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Pathology in Focus

Merkel cell carcinoma of the pinna

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Abstract
Merkel cell carcinoma is an increasingly recognized tumour of the skin. The commonest presentation is the head and neck region. Only three cases of this rare tumour have been reported on the pinna. A further such case is presented here.

Key words: Head and neck neoplasms; Carcinoma, Merkel cell; Skin

Introduction

Merkel cell carcinoma, also known as neuroendocrine carcinoma of the skin is a rare cutaneous tumour. It was first described in 1972 by Toker as a trabecular carcinoma of the skin (Toker, 1972). Since then three variants have been suggested: the trabecular, the intermediate and the small cell type (Gould *et al.*, 1985). Toker in his original article suggested that the tumour originated from epithelial structures in the dermis, e.g., sweat glands. Later the presence of neurone-specific enolase, a marker of cells of neuroendocrine origin was noted in these tumours. Since the Merkel cell is the only cell in the skin that contains neuroendocrine granules, it has been suggested as the possible cell of origin of this tumour; hence the name Merkel cell carcinoma (Pitale *et al.*, 1992). The origin of the Merkel cell itself is still controversial, with evidence suggesting origin from both the neural crest and a transitional cell in the basal layer of the epidermis.

The understanding of this disease is based on collected case reports and therefore for further understanding of the tumour's behaviour it seems important to describe every case, as was stressed by other authors (Raaf *et al.*, 1986; Marks *et al.*, 1990).

Case report

An 84-year-old gentleman was referred by his general practitioner to the ENT Department of Torbay Hospital with a two-month history of a left pinna lesion. On examination there was a 3 × 2 cm ulcerated lesion on the cranial aspect of the left pinna and three satellite nodules in the ipsilateral post-auricular region. There was no associated cervical lymphadenopathy and the rest of the ENT examination was normal.

An excision biopsy of the primary lesion, under local anaesthesia, revealed a neuroendocrine carcinoma of the skin (Merkel cell carcinoma). It showed the characteristic histological features with a deeply invasive (Figure 1) and focally necrotic tumour composed of sheets of monotonous cells with very little cytoplasm, displaying frequent mitoses and apoptotic cells (Figure 2). The immunohistochemical profile was of strong cytoplasmic staining with MNF 116 (a broad spectrum anticytokeratin 5, 6, 8, 17 and 19) and the more specific anti-cytokeratin 20. These showed the characteristic 'dot' positivity (Figure 3). Neuron-specific enolase showed strong diffuse cytoplasmic staining, but chromogranin (a neuroendocrine marker) was only focally and weakly positive. Other antibody labels (epithelial markers BerEP4 and CEA, general lymphoid marker CD45, and the neural crest derivative marker S100) were negative. The excision biopsy of the primary lesion was followed by a wide excision of the satellite nodules and reconstruction with a locoregional rotation flap.

The pre-operative investigations revealed microcytic anaemia and further medical investigation with upper gastrointestinal endoscopy revealed an asymptomatic tumour of the body of the stomach extending to the cardia and invading the lower oesophagus. Association with the lesion of the pinna was excluded by histochemical staining, which confirmed a second primary poorly-differentiated carcinoma. The gastric tumour was deemed to be inoperable. His condition rapidly deteriorated and he died two months later.

Discussion

The most common site of presentation of Merkel cell carcinoma is the head and neck (50 per cent), followed by the extremities (35 per cent) and other areas (15 per cent) (Trimas *et al*, 1992). It is important that the otolaryngologist is aware of this carcinoma when faced with cutaneous lesions of the head and neck region.

The tumour manifests typically in the elderly as a slowly enlarging pink plaque or nodular subcutaneous lesion (Hitchcock *et al.*, 1988). It has a typical bluish-red appearance, with the overlying skin intact, shiny and rarely ulcerated (Domarus *et al.*, 1985). It follows an aggressive clinical course with a propensity for local recurrence, lymph node involvement and distant metastasis (O'Brien *et al.*, 1987; Canales *et al.*, 1992).

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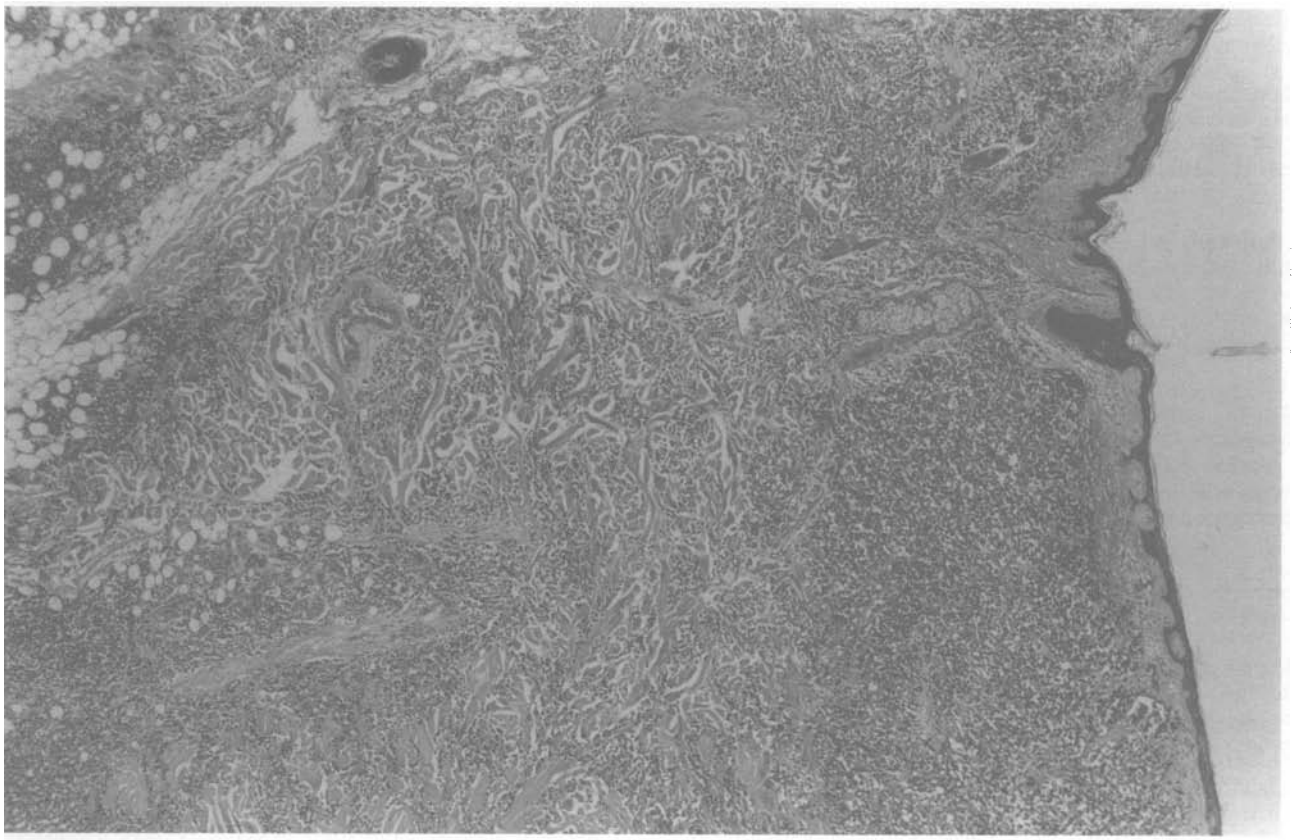

FIG. 1
Tumour filling dermis and infiltrating fat (H & E; × 20).

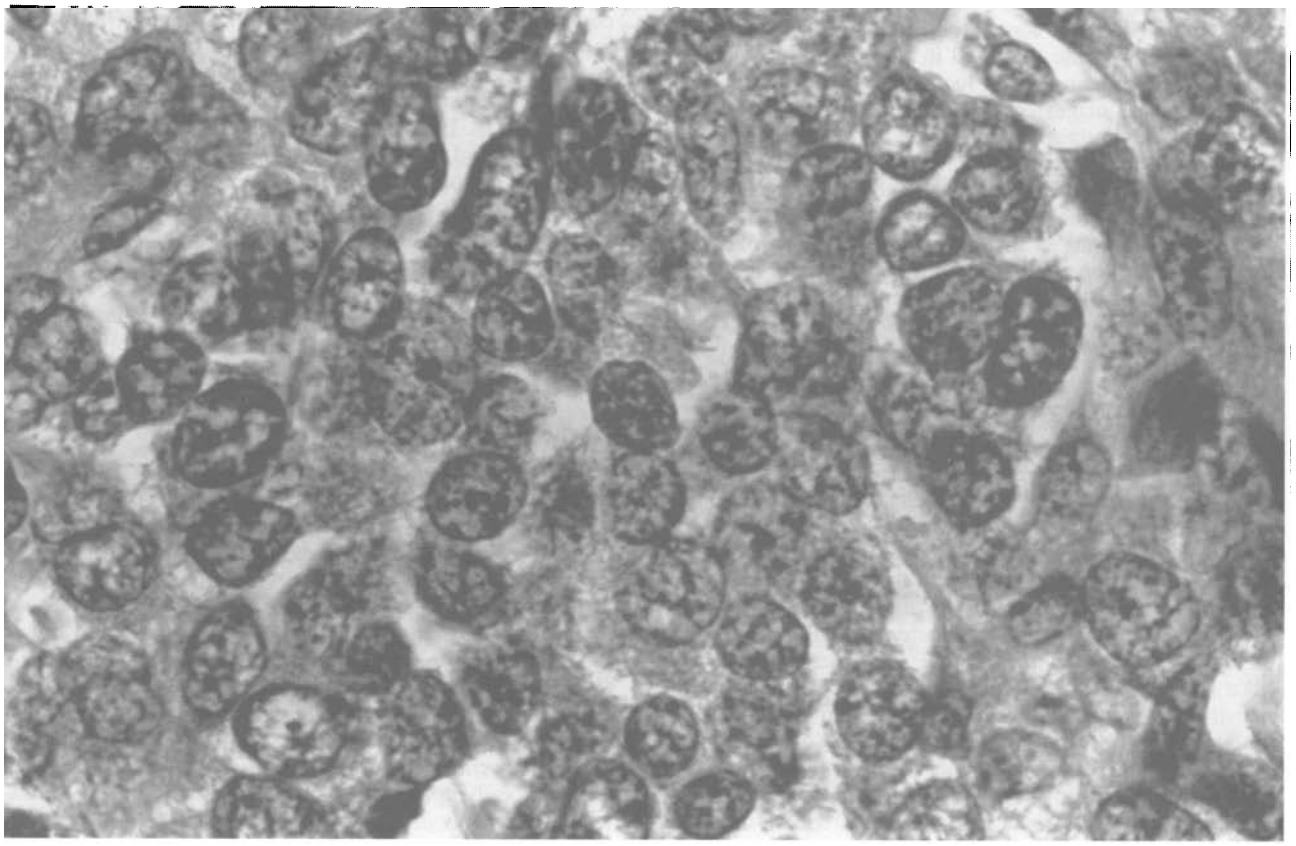

FIG. 2
Monotonous nuclear morphology (H & E; × 770).

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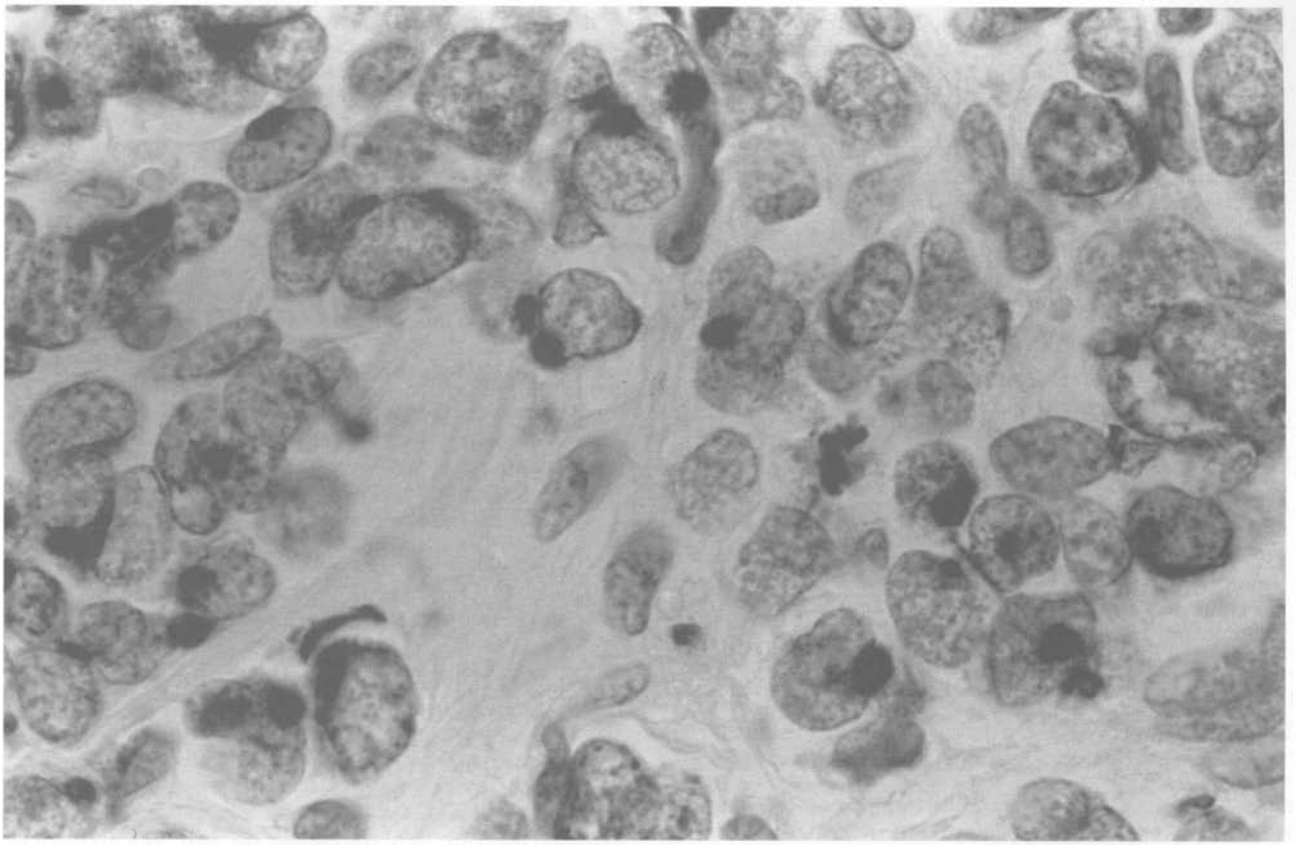

FIG. 3

'Dot' positivity for cytokeratin on immunohistochemical staining (Immunoperoxidase with MNF 116 (anti-cytokeratin) as primary antibody × 770).

The differential diagnosis of the tumour might include basal cell and squamous cell carcinoma, adnexal carcinoma, melanoma and metastatic oat cell carcinoma (Goepfert *et al.*, 1984; Pitale *et al.*, 1992). Merkel cell carcinoma may be separated out by the use of both routine and special stains. The cytological features of Merkel cell carcinoma are characteristic in good routine preparations. In addition the immunohistochemical reactions pattern is also helpful, and a recent description of consistent cytokeratin 20 reactivity in Merkel cell tumours (Chan *et al.*, 1997) can help rule out the differential diagnosis of metastatic small cell carcinoma (this latter tumour being cytokeratin 20-negative).

The characteristic ultrastructural features include small dense-core, membrane-bound secretory granules, complex intercellular junctions and perinuclear whirls of intermediate filaments (Boysen *et al.*, 1989). Nuclei are usually uniform with well-defined membranes, small nucleoli and finely dispersed chromatin. Mitoses are usually numerous (O'Rourke and Bell, 1986).

The primary mode of treatment includes extensive resection of the tumour with resection margins analogous to thick melanomas (Takes *et al.*, 1994), complemented by neck dissection of positive nodes. After excision, patients are treated with radiotherapy of the primary site and draining lymphatics (Suntharalingham *et al.*, 1995). Chemotherapy can offer significant palliation for metastatic disease. The most commonly used cytotoxics include cyclophosphamide, vincristine, doxorubicin, streptozocin, 5-fluorouracil and dacarbazine (Wynne and Kearsley, 1988). Chemotherapy is also recommended for patients with tumours composed of smaller cells, those with nodal involvement at the time of diagnosis and to those where more than 30 per cent of resected nodal tissue is replaced by tumour (Feun *et al.*, 1988).

Shaw and Rumball (1991) suggested that the prognosis is gender- and age-related, being less favourable for males and younger patients. Patients with head and neck and trunk lesions also appear to have a worse prognosis. Survival rates at one, two and three years have been estimated at 88 per cent, 72 per cent and 55 per cent, respectively (Anderson *et al.*, 1992).

Conclusion

Merkel cell carcinoma is a rare cutaneous tumour of the head and neck. Increased awareness by both the surgeon and the pathologist is essential for treating this aggressive tumour. The creation of a database has been suggested by Shaw and Rumball in 1991, so that a consensus on management can be reached.

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References

Anderson, L., Phipps, T., McCololough, M. (1992) Neuroendocrine carcinoma of the skin (Merkel cell carcinoma) in a black. *Journal of Dermatologic Surgery and Oncology* **18:** 375–380.

Boysen, M., Wetteland, P., Hovig, T., Brandtzaeg, P. (1989) Neuroendocrine carcinoma of the lip (Merkel cell tumour) examined by electron microscopy and immunohistochemistry. *Journal of Laryngology and Otology* **103:** 519–523.

Canales, L., Parker, A., Kadakia, S. (1992) Upper gastrointestinal bleeding from Merkel cell carcinoma. *American Journal of Gastroenterology* **87 (10):** 1464–1466.

Chan, J., Suster, S., Wenig, B., Tsang, W., Chan, J., Lau, A. (1997) Cytokeratin 20 Immunoreactivity distinguishes Merkel cell (primary cutaneous neuroendocrine) carcinomas and salivary gland small cell carcinomas from small cell carcinomas of various sites. *American Journal of Surgical Pathology* **21 (2):** 226–234.

Feun, L., Savaraj, N., Legha, S., Silva, E., Benjamin, R., Burgess, M. (1988) Chemotherapy for metastatic Merkel cell carcinoma. Review of the M.D. Anderson Hospital's experience. *Cancer* **62:** 683–685.

Goepfert, H., Remmler, D., Silva, E., Wheeler, B. (1984) Merkel cell carcinoma (endocrine carcinoma of the skin) of the head and neck. *Archives of Otolaryngology* **110:** 707–712.

Gould, E., Moll, R., Moll, I., Lee, I., Franke, W. (1985) Biology of disease. Neuroendocrine (Merkel) cells of the skin: Hyperplasias, dysplasias and neoplasms. *Laboratory Investigation* **52:** 334–353.

Hitchcock, C., Bland, K., Laney, R., Franzini, D., Harris, B., Copeland, E. (1988) Neuroendocrine (Merkel cell) carcinoma of the skin. Its natural history, diagnosis and treatment. *Annals of Surgery* **207:** 201–207.

Marks, M., Kim, R., Salter, M. (1990) Radiotherapy as an adjunct in the management of Merkel cell carcinoma. *Cancer* **65:** 60–64.

O'Brien, P., Denham, J., Leong, A. (1987). Merkel cell carcinoma: a review of behaviour patterns and management strategies. *Australian and New Zealand Journal of Surgery* **57:** 847–850.

O'Rourke, M., Bell, J. (1986) Merkel cell tumour with spontaneous regression. *Journal of Dermatologic Surgery and Oncology* **12 (9):** 995–1000.

Pitale, M., Sessions, R., Husain, S. (1992) An analysis of prognostic factors in cutaneous neuroendocrine carcinoma. *Laryngoscope* **102:** 244–249.

Raaf, J., Urmacher, C., Knapper, W., Shiu, M., Cheng, E. (1986) Trabecular (Merkel cell) carcinoma of the skin. Treatment of primary, recurrent and metastatic disease. *Cancer* **57:** 178–182.

Shaw, J., Rumball, E. (1991) Merkel cell tumour: clinical behaviour and treatment. *British Journal of Surgery* **78:** 138–142.

Suntharalingam, M., Rudoltz, M., Mendenhall, W., Parsons, J., Stringer, S., Million, R. (1995) Radiotherapy for Merkel cell carcinoma of the skin of the head and neck. *Head and Neck* **17:** 96–101.

Takes, R., Balm, A., Loftus, B., Baris, G., Hilgers, F., Gregor, R. (1994) Merkel cell carcinoma of the head and neck. *Clinical Otolaryngology* **19:** 222–229.

Toker, C. (1972) Trabecular carcinoma of the skin. *Archives of Dermatology* **105:** 107–110.

Trimas, S., Stringer, S., Pierson, K. (1992) Pathologic quiz case 2. Merkel cell carcinoma, or primary neuroendocrine carcinoma of the skin. *Archives of Otolaryngology – Head and Neck Surgery* **118 (9):** 998–1002.

Wynne, C., Kearsley, J. (1988) Merkel cell tumour a chemosensitive skin cancer. *Cancer* **62:** 28–31.

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