IKR Publishers

IKR Journal of Clinical Medicine and Medical Research (IKRJCMMR)
Journal homepage: https://ikrpublishers.com/ikrjcmmr/
Volume-2, Issue-3 (May-June) 2026
OPEN ACCESS
ISSN: 3107-6521 (Online)

An Exceptional Coexistence: Primary Hepatic Leiomyosarcoma and Basal Cell Carcinoma: A Case Report

Abdelaziz AMMARI[1*], PhD; Sihem BENSALEM[2], MD; & Assia BENSALEM[3], MD, PhD

[1,3]Medical Oncology Department, Hospital Establishment DIDOUCHE Mourad, Faculty of Medicine, University Constantine 3, Algeria

[2]Endocrinology-Diabetology and Metabolic diseases, Regional University Military Hospital Commander Abdellali BENBAATOUCHE (HMRUC) Constantine, Faculty of Medicine, University Constantine 3, Algeria

DOI:*10.5281/zenodo.20560023*

ARTICLE INFO

Article history:
Received : 06-05-2026
Accepted : 15-05-2026
Available online : 05-06-2026

Citation: Ammari, A., Bensalem, S., & Bensalem, A. (2026). An Exceptional Coexistence: Primary Hepatic Leiomyosarcoma and Basal Cell Carcinoma: A Case Report. *IKR Journal of Clinical Medicine and Medical Research (IKRJCMMR), 2*(3), 5-7.

ABSTRACT **Case Studies**

Background: Primary hepatic leiomyosarcoma (LMSH) is a rare nosological entity originating from the mesenchymal lineage. Its co-occurrence with basal cell carcinoma (BCC), a neoplasm of epithelial origin, constitutes an exceptionally rare and poorly documented association. We present the case of a 43-year-old patient whose clinical course was marked by the successive diagnosis of these two distinct pathologies.

Case Presentation: In 2015, a primary LMSH was managed with surgical resection followed by adjuvant chemotherapy (doxorubicin and ifosfamide). Subsequently, the development of locally advanced and unresectable BCC in 2018 required targeted therapy with vismodegib, a Hedgehog pathway inhibitor. This case highlights the therapeutic challenges posed by multiple primary neoplasms and underscores the importance of vigilant oncologic surveillance.

Conclusion: This rare coexistence emphasizes the need for multidisciplinary management and lifelong surveillance in patients with rare primary malignancies.

Keywords: Hepatic Leiomyosarcoma, Basal Cell Carcinoma, Multiple Primary Neoplasms, Vismodegib, Hedgehog Signaling Pathway.

**Corresponding author: Abdelaziz AMMARI*
Medical Oncology Department, Hospital Establishment DIDOUCHE Mourad, Faculty of Medicine, University Constantine 3, Algeria

Introduction

Leiomyosarcoma, a malignant tumor arising from smooth muscle cells, constitutes 10–20% of all soft tissue sarcomas [1]. Its primary hepatic localization remains exceptionally rare, posing significant diagnostic and therapeutic challenges [2]. In contrast, basal cell carcinoma (BCC) is the most prevalent cutaneous malignancy in the general population, with increasing incidence [3]. The simultaneous occurrence of these neoplasms—distinct in embryological origin and biology—raises complex questions regarding diagnosis, pathophysiology, and prognosis. While multiple primary neoplasms in a single patient are recognized, the coexistence of LMSH and BCC is exceptionally rare [4, 5]. We report this unique case to discuss management challenges and prognostic implications.

Case Presentation

A 43-year-old male with no significant medical history presented with two successive neoplasms.

- **2015:** Diagnosis of LMSH. Partial surgical resection (R2 margin) was performed, followed by adjuvant chemotherapy (doxorubicin and ifosfamide) for eight cycles.
- **2017:** Unresectable hepatic progression was treated with radiofrequency ablation. Second-line chemotherapy (ifosfamide) was initiated for nine cycles (2017–2022), achieving disease stability.
- **Late 2023:** Development of three frontal tumors. Surgical resection revealed infiltrated margins, with histopathology confirming BCC.
- **2024:** New lesions on the back and neck. MRI showed infiltrative cutaneous/subcutaneous involvement with osseous lysis. Histology confirmed recurrent, multifocal, nodular, keratinizing, and pigmented BCC. Given unresectability, vismodegib (Hedgehog inhibitor) was initiated in August 2024. The patient exhibited partial radiological response and clinical improvement.

Discussion

Diagnostic and Differential Diagnosis

- **LMSH Diagnosis:** Relies on correlation of clinical, radiological, and histopathological findings. Imaging suggests a heterogeneous mass with necrosis/hemorrhage, but histology (spindle cells, marked atypia, high mitotic rate) and immunohistochemistry (smooth muscle markers: actin, desmin, h-caldesmon; CD117/DOG1-negative) confirm the diagnosis [2] (Figure 1).

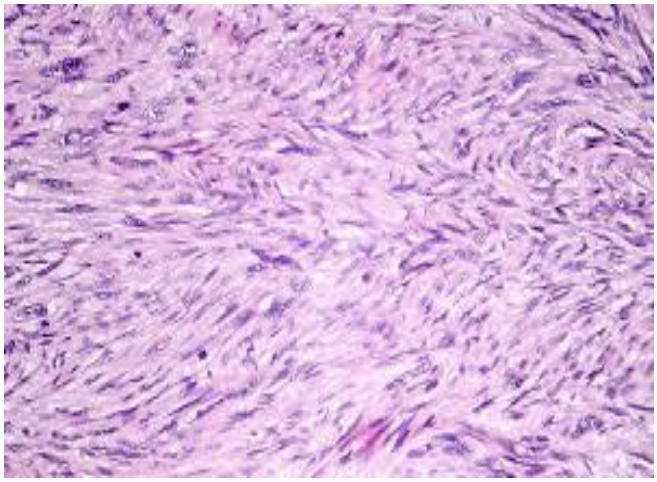

Figure 1: Immunohistochemistry of Hepatic Leiomyosarcoma

- **BCC Diagnosis:** Defined by basaloid nests with palisading nuclei and stromal retraction, confirmed by CK5/6 and BerEP4 positivity. Absence of metastatic LMSH supports independent primary tumors [3].
- **Contrast in Biology:** LMSH is diagnosed late with poor prognosis dependent on R0 resection, while BCC is typically early-stage with slow local progression and rare metastasis. This contrast supports distinct primary origins (Figure 2).

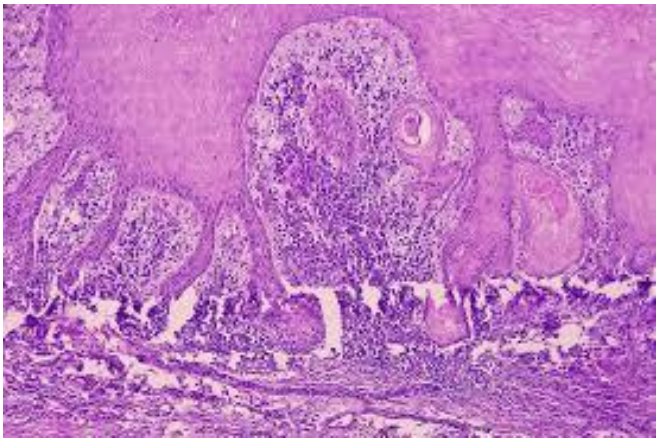

Figure 2: Immunohistochemistry of Basal Cell Carcinoma

Pathophysiological Hypotheses

1. **Coincidental Association:** High BCC incidence may statistically co-occur with rare neoplasms without shared biology.
2. **Genetic Susceptibility:** LMSH involves TP53/RB1/PTEN alterations; BCC is driven by Hedgehog pathway mutations (PTCH1/SMO). A global DNA repair defect could theoretically predispose to both [8, 9].
3. **Environmental/Immunological Factors:** UV exposure is a major BCC risk. Immunosuppression (e.g., UV-induced or systemic) may facilitate multiple primary cancers [3].

Molecular Biology: Insights and Limitations

Comparative genomic analysis (e.g., NGS) could clarify clonal vs. independent origins but is lacking in this case. Future studies should integrate molecular profiling to elucidate shared mechanisms [10].

Clinical Implications and Management

- **Diagnostic Challenge:** New lesions in rare-cancer patients require thorough pathology to exclude metastasis.
- **Multidisciplinary Approach:** Collaboration among hepatologists, oncologists, surgeons, dermatologists, and pathologists is critical.
- **Lifelong Surveillance:** First atypical cancers increase risk of subsequent primaries, warranting lifelong monitoring [5].

Limitations and Perspectives

- **Retrospective, Single Case:** Limits causal inference and generalizability. Lack of molecular data hampers biological insights.
- **Value of Case Reports:** Documenting rare cases enriches literature, stimulates international registries, and generates testable hypotheses.

Conclusion

The coexistence of LMSH and BCC exemplifies the diagnostic and therapeutic challenges of multiple primary neoplasms. Successful management hinges on multidisciplinary collaboration and molecular integration. Future multicentric studies with genomic profiling are essential to transform isolated observations into robust biological insights.

Conflict of Interest

The authors declare that they have no links of interest.

Acknowledgements

The authors would like to thank the staff of the oncology and endocrinology departments at Didouche Mourad University Hospital, and Regional University Military Hospital Commander Abdellali BENBAATOUCHE (HMRUC) in the Constantine province for their invaluable assistance in data collection and patient management. We are also grateful to all the patients whose data are in this study.

Declarations

This study used anonymized patient data. As the research involved no direct intervention or modification of standard patient care, formal approval from an ethics committee was not required in accordance with institutional and national guidelines for observational studies. All patient data were anonymized prior to analysis to protect confidentiality and treated according to the Algerian national guidelines

Funding

This study received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Authors' Contributions

Conceptualization: Abdelaziz AMMARI Assia BENSALEM; **Methodology:** Sihem BENSALEM; **Software:** Abdelaziz AMMARI; **Validation:** Abdelaziz AMMARI, Sihem BENSALEM, Assia BENSALEM; **Formal Analysis:** Sihem BENSALEM; **Investigation:** Abdelaziz AMMARI, Sihem BENSALEM, Assia BENSALEM; **Resources:** Abdelaziz AMMARI; **Data Curation:** Abdelaziz AMMARI, Sihem BENSALEM, Assia BENSALEM; **Writing - Original Draft Preparation:** Abdelaziz AMMARI, Sihem BENSALEM; **Writing - Review & Editing:** Abdelaziz AMMARI, Sihem BENSALEM, Assia BENSALEM ; **Visualization:** Sihem BENSALEM; **Supervision:** Abdelaziz AMMARI, Sihem BENSALEM; **Project Administration:** Assia BENSALEM; **Funding Acquisition:** Not applicable.

References

1. Stiller, H., et al. (2011). Sarcoma incidence and survival in Swedish children 1960–2008. *European Journal of Cancer*.
2. Basheer, M. I., et al. (2022). Primary hepatic leiomyosarcoma: a case report and literature review. *World Journal of Hepatology*.
3. Krilaviciute, A., et al. (2016). Basal cell skin cancer and the risk of second primary cancers. *Annals of Epidemiology*.
4. Mesmoudi, M., et al. (2011). Triple malignancy in a single patient. *Journal of Medical Case Reports*.
5. Cantwell, M. M., et al. (2009). Second primary cancers in patients with skin cancer. *British Journal of Cancer*.
6. Judson, I., et al. (2001). Randomised phase II trial of pegylated liposomal doxorubicin versus doxorubicin and ifosfamide. *European Journal of Cancer*.
7. Sekulic, A., et al. (2012). Efficacy and safety of vismodegib in advanced basal-cell carcinoma. *New England Journal of Medicine*.
8. Barretina, J., et al. (2010). Subtype-specific genomic alterations define new targets for soft-tissue sarcoma therapy. *Nature Genetics*.
9. Scales, S. J., & de Sauvage, F. J. (2009). Hedgehog pathway inhibitors in cancer therapy. *Nature Reviews Clinical Oncology*.
10. Hong Z, et al. (2024). Case report of multiple primary malignancies and treatment results. SAGE Open Medical Case Reports, 10, 1–5.