Definitive radiotherapy for Merkel Cell Carcinoma in the setting of Epidermolysis Bullosa Simplex (EBS)

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Short running title: RT for Merkel cell cancer in EBS patient (40 characters)

Word count: 497 words

Number of Figures: 2

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This is the author manuscript accepted for publication and has undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the [Version of Record](#). Please cite this article as [doi: 10.1111/ajd.12960](https://doi.org/10.1111/ajd.12960)

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Article type : Case Letter

Epidermolysis bullosa simplex (EBS) is the most common and mildest subtype of epidermolysis bullosa (EB), a rare heterogenous group of heritable dermatoses characterised by marked epithelial fragility following minimal mechanical trauma. While only some EB subtypes are associated with increased risk of cutaneous squamous cell carcinoma (cSCC) (1), cSCC can present in patients with any EB subtypes (2). Treatment of cutaneous cancer in patients with EB is challenging, with reports of exaggerated reactions with radiotherapy (3). No patients with the EBS-subtype were treated with radiotherapy in a recent systematic review reporting cSCC outcomes in EB (2). To date, Merkel cell carcinoma (MCC) has not been reported in patients with any EB subtypes. Here we present the successful treatment of a rare case of MCC in a patient with EBS.

A 66-year-old man presented with a 6-week history of progressively enlarging right parotid lump. FNA confirmed a poorly-differentiated neuroendocrine tumour, positive for synaptophysin, chromogranin, CK20 and CAM5.2, consistent with MCC. PET/CT staging revealed a 2.8cm FDG-avid right parotid lesion (Figure-1), without a definitive primary or further regional or distant disease (T0N1). His past medical histories included rheumatoid arthritis, treated with Methotrexate, Plaquenil and Prednisolone. He had a clinical diagnosis of EBS, with the classic palmar and plantar blistering, and a strong family history consistent with the autosomal dominant pattern of inheritance for EBS – his paternal grandmother, father, paternal uncle, mother, 2 of his 4 children, and 1 grandson were affected – and his daughter had biopsy confirmation of EBS on electron microscopy.

He was offered definitive radiotherapy alone to the parotid mass to a total dose of 60Gy in 30 fractions, with elective nodal irradiation (ENI) (52Gy; ipsilateral level IB, II-V, parotid), using intensity modulated radiotherapy (Figure-2). Although primary surgical management (parotidectomy and neck dissection) followed by adjuvant radiotherapy was an option, our institutional policy is a non-surgical approach for MCC, given the excellent in-field control achieved with definitive radiotherapy (4). Given concerns regarding exaggerated radiation dermatitis, precautionary measures were taken, in consultation with specialist EB service.

Sorbolene was used prior to development of skin reaction, while paraffin-based ointment was used to manage both dry and moist desquamation. Dressings were applied only at night and were silicone-based. A specialised irrigation solution (Prontosan®) was used for cleansing. Neither his skin nor mucosal reaction was noteworthy and it progressed during treatment as expected. Moist desquamation developed during the 5th week of treatment and healed within two weeks following completion of RT.

To our knowledge, we report the first case of MCC in a patient with EBS in the literature. Earlier reports describe moist desquamation and delayed skin healing in patients with other EB subtypes treated for cSCC with radiotherapy of $\geq 45\text{Gy}$ (5). Given the wide-field radiotherapy fields necessary in MCC, there was concern regarding severe acute and subsequent late skin toxicity. In this case, however, with appropriate specialist consultation and precautionary measures, we have demonstrated that a radical dose of fully-fractionated radiotherapy (including ENI) is feasible in patients with EBS with acceptable skin toxicity.

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Figure-1 | Axial fused fluoro-deoxy-glucose positron emission tomography/ computed tomography (FDG PET-CT) image on initial staging

Figure 2 | Axial radiotherapy dose wash showing volume receiving 30Gy or more

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Title:

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Date:

2019-05-01

Citation:

Ong, W. L., Bailey, E., McCormack, C., Weston, L., Morgan, V. & McDowell, L. (2019). Definitive radiotherapy for Merkel cell carcinoma in the setting of epidermolysis bullosa simplex. AUSTRALASIAN JOURNAL OF DERMATOLOGY, 60 (2), pp.153-154. <https://doi.org/10.1111/ajd.12960>.

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