

Fibrolipomatous Hamartoma of a Peripheral Nerve in the Groin of a Child: A Rare Case Report

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Abstract

Fibrolipomatous hamartoma of the nerve, also termed lipomatosis of the nerve, is a rare benign tumor characterized by fibrofatty infiltration of peripheral nerves. It most commonly affects the median nerve in the upper extremities, while involvement of other anatomical sites is uncommon. Groin involvement has rarely been reported and may present diagnostic challenges because groin masses in children are usually attributed to more common conditions. A 1-year 9-month-old boy presented with a painless left groin mass that had slowly enlarged over six months. Physical examination revealed a firm, non-tender mass approximately 2 cm in diameter, situated separate from the testis. Ultrasonography demonstrated a heterogeneous hyperechoic lesion within the left inguinal canal, with interval growth compared to previous imaging. Magnetic resonance imaging showed asymmetric thickening of the subcutaneous fat partially surrounding the spermatic cord. Surgical exploration was performed for diagnosis. The mass was partially attached to the distal spermatic cord and located near the urethra. Histopathological examination revealed benign adipocytic tissue with entrapped nerve bundles, consistent with fibrolipomatous hamartoma. Fibrolipomatous hamartoma of the nerve is an extremely rare cause of pediatric groin mass. This condition should be considered in the differential diagnosis of lipomatous lesions in the groin. When imaging findings are inconclusive, surgical biopsy or excision may be considered to establish the diagnosis and exclude other tumors.

Keywords: fibrolipomatous hamartoma, groin mass, pediatric tumor

Fibrolipomatous hamartoma of the nerve, now called lipomatosis of the nerve in the World Health Organization classification of soft tissue tumors, is a rare benign lesion characterized by fibrofatty proliferation within the epineurium and perineurium of peripheral nerves.¹ This abnormal growth causes the affected nerve to enlarge and includes infiltration of fat and fibrous tissue among the nerve fascicles. The lesion most often involves the median nerve of the upper limb, where it can cause symptoms related to nerve compression, such as pain, paresthesia, or numbness.^{2,3} Although the upper limb is the most common site, fibrolipomatous hamartoma has occasionally been reported in other areas, including the lower extremities and, rarely, cranial nerves.⁴⁻⁶ In many cases, the tumor is found during childhood or adolescence, and there is usually no family history or clear genetic predisposition. The condition may also involve nerve-territory overgrowth, leading to enlargement of the soft tissues or digits supplied by the affected nerve.

Radiologic evaluation is crucial in the diagnostic process. Magnetic resonance imaging (MRI) often shows characteristic features such as the “coaxial cable” or “spaghetti-like” appearance, indicating fatty infiltration between enlarged nerve fascicles. However, these imaging findings may not always be visible, especially in unusual anatomical locations. In such cases, histopathological examination remains vital for a definitive diagnosis, particularly to rule out other lipomatous tumors or malignant lesions.

Groin masses in children are commonly caused by conditions such as inguinal hernia, hydrocele of the spermatic cord, lymphadenopathy, or testicular and paratesticular tumors. Lipomatous lesions in this region are uncommon, and fibrolipomatous hamartoma involving nerves of the groin has rarely been described. Because of this rarity, the lesion may not be readily recognized in the differential diagnosis of pediatric groin masses.

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In this report, we describe a case of fibrolipomatous hamartoma of a nerve presenting as a groin mass in a young child. The clinical presentation, radiologic findings, surgical management, and histopathological characteristics are presented, and the relevant literature is reviewed. This case highlights the importance of considering rare lipomatous nerve tumors when evaluating unusual groin masses in the pediatric population.

Case Report

A 1-year, 9-month-old boy presented with a left groin mass for 6 months. The mass gradually increased in size and did not change when the boy cried. His mother denied any pain associated with the mass. He was able to pass urine and stool normally. Physical examination revealed a mid-lower groin mass approximately 2 cm in size without tenderness. The mass had a firm-to-hard consistency and was separated from the upper pole of the left testis. The skin over the mass was normal. Ultrasound examination showed a left inguinal canal mass measuring 1.2 x 2.6 cm, containing heterogeneous hyperechoic tissue in the mid to lower portion, with

no vascularity. The mass has increased in size compared to ultrasound six months ago, when it was 1.6 x 1.2 cm (Figure 1).

A magnetic resonance imaging (MRI) of the affected area was performed. There was asymmetrical thickening of subcutaneous fat with an internally irregular, mildly enhancing area (A), partially encasing the adjacent spermatic cord (B), as well as associated plaque-like skin and intradermal thickening (C) at the left suprascrotal region extending to the superior left scrotal sac (Figure 2).

The operation was performed for tissue diagnosis. Operative findings found the mass was partially attached to the distal spermatic cord without involving the testis. The mass was also located near the urethra on the medial side (Figure 3). The mass was completely removed from the spermatic cord without injury, with partial removal on the medial side (near the urethra) (Figure 4).

Pathologic examination revealed benign adipocytic tissue with entrapped nerve, consistent with fibrolipomatous hamartoma of the nerve (Figure 5).

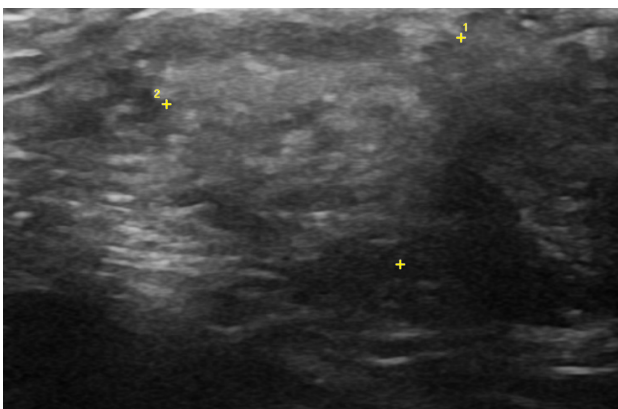


Figure 1: Ultrasound findings of the groin mass at presentation.

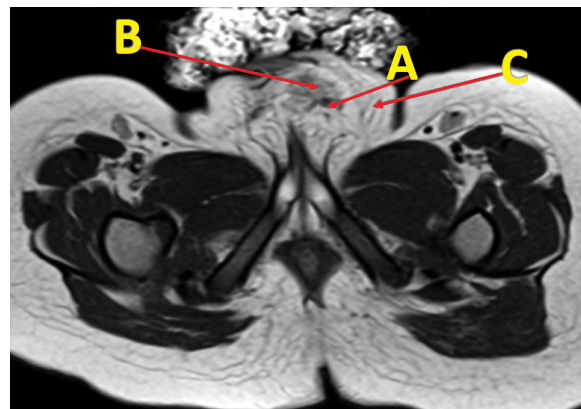


Figure 2: MRI of the groin mass, showing
A: Asymmetric thickening of the subcutaneous fat with an internal irregular mildly enhancing area partially encasing the adjacent spermatic cord. B: Spermatic cord. C: Associated plaque-like skin and intradermal thickening at the left suprascrotal region.

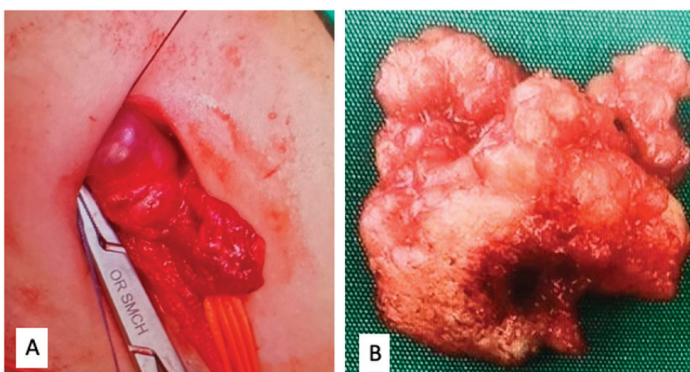


Figure 3: Mass partially encased the distal spermatic cord (A), and the mass after partial excision (B).



Figure 4: The left spermatic cord and testis after complete removal of the tumor from the spermatic cord.

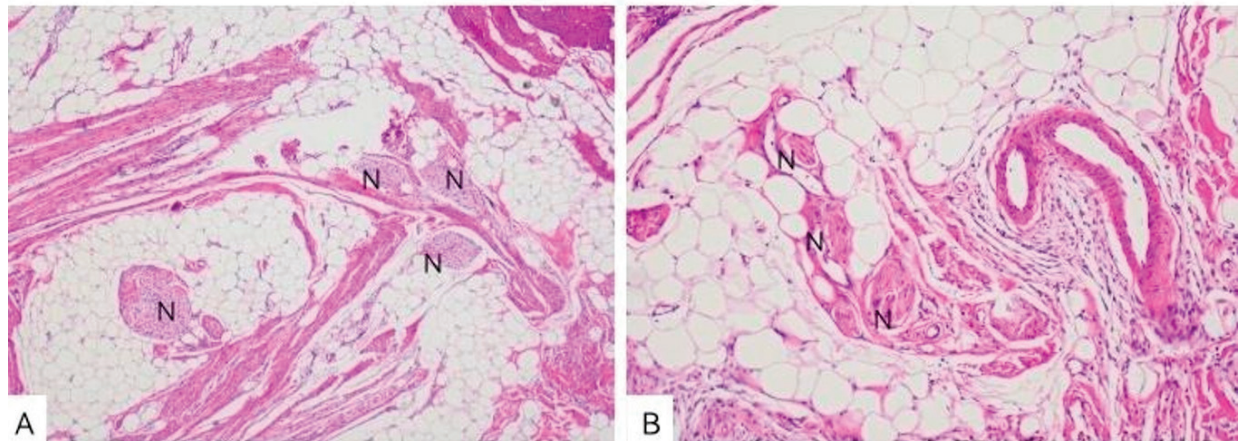


Figure 5: Histopathology of the mass, showing entrapped neural bundles (N) surrounded by adipomatous tissue without malignant features.

Discussion

Fibrolipomatous hamartoma of the nerve is a rare benign tumor. The nomenclature has been classified by WHO as lipomatosis of the nerve since 2002.⁷ The tumors have no sex preference, and the majority are found in the first decade of life without associated family history.⁵ Most of these tumors are located at the median nerve and cause various symptoms such as compression, pain, and numbness.^{1-3,8} Other locations are less common, including the lower extremities and cranial nerves.^{4,6} To our knowledge, fibrolipomatous hamartoma of the nerve involving the groin area has rarely been reported.

The evaluation of a groin mass in children requires careful clinical and radiologic assessment because several conditions can present with similar findings. A groin mass in children may result from various lesions or diseases, such as inguinal hernia, hydrocele of the spermatic cord, and inguinal lymphadenopathy. A lesion in the lower groin near the testis should raise suspicion for testicular or paratesticular tumors. Lipomatous diseases, including lipoma, lipoblastoma, and fat necrosis, are uncommon but should be considered if radiologic findings suggest them.

Imaging studies play a vital role in the diagnostic evaluation. Ultrasonography is typically the first-line imaging method for pediatric groin masses because it is noninvasive and widely available. However, ultrasound findings of fibrolipomatous hamartoma are often nonspecific and may only reveal a hyperechoic soft-tissue mass. MRI may allow a confident diagnosis when the characteristic “spaghetti” or “coaxial cable” appearance is present; however, these typical imaging features were not observed in this patient.^{9,10} Nonetheless, when characteristic imaging findings are absent and malignancy cannot be excluded, tissue diagnosis may be considered after careful assessment of the lesion’s relationship to adjacent nerves and other critical structures. Physical examination and radiologic findings should be closely correlated to exclude testicular tumors because biopsy of testicular tumors requires different surgical techniques, such as more proximal vascular control.

Because imaging findings may be inconclusive, histopathological examination remains essential for definitive diagnosis, particularly to exclude other lipomatous tumors or malignancies such as lipoblastoma. In the present patient, surgical exploration revealed a mass partially attached to the distal spermatic cord and located adjacent to the urethra. Histopathological analysis demonstrated benign adipocytic proliferation with entrapped nerve bundles, confirming the diagnosis of fibrolipomatous hamartoma. Hypertrophy of the nerve territory was observed in 62% of fibrolipomatous hamartoma cases.⁵ This phenomenon may manifest as enlargement of the soft tissues supplied by the affected nerve. However, this patient does not exhibit this abnormality. It is possible that the patient is very young, and the hypertrophy may be subtle. Long-term follow-up is necessary to monitor for nerve territory hypertrophy in this boy. Major nerves in the lower groin area include the genital branch of the genitofemoral nerve and the ilioinguinal nerve. Fibrolipomatous hamartoma may originate from one of these nerves. Injury to these nerves can result in pain or loss of sensation in the groin, genitalia, and perineum. The patient experienced no persistent pain after the operation, but sensory loss cannot be assessed until the child can communicate precisely.

There is controversy regarding the treatment of fibrolipomatous hamartoma, such as conservative management, resection, decompression, and tumor debulking.^{11,12} Surgical treatment has been reported to be associated with symptom improvement, although the optimal approach remains unclear.¹¹ In the author’s opinion, if the tumor in the groin area compresses the spermatic cord, excision or debulking should be considered. A previous study reported that 3 out of 8 patients experienced recurrent masses.⁸ Recurrence or continued growth after partial excision has been reported in some patients. Therefore, long-term clinical follow-up is recommended, particularly in pediatric patients whose tissues continue to grow and develop. Further surgical intervention may be considered if the lesion enlarges or causes new compressive symptoms.

Conclusion

The present case highlights an extremely unusual presentation of fibrolipomatous hamartoma involving the groin region in a young child, expanding the spectrum of anatomical locations in which this rare tumor may occur. It also emphasizes the importance of considering lipomatous nerve lesions in the differential diagnosis of pediatric groin masses,

particularly when imaging demonstrates fatty tissue associated with neural structures. Careful correlation between clinical examination, imaging findings, and histopathological evaluation is essential to establish the diagnosis and to guide appropriate surgical management while avoiding unnecessary radical procedures.

References

1. Ranjan R, Kumar R, Jeyaraman M, et al. Fibrolipomatous Hamartoma (FLH) of median nerve: a rare case report and review. *Indian J Orthop.* 2021;55(Suppl 1):S267-72. doi: 10.1007/s43465-020-00149-9
2. Agrawal R, Garg C, Agarwal A, et al. Lipofibromatous hamartoma of the digital branches of the median nerve presenting as carpal tunnel syndrome: a rare case report with review of the literature. *Indian J Pathol Microbiol.* 2016;59:96-98. doi: 10.4103/0377-4929.178241.
3. Marek T, Mahan MA, Carter JM, et al. What's known and what's new in adipose lesions of peripheral nerves? *Acta Neurochir (Wien).* 2021;163(3):835-42. doi:10.1007/s00701-020-04620-2.
4. Plaza JA, Kazakov DV, Casas G, et al. Fibrolipomatous hamartoma of the nerve: a clinicopathologic report of 13 cases. *J Am Acad Dermatol.* 2014;70(4):736-42. doi:10.1016/j.jaad.2013.10.002.
5. Marek T, Spinner RJ, Syal A, et al. Strengthening the association of lipomatosis of nerve and nerve-territory overgrowth: a systematic review. *J Neurosurg.* 2020;132:1286-94. doi: 10.3171/2018.12.JNS183050.
6. Bisceglia M, Vigilante E, Ben-Dor D. Neural lipofibromatous hamartoma: a report of two cases and review of the literature. *Adv Anat Pathol.* 2007;14(1):46-52. doi: 10.1097/PAP.0b013e31802f04b7.
7. Fletcher CDM, Unni KK, Mertens F, editors. *World Health Organization classification of tumours: pathology and genetics of tumours of soft tissue and bone.* Lyon: IARC Press; 2002.
8. Silverman TA, Enzinger FM. Fibrolipomatous hamartoma of nerve: a clinicopathologic analysis of 26 cases. *Am J Surg Pathol.* 1985;9(1):7-14. doi: 10.1097/00000478-198501000-00004.
9. Marom EM, Helms CA. Fibrolipomatous hamartoma: pathognomonic on MR imaging. *Skeletal Radiol.* 1999;28(5):260-4. doi: 10.1007/s002560050512.
10. Nilsson J, Sandberg K, Dahlin LB, et al. Fibrolipomatous hamartoma in the median nerve in the arm – an unusual location but with MR imaging characteristics: a case report. *J Brachial Plex Peripher Nerve Inj.* 2010;5:1. doi: 10.1186/1749-7221-5-1.
11. Marek T, Spinner RJ, Syal A, et al. Surgical treatment of lipomatosis of nerve: a systematic review. *World Neurosurg.* 2019;128:587-92.e2. doi: 10.1016/j.wneu.2019.04.110.
12. Prabhu A, Anil R, Kumar N. Fibrolipomatous hamartoma of the median nerve: an outcome of surgical management in six consecutive cases. *Niger J Surg.* 2020;26(2):153-8. doi: 10.4103/njs.NJS_16_20.