Dermatology Reports

Dermatology Reports 2026; 18:10457
doi:10.4081/dr.2025.10457

Rate of growth of Merkel cell carcinoma: a unique photographic evidence

Eleonora Bearzi,[1,2] Simona Sola,[3] Carlotta Defferrari,[4] Stefano Chiodi,[5] Nicola Di Meo,[1] Cesare Massone[2]

[1]Department of Dermatology, Maggiore Hospital, University of Trieste; [2]Dermatology Unit, Maggiore Hospital, University of Trieste; [3]Surgical Pathology, Maggiore Hospital, University of Trieste; [4]Oncology Department, Maggiore Hospital, University of Trieste; [5]Plastic Surgery, Galliera Hospital, Genoa, Italy

Abstract

Merkel cell carcinoma (MCC) is a rare, aggressive neuroendocrine skin tumor, mainly linked to Merkel cell polyomavirus (MCPyV) and less often to ultraviolet exposure. Additional risk factors include advanced age and immunosuppression. Although MCC is known to grow rapidly, its exact growth rate has not yet been described. We report a case of a 73-year-old man who developed de novo MCC on the lower eyelid while undergoing immunotherapy with nivolumab. Clinical photographs document the absence of disease in March 2024 and the appearance of a 7 mm papule in October 2024. Histology confirmed the diagnosis. This case represents rare visual evidence of MCC's rapid progression, suggesting an estimated growth rate of approximately 1 mm/month. A controversial aspect is that MCC developed despite ongoing treatment with a programmed death (PD)-1 checkpoint inhibitor, currently recommended for this cancer. Although anecdotal, this case highlights MCC's progression and the need for further research and new therapies.

Key words: Merkel cell carcinoma; rate of growth; immunotherapy; melanoma.

Correspondence: Cesare Massone, MD, Dermatology Unit & Scientific Directorate, Galliera Hospital, via Volta 6, 16128 Genoa, Italy.
E-mail: cesare.massone@galliera.it

Introduction

Merkel cell carcinoma (MCC) is a rare but aggressive neuroendocrine skin tumor that mostly arises from Merkel cell polyomavirus (MCPyV) infection, while a minority of cases are linked to ultraviolet-induced genetic damage. Additional risk factors include advanced age and immunosuppression. Although it is known that MCC is a rapidly growing tumor, its exact growth rate has not yet been described. In this article, we report the development of MCC *ex novo* in a patient while undergoing immunotherapy with a unique visual documentation of the tumor's progression and estimation of the tumor growth rate.[1,2]

Case Report

We report the case of a 73-year-old man with a complex oncological history of multiple malignancies. He underwent a right nephroureterectomy for urothelial carcinoma of the renal pelvis in 2020; in November 2023, he was diagnosed with low-grade bladder carcinoma and is currently awaiting transurethral resection; in July 2023, he was diagnosed with choroidal melanoma in the right eye and received proton therapy. In August 2024, PET detected lung metastases; therefore, immunotherapy with nivolumab (240 mg every 2 weeks) was started in September 2024.

During a dermatological visit in March 2024, a pT1a melanoma on the left nasal wing was detected and excised, followed by routine re-excision only (Figure 1A). At the subsequent dermatological follow-up in October 2024, the patient presented a *de novo* papule on the lower left eyelid (Figure 1B), measuring 7 mm in diameter, which was not documented in clinical photographs 7 months earlier. Dermoscopy (Figure 1C) showed an erythematous non-specific background pattern with shiny white lines.

An excisional biopsy was performed, and histological examination of hematoxylin-eosin (H&E) sections revealed a dense nodular dermal infiltrate composed of round to oval small basophilic cells with vesicular nuclei, multiple nucleoli, scant cytoplasm, and many mitoses (Figure 2). Immunohistochemical staining confirmed the diagnosis of MCC since it showed positivity for cytokeratin 20 (CK20), chromogranin, and synaptophysin but negativity for thyroid transcription factor (TTF)-1. A subsequent excision for the safety of peripheral surgical margins was performed, and in the same procedure, a sentinel lymph node biopsy was attempted. Unfortunately, no lymph node with contrast enhancement was identified, necessitating re-excision; however, N staging could not be performed. A multidisciplinary meeting concluded with the decision to continue nivolumab without adjuvant radiotherapy. The last PET follow-up in June 2025 revealed stable disease; additionally, dermatological follow-up was negative.

Discussion

This case represents a rare visual documentation of the rapid growth of an MCC. Comparison between photographs shows no clinical signs of the disease in March 2024 and a papule with a

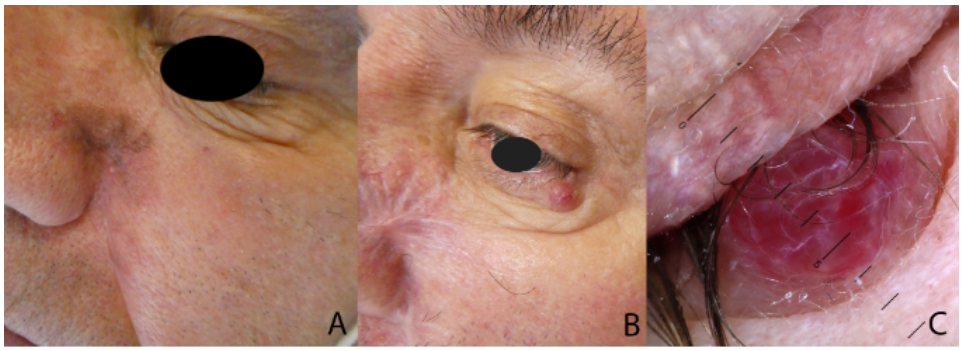

Figure 1. A) On the left nasal pigmented irregular macule (melanoma T1a): absence of lesion on the lower left eyelid. **B**) At the subsequent dermatological follow-up in October 2024, the patient presented a *de novo* papule on the lower left eyelid, measuring 7 mm in diameter. **C**) Dermoscopy showed an erythematous, non-specific background pattern with shiny white lines.

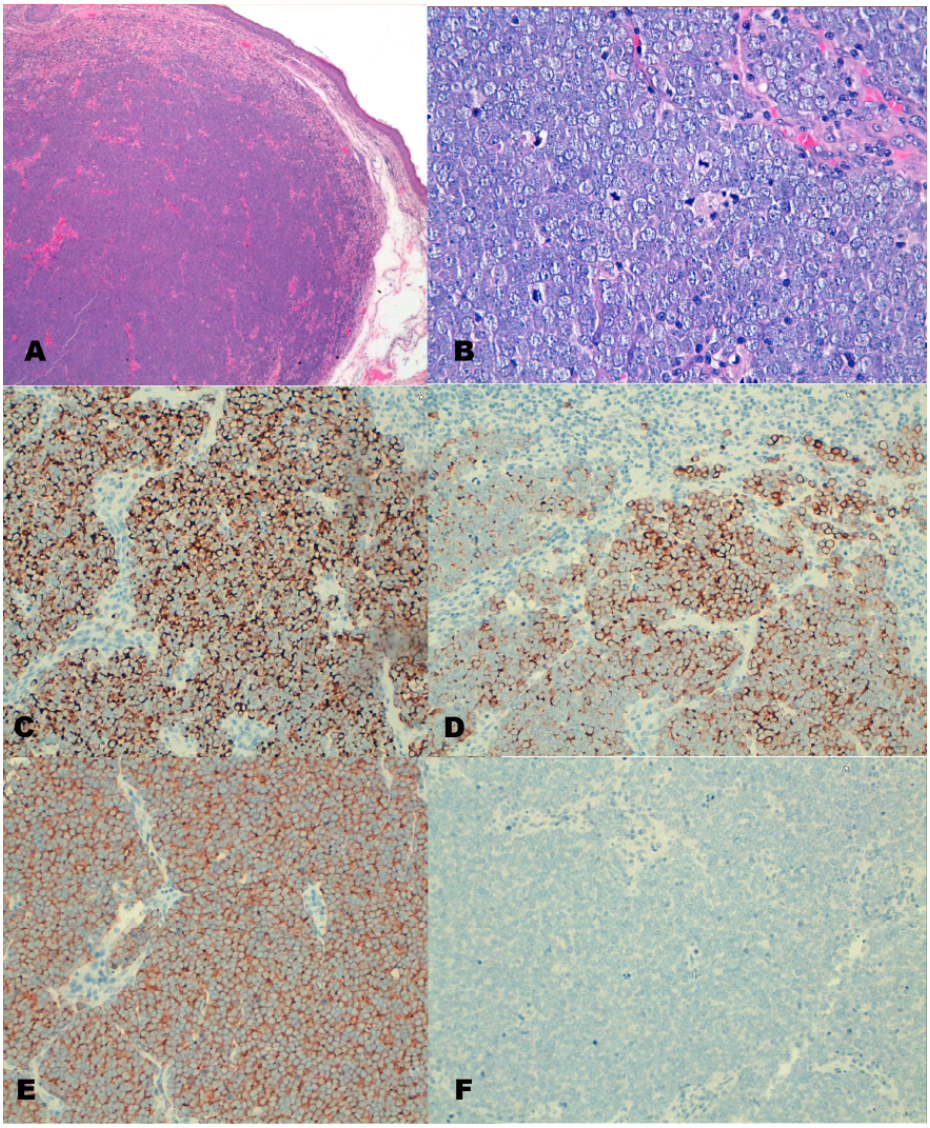

Figure 2. A) A dense nodular infiltrate is present in the dermis (H&E, 10x). **B**) Sheets of round to oval small basophilic cells with vesicular nuclei, multiple nucleoli, and scant cytoplasm. Many mitoses are present (H&E, 400x). **C**) Positivity for CK20 (200x). **D**) Positivity for chromogranin (200x). **E**) Positivity for synaptophysin (200x). **F**) Negativity for TTF-1 (200x).

diameter of 7 mm 7 months later. Upon close examination of the March 2024 photo, a small telangiectasia can be observed at the site where the papule appeared, and it may possibly be the first subclinical sign of the future MCC. If this were the case, we could estimate a growth rate of this MCC of about 1 mm/month. To our knowledge, no studies to date have precisely quantified the growth rate of MCC, highlighting the uniqueness and educational contribution of this report.

A controversial aspect of this case report is that the patient was receiving nivolumab, a programmed death (PD)-1 checkpoint inhibitor currently recommended for the treatment of advanced and metastatic MCC, at the time the MCC developed. Several clinical trials have proved the efficacy of PD-1 checkpoint inhibitors, such as nivolumab and pembrolizumab, in the treatment of MCC. KEYNOTE-017, a phase II study testing pembrolizumab monotherapy in advanced unresectable MCC, showed an overall response rate of 58%, with 30% complete responses.[3] The ADMEC-O phase II trial, which compared adjuvant nivolumab to observation in patients with completely resected MCC, showed an absolute risk reduction of 9% (1-year disease-free survival [DFS]) and 10% (2-year DFS) in the nivolumab group as compared to observation.[4] Additionally, CheckMate 358, a phase I/II trial evaluating neoadjuvant nivolumab in virus-positive MCC patients, reported a 24-month recurrence-free survival rate of 68.5%.[5] These figures are promising, yet they also underline that a substantial portion of patients still experience disease progression, as approximately 50% do not respond to PD-1 checkpoint inhibitors.[6]

In our case report, despite ongoing immunotherapy, nivolumab did not prevent the development of a new MCC, further highlighting the need for additional therapeutic strategies. Alternative therapeutic strategies, including tyrosine kinase inhibitors and somatostatin analogs, have shown promising results in improving clinical responses and reducing tumor volumes. Moreover, there is increasing interest in the pathological role of MCPyV, and it is possible that, in the near future, a vaccine targeting this virus may be developed and administered to individuals at risk of developing MCC.[1,2]

Conclusions

In conclusion, this case report highlights the rapid growth of MCC and underscores the importance of clinical and photographic monitoring for high-risk patients. While ours is an anecdotal observation, it offers a unique visual documentation of the tumor's progression and estimates the potential tumor growth rate. Further investigations, including case series and prospective studies, are needed.

References

1. Becker JC, Stang A, DeCaprio JA, et al. Merkel cell carcinoma. Nat Rev Dis Primer 2017;3:17077.
2. Walsh NM, Cerroni L. Merkel cell carcinoma: A review. J Cutan Pathol 2021;48:411-21.
3. Nghiem P, Bhatia S, Lipson EJ, et al. Three-year survival, correlates and salvage therapies in patients receiving first-line pembrolizumab for advanced Merkel cell carcinoma. J Immunother Cancer 2021;9:e002478.
4. Becker JC, Ugurel S, Leiter U, et al. Adjuvant immunotherapy with nivolumab versus observation in completely resected Merkel cell carcinoma (ADMEC-O): disease-free survival results from a randomised, open-label, phase 2 trial. Lancet 2023;402:798-808.
5. Topalian SL, Bhatia S, Amin A, et al. Neoadjuvant Nivolumab for Patients With Resectable Merkel Cell Carcinoma in the CheckMate 358 Trial. J Clin Oncol 2020;38:2476-87.
6. Nammour HM, Madrigal K, Starling CT, Doan HQ. Advancing Treatment Options for Merkel Cell Carcinoma: A Review of Tumor-Targeted Therapies. Int J Mol Sci 2024;25:11055.

Received: 27 May 2025; Accepted: 20 July 2025.

Conflict of interest: the authors have no conflict of interest to declare. CM is Associate Editor of Dermatology Reports.

Ethics approval and consent to participate: no ethical committee approval was required for this case report by the Department, because this article does not contain any studies with human participants or animals. Informed consent to participate was obtained from the patient included in this study.

Consent for publication: the patient gave his written consent to use his personal data for the publication of this case report and any accompanying images.

Availability of data and materials: all data underlying the findings are included in this article.