMM) was reported to be present in 25%–30% of children with tethered cord syndrome. Although 66% of LMM in young patients are accompanied by hypertrophic filum terminale, it is rare to find two isolated spinal lipomas simultaneously. Partial resection of complex spinal lipomas is associated with high rate of symptomatic recurrence due to retethering. Total resection of lipomas and aggressive neural placode reconstruction is now advocated for better progression-free survival (PFS).

In this report, we describe a 4-month male child with two combined spinal lipomas of transitional and filum terminal types with a polydactyl of left hand who underwent total excision of both the lipomas with placode reconstruction.

Case Report

A 4-month-old female baby presented with a 5 cm × 7 cm sized protruding, nontender, soft, subcutaneous mass in the lower lumbosacral area which had been present since birth. Other anomalies included polydactyly of left hand. Magnetic resonance imaging demonstrated two isolated spinal lipomas, a transitional type and a terminal type filum lipoma with an interval of normal filum between the two. The findings were confirmed at surgery and detethering done along the white plane with neural placode reconstruction as described by Dachling Pang. The child had an uneventful postoperative recovery.

Keywords: Lipoma, neural placode reconstruction, neural tube defects, spinal dysraphism, tethered cord syndrome, white plane of Dachling Pang

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type was observed on the filum terminale. The conus and terminal cord were tethered and demonstrated a syrinx.

At surgery, L3 to S2 laminectomy was performed and complete excision of the transitional lipoma with preserving the white plane as described by Pang et al. was performed. Filum lipoma was excised [Figure 3]. Placode reconstruction was performed with PDS 8/0 suture and was water-tight, but lax dural closure achieved with 5-0 prolene. The child had an uneventful recovery.

DISCUSSION

Congenital spinal lipomas constitute a heterogenous group of spinal dysraphisms. Different terms have been coined in literature for these lesions. Pierre-Kahn et al. used the term lumbosacral lipomas and subdivided them into lipomas of conus and lipomas of filum. They used the term LMM for meningocele, which was associated with subcutaneous lipoma. Chapman categorized conus lipomas into dorsal, caudal, and transitional types.

Premature dysjunction hypothesis as proposed by McLone and Naidich explains the development of dorsal and conus lipomas while maldegeneration processes of the caudal cell mass in secondary neurulation probably explains development of terminal type of lipomas.

However, in our case, where there were two separate lipomas, a transitional variety and terminal filar variety, a combination of the two events coincidentally involved in different embryonic periods, resulting in two different isolated types of spinal lipoma can be the plausible explanation.

Total/near total resection of complex spinal cord lipomas and complete reconstruction of the neural placode produces a much better long-term PFS than partial resection. There are, in fact, strong indications that partial resection causes exuberant scarring at the lipoma-cord interface and consequently worsens prognosis compared to no surgery. Sharp dissection with microscissors is used to locate a thin but distinct silvery white plane between fat and cord at the demilune of the rostral fusion line with neural placode reconstruction can help in achieving total to near total excision as in our case.

CONCLUSIONS

Double spinal lipomas represent an interesting set of patients where two different embryological mechanisms are responsible for the formation of two noncontiguous lipomas. A complete excision along the silvery plane and placode reconstruction should be performed to have a longer PFS.

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Conflicts of interest
There are no conflicts of interest.

REFERENCES
1. Bruce DA, Schut L. Spinal lipomas in infancy and childhood. Childs Brain 1979;5:192-203.
2. Hoffman HJ, Taecholarn C, Hendrick EB, Humphreys RP. Management of lipomyelomeningoceles. Experience at the hospital for sick children, Toronto. J Neurosurg 1985;62:1-8.
3. Xenos C, Sgouros S, Walsh R, Hockley A. Spinal lipomas in children. Pediatr Neurosurg 2000;32:295-307.
4. Lee JH, Shin KM, Kim MH, Song JH, Park HK, Kim SH, et al.

Figure 1: Clinical image showing dorsolumbar lipoma

Figure 2: Magnetic resonance imaging T1-weighted, T2-weighted, and fat suppression images demonstrating noncontiguous spinal lipomas

Figure 3: Operative photographs showing noncontiguous double lipomas and white plane after complete excision of transitional lipoma
Lipomyelomeningocele: Clinical analysis of 14 cases. J Korean Neurosurg Soc 1996;25:1196-201.
5. Kim MJ, Yoon SH, Cho KH, Won GS. Tethered spinal cord with double spinal lipomas. J Korean Med Sci 2006;21:1133-5.
6. Pang D. Total resection of complex spinal cord lipomas: How, why, and when to operate? Neurol Med Chir (Tokyo) 2015;55:695-721.
7. Kumar A, Mahapatra AK, Satyarthee GD. Congenital spinal lipomas: Role of prophylactic surgery. J Pediatr Neurosci 2012;7:85-9.
8. Pierre-Kahn A, Zerah M, Renier D, Cinalli G, Sainte-Rose C, Lellouch-Tubiana A, et al. Congenital lumbosacral lipomas. Childs Nerv Syst 1997;13:298-334.
9. Chapman PH. Congenital intraspinal lipomas: Anatomic considerations and surgical treatment. Childs Brain 1982;9:37-47.
10. McLone DG, Naidich TP. Laser resection of fifty spinal lipomas. Neurosurgery 1986;18:611-5.
11. Walsh JW, Markesbery WR. Histological features of congenital lipomas of the lower spinal canal. J Neurosurg 1980;52:564-9.
12. Li YC, Shin SH, Cho BK, Lee MS, Lee YJ, Hong SK, et al. Pathogenesis of lumbosacral lipoma: A test of the “premature dysjunction” theory. Pediatr Neurosurg 2001;34:124-30.