DOI: 10.7860/JCDR/2026/82981.22577

Case Report

Pathology Section

Chondroid Lipoma Arising over the Plantar Aspect of Right Foot: A Case Report

RAMYA BANAGE[1], VISHNU PRAKASAM[2], ANISH CHANDRAN[3], SUSHMA PABBISETTY[4], MUTHU SUDALAIMUTHU[5]

ABSTRACT

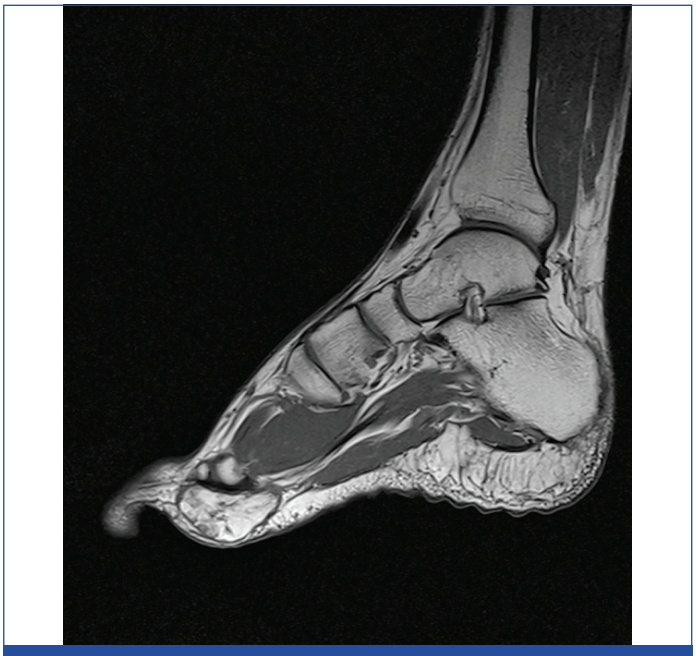
Chondroid lipoma is a rare benign soft-tissue tumour characterised by the presence of both mature adipose and chondroid-like extracellular matrix components. We present the case of a 34-year-old male who reported a slow-growing, painless swelling on the plantar aspect of the right foot evolving over two years, with a history of preceding trauma. The swelling was associated with sharp, pricking pain exacerbated by walking and relieved on rest in the last eight months. The patient had no similar lesions elsewhere and was newly diagnosed with diabetes without other comorbidities. Clinical evaluation and imaging are crucial for diagnosis, given the rarity and non-specific presentation of this tumour, especially at the uncommon plantar foot location, which can mimic other soft tissue masses. Magnetic Resonance Imaging (MRI) plays a significant role in delineating the tumour's extent and composition, aiding in surgical planning. Histopathological examination confirms the diagnosis by revealing a biphasic pattern of mature adipocytes mixed with chondroid areas devoid of malignant features. Complete surgical excision is the treatment of choice, with an excellent prognosis and a low likelihood of recurrence. This case underscores the importance of considering chondroid lipoma in the differential diagnosis of slow-growing, painful swellings in the foot, especially post-trauma, to avoid misdiagnosis and ensure appropriate management. Awareness of this rare entity enables clinicians to differentiate it from more aggressive neoplasms and tailor treatment accordingly, leading to better patient outcomes.

Keywords: Diagnosis, Differential, Soft tissue neoplasms, Plantar Foot

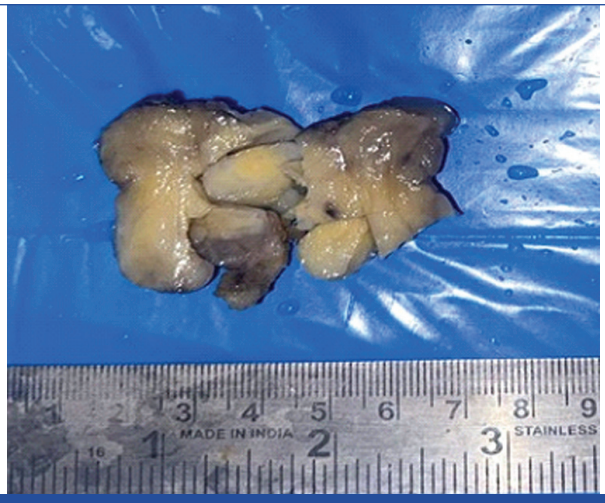
CASE REPORT

A 34-year-old male presented to the outpatient department of general surgery with a complaint of slow-growing swelling over the right foot for two years, which developed after a history of trauma to the right foot. The swelling was associated with a sharp, pricking, non-radiating type of pain for the past eight months, which increased in severity on walking and relieved on rest. There was no history of similar swellings elsewhere in the body. The patient was a newly diagnosed diabetic with no other known co-morbidities. On examination, a uniform ovoid swelling of size 5×4×1 cm was noted over the plantar aspect of the right foot, just below the ball of the second toe. The skin over the swelling was normal. On palpation, the swelling was non-tender, non-mobile, non-fluctuant and was soft in consistency. MRI of the lesion showed the presence of ~ 4.6×3.9×2.0 cm (AP×TR×CC) sized relatively well-defined T1 hyperintense lesion noted in the plantar aspect of the foot at the level of the 2nd and 3rd metatarsophalangeal joint abutting the flexor tendons of the foot. The lesion was mildly extending into the interphalangeal region between the 2nd and 3rd toes. The lesion was abutting the central band of the plantar fascia of the foot. There was no evidence of bone/joint involvement. The lesion showed few internal T2 hypointense, STIR hyperintense septae/areas within it - suggestive of a non-fat component. The MRI impression given was 'Focal fat-containing lesion in the plantar aspect of foot as described above - likely low grade/well differentiated liposarcoma; differential diagnosis: Lipoma' [Table/Fig-1]. The patient's fasting and postprandial blood glucose were 150 and 238 mg/dL, respectively.

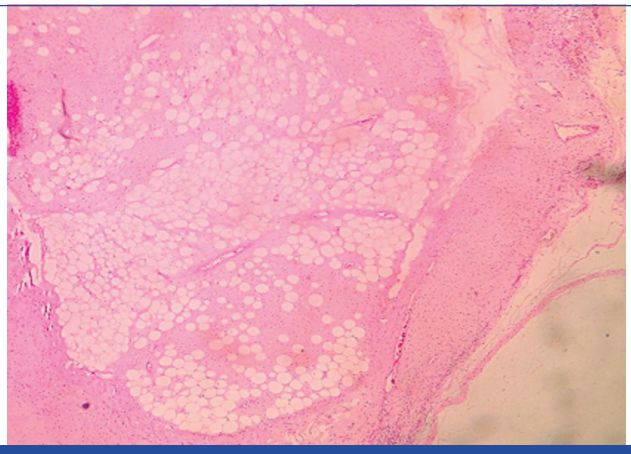
Subsequently, an excision was done and sent to the department of pathology for histopathological examination. Grossly, it was an encapsulated mass measuring 4.5×3.6×2.2 cm. Cut surface showed grey yellow to grey white areas, which were predominantly soft to focally firm in consistency [Table/Fig-2]. Microscopic examination showed a partly circumscribed tumour revealing lobules of adipose tissue composed predominantly of mature adipocytes with eccentrically placed nuclei and vacuolated cytoplasm [Table/Fig-3]. A few of the cells were multivacuolated with eccentrically scalloped nuclei (Lipoblastic differentiation) [Table/Fig-4]. The intervening variably thickened fibrous septa showed extensive evidence of myoepithelial chondroid matrix with scattered chondrocytes along with congested blood vessels [Table/Fig-5]. There was no evidence of marked nuclear atypia, mitosis or necrosis. Based primarily on the histomorphology findings with correlation of clinical and radiological findings, a diagnosis of chondroid lipoma was made. Immunohistochemical markers were not used. Postoperatively patient was managed with antibiotics, analgesics and other conservative measures. The patient's general condition had improved and was stable. The patient was reviewed every week, and the wound healed well with the sutures removed on Postoperative Day (POD) 20.



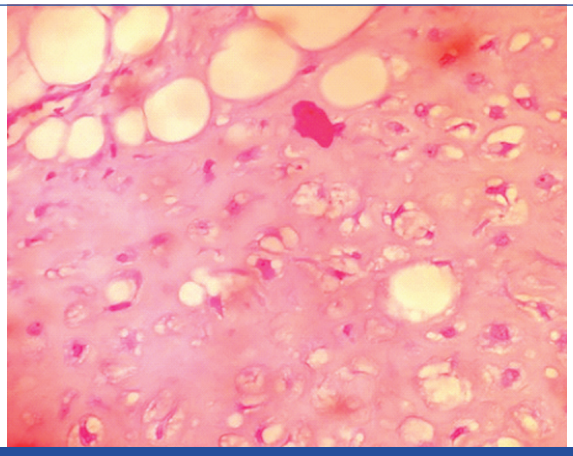
[Table/Fig-1]: Sagittal section of MRI showing T1 hyperintense lesion in the plantar aspect of the foot.



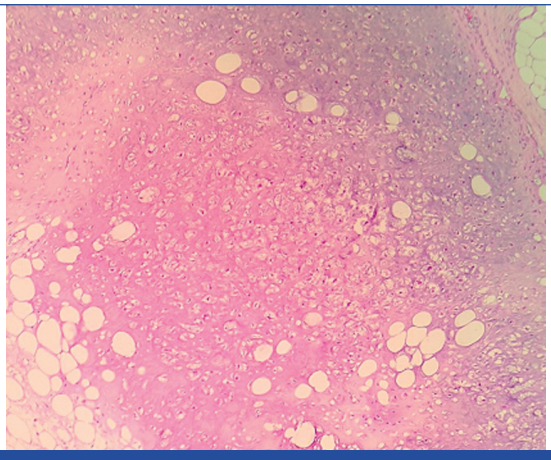
[Table/Fig-2]: Cut section of gross specimen showing grey-yellow to grey white areas.



[Table/Fig-3]: Lobular architecture (H&E; 4x).



[Table/Fig-4]: Cells showing lipoblastic differentiation (H&E; 40x).



[Table/Fig-5]: Extensive myoepithelial chondroid matrix. (H&E; 10x).

DISCUSSION

Chondroid lipoma, first described by Meis, is a rare benign lipomatous tumour [1]. Since then, fewer than 100 cases have been documented in the literature. Although cytogenetic studies have found recurrent chromosomal aberrations, such as translocations involving 11q13 and 16p13, leading to the C11orf95-MKL2 fusion oncogene, suggesting a distinct molecular etiology for this benign tumour, the underlying pathogenic mechanisms of chondroid lipoma remain largely unknown [2]. Chondroid lipoma most often arises in the proximal limb and limb girdles of adult women [3]. Its female predisposition does not align with the current case. It usually presents as a slow-growing, painless mass in adults, but reports of cases in children have also been documented [4,5]. There have been reports of unusual sites such as the breast [6], neck [7], trunk, tongue [8], gluteal region [9] and groin. This current case report expands its collection of unusual sites. The patient's clinical presentation, characterised by a slow-growing, painful plantar foot mass, aligns with the symptomatic profile of some benign lipomatous lesions, yet the pain's sharp, pricking nature and exacerbation with weight-bearing raise suspicion for nerve involvement or a more aggressive aetiology, requiring thorough investigation [10]. Histologically, it is a tumour composed of an admixture of mature adipocytes and lipoblasts in a chondroid or myxochondroid background. Although a report suggested considering chondroid lipoma using MRI with the "fat ring sign", it is evidence from a single case report [11]. The present case's imaging findings, particularly the MRI suggestion of lipoma/well-differentiated liposarcoma, underscore the diagnostic ambiguity inherent in differentiating benign from malignant adipocytic tumours based solely on imaging, which is further complicated by the histological features that resemble hibernoma, myxoid liposarcoma, myxoid chondrosarcoma, and other lipomatous or chondroid neoplasms. The careful macroscopic evaluation, noting the encapsulated nature and grey-yellow to grey-white cut surfaces, provided initial insights that guided subsequent microscopic analysis towards a benign diagnosis, contrasting with the more variegated and infiltrative appearances often seen in liposarcomas. The absence of atypical cells and mitotic activity confirmed the benign nature of the lesion, providing critical information for patient management and prognosis. This contrasts with other rare variants, such as osteochondrolipomas of the foot, which feature chondroid and osseous differentiation [12]. Given the benign diagnosis of chondroid lipoma, the complete surgical excision performed in this case is considered curative, with a very low risk of recurrence.

CONCLUSION(S)

This case report of chondroid lipoma emphasises the need for diagnostic precision, especially given the tumour's morphological resemblance to malignant entities and the implications for patient management. A comprehensive approach is essential to prevent misdiagnosis, which can lead to inadequate treatment for malignant lesions or unnecessary aggressive interventions for benign ones.

REFERENCES

[1] Meis JM, Enzinger FM. Chondroid lipoma. Am J Surg Pathol. 1993;17(11):1103.
[2] Huang D, Sümegi J, Cin PD, Reith JD, Yasuda T, Nelson M, et al. C11orf95-MKL2 is the resulting fusion oncogene of t(11;16)(q13;p13) in chondroid lipoma. Genes Chromosomes Cancer. 2010;49(9):810-8.
[3] Thway K, Flora R, Fisher C. Chondroid lipoma: An update and review. Ann Diagn Pathol. 2012;16(3):230-5.
[4] Patne S, Aryya N, Gangopadhyay A. Chondroid lipoma in a child. Ind J Pathol Microbiol. 2008;51(4):541-3.
[5] Tannenbaum MF, Colucci PG, Baad M, Borczuk A, Steigman SA, Kovanlıkaya A. Chondroid lipoma: Multimodality imaging in a 9-year-old female. Skeletal Radiol. 2019;49(1):161-65.
[6] Aloul AA, Savga S, Diaconu CC, Savu C, Şiru O, Dimitriu M, et al. Giant chondroid lipoma of the breast: A case report and literature review. Exp Ther Med. 2021;22(4):1087.
[7] Katsuyama Y, Shirai T, Terauchi R, Tsuchida S, Mizoshiri N, Mori Y, et al. Chondroid lipoma of the neck: A case report. BMC Res Notes. 2018;11(1):415.

[8] Keppler EER, Garcia AB, Martins LN, Barra MB, Trevisan B, Daroit NB. Chondroid lipoma in young patient—Case report. Oral Surgery Oral Med Oral Pathol Oral Radiol. 2022;134(3):e104-07.
[9] Alsaleh N. Chondroid lipoma that may mimic malignancy: A case report. Clin Case Rep. 2023;11(10):e8059.
[10] Uddin A, Flanagan G, Reilly I. Surgical excision of complex lipoma from the foot: A case report. Clin Case Rep. 2022;10(6):e5953.
[11] Yıldız AE, Aydıngöz Ü, Sökmensüer C, Karçaaltıncaba M. Intramuscular chondroid lipoma: Magnetic resonance imaging diagnosis by 'fat ring sign.' Balkan Med J. 2014;32(1):107-10.
[12] Aljassir F, Alageel M, AlShebel MN, Alsudairi A, Hashim AS, Alshaygy I. Osteochondrolipoma of the foot treated by surgical excision: A case report and literature review. BMC Musculoskelet Disord. BioMed Central. 2024;25(1):275.

PARTICULARS OF CONTRIBUTORS:
1. Postgraduate Student, Department of Pathology, SRM Medical College Hospital and Research Centre, Potheri, Tamil Nadu, India.
2. Postgraduate Student, Department of Surgery, SRM Medical College Hospital and Research Centre, Potheri, Tamil Nadu, India.
3. Assistant Professor, Department of Pathology, SRM Medical College Hospital and Research Centre, Potheri, Tamil Nadu, India.
4. Postgraduate Student, Department of Radiology, SRM Medical College Hospital and Research Centre, Potheri, Tamil Nadu, India.
5. Professor, Department of Pathology, SRM Medical College Hospital and Research Centre, Potheri, Tamil Nadu, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Muthu Sudalaimuthu,
Professor, Department of Pathology, SRM Medical College Hospital and Research Centre, Potheri-603203, Tamil Nadu, India.
E-mail: drmuthus@gmail.com

PLAGIARISM CHECKING METHODS: [Jain H et al.]
- Plagiarism X-checker: Oct 03, 2025
- Manual Googling: Dec 06, 2025
- iThenticate Software: Dec 09, 2025 (5%)

ETYMOLOGY: Author Origin

EMENDATIONS: 7

AUTHOR DECLARATION:
- Financial or Other Competing Interests: None
- Was informed consent obtained from the subjects involved in the study? No
- For any images presented appropriate consent has been obtained from the subjects. NA

Date of Submission: **Sep 25, 2025**
Date of Peer Review: **Oct 22, 2025**
Date of Acceptance: **Dec 12, 2025**
Date of Publishing: **Mar 01, 2026**