British Society for Dermatopathology
Orals

DPo1
Using MITF immunostaining to estimate melanocyte density in lentigo maligna: melanocyte density is greater in recurrent lentigo maligna
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Lentigo maligna (LM) is a melanoma in-situ, of which 5% progress to the invasive lentigo maligna melanoma (LMM). LM most commonly arises in prominent areas chronically exposed to ultraviolet (UV) radiation, such as the head and neck. Surgical excision with a 5-mm margin is the current consensus-recommended treatment but has been shown to be insufficient, with local recurrence as high as 20%. Assessing suitable margins is challenging both surgically and histologically. Melan-A immunohistochemistry is currently used clinically but is believed to overestimate melanocytes and is difficult to interpret in melanocyte-dense lesions. MITF (microphthalmia-associated transcription factor) immunohistochemistry allows more accurate estimation of melanocyte density. Our aim was to compare Melan-A and MITF staining across a variety of UV-associated skin conditions. We then used MITF immunostaining in LM to evaluate melanocyte density between recurrent and nonrecurrent cases. Melan-A and MITF staining was compared across four groups: minimally UV-exposed skin, skin surrounding basal cell carcinoma excisions, LM excisions and LMM excisions. Immunostaining with Melan-A and MITF was preformed for a total of 112 cases from across the four groups. Melanocytes and keratinocytes in the basal layer of the epidermis were then counted over five fields of 0.5 mm for each case to obtain an average melanocyte density. MITF staining of LM was further studied across 20 LM cases that had not recurred and 16 LM cases that had recurred within 5 years of excision. In the recurrent group the average time to recurrence was 2.2 years. Immunostaining with MITF was performed and melanocyte density as a percentage of total cells in the stratum basale was evaluated for the peripheral 0.5 and 1 mm of the margins. In LM and LMM there was a significant difference between the melanocyte densities estimated with MITF and Melan-A staining: Melan-A was greater by 27% (P < 0.001) and 19% (P < 0.01), respectively. When using MITF staining in LM to estimate melanocyte density in the peripheral margins there was a statistically significant difference in average melanocyte density in peripheral margins between the recurrent and nonrecurrent lesions: 40.6% (P = 0.001) for 0.5 mm and 42.3% (P = 0.001) for 1 mm. In Melan-A immunohistochemistry melanocyte density is difficult to determine and is likely to be overestimated. MITF staining is easier to determine and more likely to estimate melanocyte density accurately. The melanocyte density of the margins of recurrent LMs was 40% greater than that in lesions that did not recur within 5 years of excision. MITF may have a role in detecting high-risk LM.

DPo2
Intravascular epithelioid haemangioma. Review of 15 cases of a rare malignant mimicker
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Epithelioid haemangiomai is a rare vascular lesion typically encountered in the head and neck in early-to-mid adult life (Rosai J, Ackerman LR. Intravenous atypical vascular proliferation. A cutaneous lesion simulating a malignant blood vessel tumor. Arch Dermatol 1974; 109: 714–17). Intravascular epithelioid haemangiomai is an even rarer variant. It may present on unusual sites such as the extremities and it may harbour worrying histological features, which may raise suspicion for malignant vascular neoplasia, such as epithelioid angiosarcoma or epithelioid haemangoendothelioma. Although its aetiology is unknown, it is now regarded to be a neoplastic rather than a reactive process. We describe 15 cases of intravascular epithelioid haemangiomai retrieved from the archives of consultation cases from 1999 until the present. There was a male predominance and the age of presentation was 24–71 years. The majority were single lesions, mainly on the head and extremities; two cases were multifocal. Clinical differential diagnosis included vascular malformation, epidermoid cyst, ganglion and epithelioid haemangiomai. Histological findings revealed a well-defined vascular proliferation composed of epithelioid endothelial cells forming small irregular channels and focal solid nests with occasional univacuolated cells. There was a sprinkling of inflammatory cells including lymphocytes, histiocytes and eosinophils, which in two cases were quite florid showing overlap features with Kimura-like tissue-reaction pattern. All lesions were at least partially surrounded by a space delineated by a fibromuscular rim indicative of blood vessel wall. It is interesting to note that there was no extravascular component in any of the cases, while in nonintravascular epithelioid haemangiomai, involvement of blood vessels can be encountered. Immunohistochemistry showed the cells to be positive for CD31 and smooth muscle actin, and desmin highlighted the vascular wall. The proliferation index by Mib1 was low. Intravascular epithelioid haemangiomai can be misinterpreted as angiosarcoma because of the presence of a solid component, cytological atypia and mitotic activity. Features that help to differentiate it from angiosarcoma are that the latter usually presents in older patients, preferably in the scalp, and it is usually of larger size. Histologically, it grows in a diffuse pattern, cytological atypia is severe and generalized rather
than focal, mitoses are easily identified and it lacks an intravascular component. We would like to raise awareness of the intravascular presentation of this rare entity and to highlight the spectrum of morphological features in order to avoid misdiagnosis as a malignant vascular neoplasm. Follow-up is recommended as local recurrence is a known risk factor for the nonintravascular forms.

**DP03**

**Eccrine syringosquamous metaplasia: a mimic of squamous cell carcinoma. Clinicopathological analysis of six cases**

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Syringosquamous metaplasia (eccrine squamous syringometaplasia; SSM) is a reactive phenomenon that occurs in eccrine ducts and glands (Serrano T, Saez A, Moreno A. Eccrine squamous syringometaplasia. J Cutan Pathol 1993; 20: 61–5). Its importance lies in its close resemblance to squamous cell carcinoma (SCC). We present a series of SSM. In three of six cases, the histological findings were initially misdiagnosed as malignant (SCC). Following clinicopathological correlation (CPC) and expert review, a diagnosis of SSM was made. We describe the clinicopathological findings, and review the literature, in order to highlight this potential diagnostic pitfall. Four of the patients were female and two were male, with a mean age of 66 years (range 27–93). Most lesions were from the lower limbs (four) with one lesion from the buttock and one from the forearm. The process occurred in diverse settings including acute cellulitis (two), dermal and subcutaneous abscesses (two), and adjacent to tumours (two). The histology was remarkably similar between cases. Irregular islands and strands of squamous epithelium were present within a heavily inflamed dermis. In some of the cases, residual duct lumina were highlighted by carcinoembryonic antigen immunohistochemistry. In half of the cases, the findings were initially diagnosed as SCC. However, following close CPC, it was evident that the clinical setting was of cellulitis (two) or an abscess (one). Following expert review, the features were ascribed to SSM secondary to the primary process of inflammation. SSM is a reactive phenomenon that has been attributed to the pathogenic mechanisms of ischaemia. It is analogous to necrotizing sialometaplasia of the salivary gland. Clinical presentation is varied. It is not uncommonly encountered adjacent to ulcers and surgical wounds, or as an erythematous papular eruption secondary to chemotherapy or tyrosine kinase inhibitors. SSM can also present in association with a variety of dermatological diseases including annular elastolytic granuloma, pyoderma gangrenosum and systemic lupus erythematosus. It has also been described in association with cytomegalovirus and herpetic infections in HIV-positive patients. It can rarely present as a primary process. Histological features that may help distinguish SSM from SCC include maintenance of a lobular architecture, central maturation, presence of lumina within islands, and adjacent eccrine gland structures. The clinicopathological significance of SSM lies in its histological appearance mimicking malignancy. This highlights the importance of its recognition by pathologists and awareness by clinicians, as well as emphasizing the requisite for good communication and CPC.

**DP04**

**A 10-year retrospective audit of outcomes in patients undergoing sentinel lymph node biopsy for melanoma**

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Sentinel node biopsy (SNB) for melanoma has prognostic value, but current evidence suggests that it may not confer improved overall survival. The role of completion lymph node dissection (CLND) for positive SNB is also controversial and not without risk (McGregor JM. Br J Dermatol 2013; 169: 233–5). False negative results for SNB are an important limitation of this investigation. The aim of this study was to audit outcomes of patients who have undergone SNB in our department since 2002. Between May 2002 and November 2011, 620 patients had SNB. Data were collected retrospectively through an electronic pathology database and patient records. Of 161 (26%) patients with positive SNB (mean follow-up 42.3 months, range 6–107 months), 109 remained under long-term follow-up with us; and of 459 patients with negative SNB, follow-up data were available for 445 patients (mean follow-up 26 months, range 9–70 months). Of 109 patients who had a positive SNB, the average Breslow thickness (BT) was 2.7 mm. One hundred and five of 109 (96%) patients with a positive SNB went on to have CLND and 22 of 105 (21%) had further positive nodes. There was no significant difference in BT or other histological staging criteria between those with and without positive CLND. Twelve of 22 (55%) with a positive CLND developed metastases and 10 (46%) died, compared with 29% and 14%, respectively, with a negative CLND. There were six patients who had extra nodal spread on SNB or CLND (average BT 3.6 mm) and who had a particularly poor outcome, as all six patients developed metastatic disease and four patients died. The average BT was 1.94 mm in patients with negative SNB. There were 29 of 445 (6.5%) patients with local/intransit, nodal or distant recurrences and who were therefore considered to have false negative SNB. The false negative rate was 7% (n = 12) for nodal recurrence in the same basin as SNBs and 15% (n = 29) for all recurrences. The mean BT for false negative SNBs was 2.6 mm (range 1.1–5.1) compared with 1.9 mm (range 0.5–6.5) in true negative cases. There were no significant differences in histological subtypes and anatomical site between false negatives and true negatives. Death occurred in 86% (n = 25) of patients with disease recurrence after negative SNB. We have reviewed existing slides for 15 of the cases of false negative SNBs who did not demonstrate any tumour,
and are currently reanalysing all false negative SNBs with the rigorous EORTC SNB protocol to determine whether our current practice of using a modified protocol may partly explain these false negative SNBs.

DP05  
The spectrum of dermal hyperneury. Report of six cases  
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Dermal hyperneury is defined as the presence of increased and hypertrophic myelinated and nonmyelinated nerve fibres in the dermis. Cutaneous nerve hyperplasia is rare and can be seen in lesional skin in multifocal or localized forms. When multifocal, it can be present in a pure cutaneous or mucocutaneous form or it may have syndromic associations. It is fascinating that it is present in the normal skin of patients with multiple endocrine neoplasia type 2b (MEN2b) and Cowden syndrome, but also in the lesional skin of those patients, as well as in neurofibromatosis (type 2), attenuated forms of MEN2b and in medullary thyroid carcinoma with macular amyloidosis. Localized, it may be encountered in areas of trauma, nodular prurigo, notalgia paraesthetica, neurocristic hamartoma and rarely in cases of chronic rubbing/scratching (Schaffer JV, Kamino H, Witkiewitz A et al. Mucocutaneous neuromas. An underrecognised manifestation of PTEN hamartoma-tumor syndrome. Arch Dermatol 2006; 142: 625–32; Winkelmann RK, Carney JA. Cutaneous neuropathology in multiple endocrine neoplasia, type 2b. J Invest Dermatol 1982; 79: 307–12). We present six cases spanning through the spectrum of conditions described. We describe four patients with multiple cutaneous papules, variably symptomatic. Extensive investigations did not reveal any syndromic associations. Furthermore, we include two localized forms: one case of notalgia paraesthetica and one case of trauma. It is interesting to note that PTEN and RET mutations seen in Cowden and MEN2b syndromes, respectively, are implicated in common pathways of the growth and development of neural-crest-derived and nerve tissue. We would like to propose dermal hyperneury as a distinct rare entity specifically in those cases presenting with multiple lesions confined to the skin and no syndromic stigmata, and therefore, no associated risk of malignancy.

DP06  
Evaluation of follicular T-helper cells in primary cutaneous marginal zone B-cell lymphoma  
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Primary cutaneous marginal zone lymphoma (PCMZL) is classified as an indolent B-cell lymphoma in the World Health Organization Consensus Classification (Willemze R, Jaffe E, Burg G et al. WHO-EORTC classification of cutaneous lymphomas. Blood 2005; 105: 3768–85). It presents as one or more papules, which histologically have a heavy B-cell population, often with lymphoid follicles, but also commonly a substantial non-neoplastic T-cell population. The latter can lead to a consideration of T-cell lymphoma, particularly primary cutaneous small/medium-sized CD4+ pleomorphic T-cell lymphoma (CSMPTCL), as this low-grade T-cell lymphoma has a significant reactive B-cell population and is also characterized clinically by limited numbers of lesions. The follicular T-helper cell (TFH) phenotype of CSMPTCL is established (Ally M, Hunasehally R, Rodriguez-Justo M et al. Evaluation of follicular T-helper cells in primary cutaneous CD4+ small/medium pleomorphic T-cell lymphoma and dermatitis. J Cutan Pathol 2013; 40: 1006–13), but the presence of these T cells in marginal zone lymphoma (MZL) has not been studied. Immunocytochemistry was performed on 21 cases of MZL for expression of programmed death receptor-1 (PD-1) and on 13 cases for inducible T-cell costimulator protein (ICOS), and the results compared with 17 cases of CSMPTCL previously analysed. In addition, 15 cases were evaluated for bcl-6 and CD10; each of these is a recognized marker of TFH. All cases of MZL expressed at least one of these markers coinciding with the T-cell areas of the infiltrate, as defined by CD3 expression. However, in most cases (15, 71%) there were fewer TFH cells in MZL and in the majority (17, 81%) there was no rosetting of PD-1+ cells, a characteristic feature of CSMPTCL. However, in some cases, the pattern of staining resembled that seen in CSMPTCL. Interestingly, the percentages of expression of PD-1, ICOS, bcl-6 and CD10 varied in the same case; PD-1 and bcl-6 were the most widely expressed; CD10 was negative or labelled only occasional cells in the 15 patients evaluated. We conclude that (i) TFH cells are a component of MZL, (ii) in most cases the number and pattern of staining for TFH differs but in some cases there is an identical pattern to that seen in CSMPTCL, and (iii) that there are differences in expression between putative markers of TFH, as previously noted with CSMPTCL, which suggests regional variation in the immunophenotypic TFH signature.
(CLH). The recent description of atypical marginal zone hyperplasia (AMH) further complicates diagnostic interpretation (Attygalle AD, Liu H, Shirali S et al. Atypical marginal zone hyperplasia of mucosa-associated lymphoid tissue: a reactive condition of childhood showing immunoglobulin lambda light-chain restriction. Blood 2004; 104: 3343–8). We analysed 79 patients with diagnoses of either PCMZL or CLH selected from the skin tumour database of our institute. Fifty-nine patients were classified as having primary cutaneous marginal zone lymphoma PCMZL. Twenty patients were identified as having CLH. A retrospective review of electronic case records was conducted. Detection of monoclonality by polymerase chain reaction using the BIOMED-2 method had been performed in many cases. IGH and IGK gene rearrangement data were collated. The histology of selected cases was reviewed by the senior author, evaluating morphology and immunohistochemistry findings. Particular attention was paid to the presence, if any, of a T-cell population and to CD43 expression. Men were more commonly affected in the PCMZL group. The trunk and upper extremities were sites of predilection in the PCMZL group, whereas the head and neck were more commonly affected in those with CLH. Eighty-one per cent of biopsies demonstrated monoclonality in the PCMZL group vs. 0% in the CLH group. One case diagnosed as MZL with 'blast transformation' in a subcutaneous biopsy was reclassified as MZL. All cases had an admixed T-cell infiltrate, which in most (65, 82%) was substantial. In 26 cases of MZL there was expression of CD43 and in 17 of these this population exceeded the observed T-cell fraction. Patients who were treated actively received primarily surgery or radiotherapy in both groups. Additional malignancies in the PCMZL group included four patients with Hodgkin lymphoma. Only one patient in the PCMZL group died, from an unrelated malignancy. The median follow-up period was 60 months in the PCMZL group. Of these cases, seven would be reclassified as AMH using criteria established by Attygalle et al. PCMZL and CLH share an excellent clinical prognosis. Distinguished, by definition, according to the finding of clonality, this division between them is an arbitrary parameter that has no clinical significance. We propose that they, together with atypical marginal zone hyperplasia, be subsumed under the term B-cell lymphocytoma.

DPo8

BRAF inhibitor-associated squamoproliferative lesions: evidence of human papillomavirus infection histologically but not virologically

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Vemurafenib is a targeted small-molecule inhibitor licensed in 2012 for treatment of metastatic or unresectable melanoma in patients harbouring a V600E mutation in the BRAF gene. It causes a range of cutaneous side-effects, most notably the rapid development of squamoproliferative lesions. These vary from viral wart-like lesions to invasive squamous cell carcinomas (SCCs). We have observed that both benign and malignant lesions frequently demonstrate histological features suggestive of possible human papillomavirus (HPV) infection, including the presence of koilocytes. We hypothesise a possible role for HPV in the pathogenesis of these lesions. We have systematically analysed a series of vemurafenib-associated squamoproliferative lesions for histological evidence of HPV infection and have compared this with the presence of HPV DNA identified in matched frozen samples. Representative haematoxylin and eosin-stained sections of 45 skin lesions from seven patients were scored for features consistent with HPV infection, defined as koilocytosis and at least three of the following: papillomatous or viral architecture, hypergranulosis, parakeratosis, acanthosis and hyperkeratosis. HPV DNA detection and typing were performed on DNA extracted from matched frozen samples of these lesions using a sensitive and comprehensive typing methodology: the skin (beta) HPV reverse-hybridization assay (RHA) for beta genus HPV; the HPV SPF10-LiPA 25 RHA for high- and low-risk mucosal alpha HPV; and a previously described degenerate nested polymerase chain reaction technique for cutaneous alpha HPV (Harwood CA, Spink PJ, Surentharan et al. Degenerate and nested PCR: a highly sensitive and specific method for detection of human papillomavirus infection in cutaneous warts. J Clin Microbiol 1999; 37: 3545–55). Of the squamoproliferative lesions, 20 of 27 (74%) wart-like lesions had features scored as consistent with being HPV induced. Ten of 12 (83%) SCCs or in situ SCCs had histological evidence of HPV infection in the overlying epidermis or the tumour itself, often with HPV-associated rather than actinic features in perilesional skin. Multiple beta-papillomavirus types were detected in eight of 12 (67%) SCCs and 25 of 27 (93%) warts, but HPV DNAs were present at low levels indicative of latent infection in all lesions except for five warts. Despite the high frequency of clinicopathological features consistent with viral infection, corresponding HPV DNA was present at very low levels in most. While it is possible that there remains an unusual HPV type that we have not detected, our data suggest that HPV is unlikely to play an aetiological role in the majority of vemurafenib-associated squamoproliferative lesions. The relevance of the prominent histological features observed remains uncertain, in particular, the cause for the widespread koilocytosis, and we speculate that this may reflect a final common pathway for mitogen-activated protein kinase activation in keratinocytes.

DPo9

Epstein-Barr virus-associated mucocutaneous ulceration

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Epstein–Barr virus (EBV) is associated with B-cell lymphoproliferative disorders in immunosuppressed and elderly patients.
Isolated EBV-driven ulceration of mucocutaneous surfaces was recently described as a new clinicopathological entity and termed EBV-associated mucocutaneous ulceration (EMU) (Dojcino, SD, Venkataraman G, Raffeld M et al. EBV positive mucocutaneous ulcer – a study of 26 cases associated with various sources of immunosuppression. Am J Surg Pathol 2010; 34: 405–17). An 84-year-old lady presented with a 3-week history of a crusted lesion on her lip. Biopsy showed nonspecific granulomatous inflammation. She represented 1 month later with an ulcer on the tongue. Following biopsy of this lesion, the previous histology was reviewed. Both biopsies displayed large pleomorphic B cells expressing CD30, CD79a, Pax5 and EBV positivity on in situ hybridization. A diagnosis of multifocal EMU was made. Haematological investigation for systemic lymphoproliferative disease identified unilateral neck lymphadenopathy for which she declined further investigations and treatment. On follow-up, her ulcers have resolved with no further evidence of disease, but she remains under observation. EBV persists in a proportion of B cells after primary infection and may provoke B-lymphocyte transformation and proliferation in immunosuppressed and elderly patients (Dojcino SD, Venkataraman G, Pitaluga S et al. Age-related EBV associated lymphoproliferative disorders in the Western population: a spectrum of reactive lymphoid hyperplasia and lymphoma. Blood 2011; 117: 4726–35). A localized lase in EBV immunosurveillance is thought to underlie EMU formation. EMU presents nonspecifically as isolated circumscribed mucocutaneous ulceration and can be misdiagnosed if not initially considered. Although EMU apparently follows an indolent course with spontaneous regression, in our patient with concomitant neck lymphadenopathy, the disease course and prognosis is uncertain and close surveillance is required. This highlights the importance of considering EMU in the differential diagnosis of multifocal mucocutaneous ulcerative lesions in elderly and immunosuppressed patients to allow appropriate histopathological assessment and management.

**DP10**

**Extensive cutaneous telangiectasia of the torso and limbs: diffuse large B-cell lymphoma with intravascular invasion**

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A 75-year-old man presented with a 2-year history of large florid telangiectasia widespread across the trunk and limbs. This was an incidental finding while undergoing vascular assessment for an abdominal aortic aneurysm. Over the preceding months the skin changes had become more extensive, with painful indurated skin developing on the thighs. Within areas of telangiectasia subcutaneous nottender nodules were palpable on his left shoulder, left upper back and arms. Systemically, he had experienced significant weight loss, losing 9.5 kg over 9 months, but had not developed night sweats. Clinically no lymphadenopathy or hepatosplenomegaly could be detected. At presentation the full blood count was normal except for a mild lymphopenia (0.52 × 10⁹ cells L⁻¹). The lactate dehydrogenase was significantly raised (1020 U L⁻¹). Incisional skin biopsies were taken from the subcutaneous nodules. Histological examination revealed a dense infiltrate extending from the mid dermis into the subcutaneous tissue, obliterating normal tissue architecture. The epidermis was normal and a grenz zone was visible. The infiltrate was composed of large lymphoid cells with vesicular nuclei, variable prominent nuclei and a moderate amount of eosinophilic cytoplasm. A few abnormal mitoses could be seen. In the subcutaneous tissue a small number of capillary-sized vessels were obstructed with abnormal lymphocytes, consistent with intravascular involvement. The tumour cells were positive for CD20, CD45, CD79a, bcl-2, bcl-6 and MUM1. Ki67 staining revealed a proliferation rate of 80%. Positron emission tomography imaging demonstrated nodal and probable extranodal involvement. No bone marrow involvement was detected. R-CHOP chemotherapy (rituximab, cyclophosphamide, doxorubicin, vincristine and prednisolone) was commenced. Treatment was complicated by neutropenic sepsis and poor oral intake. The patient died from refractory disease and respiratory failure 6 months after diagnosis. The presentation of extensive telangiectasia in the context of a clonal B-cell population is most consistent clinically with intravascular large B-cell lymphoma (IVLBC). However, the new World Health Organization classification defines IVLBC as a rare type of extranodal large B-cell lymphoma characterized by selective growth of lymphoma cells within the lumina of vessels, with little or no parenchymal involvement (Swedlow S, Campo E, Harris NL et al. WHO Classification of Tumours of Haematopoietic and Lymphoid Tissues, 4th edn; 2008). In our case proliferation of lymphoma cells occurred largely outside the blood vessels with evidence of vascular obstruction. Therefore, we present an unusual case of diffuse large B-cell lymphoma not otherwise specified with intravascular invasion leading to distinctive cutaneous changes.

**DP11**

**Pigmented follicular squamous cell carcinoma (a subgroup of basosquamous melanocytic tumours)**

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There are several groups of mixed epithelial melanocytic tumours including (i) benign epithelial and benign melanocytic – pigmented variants of seborrhoeic keratosis, pilomatrixoma, trichoblastoma and matricoma; (ii) malignant epithelial, benign melanocytic – including pigmented basal cell carcinoma (BCC), Bowen and rarely squamous cell carcinoma (SCC); (iii) benign epithelial, malignant melanocytic – melanoma colonizing benign epithelial lesions including seborrhoeic keratosis; and (iv) malignant epithelial and malignant melanocytic, BCC or SCC colonized by malignant melanoma. The follicular variant of SCC (FSCC) has been considered rare, but is becoming increasingly recognized [Car-
ter JJ, Preece T, Tailbjee SM et al. Follicular variant of squamous cell carcinoma: a series of 59 cases (Abstract). Barcelona, ISDP XXXI Symposium, 21–23 October, 2010. We present an extraordinary case of pigmented FSCC that presented clinically as malignant melanoma. An 85-year-old white man presented with a 6-month history of an enlarging, ulcerating, bleeding, blue–black palpable plaque on the right cheek with an irregular margin clinically suggestive of malignant melanoma (photographed). The lesion was excised and histological examination showed a plaque-like, heavily pigmented, basaloid tumour with rather basoloid, sharply circumscribed borders. There were strikingly abundant, Melan-A positive, dendritic melanocytes throughout. The epithelial component had a sharp connection with the epidermis at a follicular infundibulum and focal intraepithelial (follicular) mucin along with central, pilar-type, squamous morular cells with central abrupt compact (tricholemmal) keratinization indicative of FSCC. The lesion was negative for BerEP4 (excluding BCC), focally positive for epithelial membrane antigen and diffusely positive for p63 in keeping with SCC. We identified four additional cases of focally or widely pigmented FSCC in our case files, and two of these were also entirely circumscribed in keeping with in situ lesions. We suspect pigmented FSCC may be an under-recognized subgroup of basaloid melanocytic tumours. We could find no other case reports of pigmented FSCC in a literature review, but illustrations of pigmented SCC in the literature revealed several probable FSCCs. Pigmented FSCC needs to be distinguished from benign mimics (including melanocytic matricoma) and malignant melanoma. Entirely circumscribed lesions would be expected to have an excellent prognosis requiring complete excision, only without the necessity for hospital follow-up.

DP12
An unusual granulomatous variant of scleromyxoedema mimicking diffuse granuloma annulare
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Scleromyxoedema is a rare and progressive disease characterized by mucin deposition and skin induration. A 52-year-old lady presented with a 2-year history of a diffuse asymptomatic eruption. On examination, a diffuse erythematous rash was seen affecting her trunk, abdomen, legs, arms and scalp. There was skin induration and thickening prominent over the upper back and fingers. A skin biopsy demonstrated a necrobiotic granulomatous process, most suggestive of diffuse granuloma annulare. Immunohistochemical staining demonstrated an increased number of fibroblasts and histiocytes within the dermis, staining positive for CD68 and CD10. She was initially treated with topical steroids and psoralen-ultraviolet A with no improvement of the rash. One year later she developed inflammatory arthritis and was started on methotrexate. Her skin eruption progressed with prominent sclerodactyly and generalized sclerodermoid skin induration. Her blood tests demonstrated an IgGκ paraproteinaemia but there was no evidence of active myeloma. Her thyroid function was normal. A repeat skin biopsy was performed, demonstrating a diffuse histiocytic infiltrate with degenerate collagen and scattered proliferations of irregularly arranged fibroblasts. Mucin stains revealed increased mucin in the dermis, not just localized to the interstitial infiltrate of histiocytes. The appearances were in keeping with interstitial granulomatous inflammation with fibroblastic proliferation and mucin deposition, most consistent with scleromyxoedema. She was initially treated with a 6-month course of cyclophosphamide and intravenous methylprednisolone with subtle improvement in her skin eruption, and subsequently was started on intravenous immunoglobulin. Scleromyxoedema presents as generalized erythematous papules and diffuse infiltration of the skin, often associated with a monoclonal gammopathy. The characteristic dermatological findings are firm, white to skin-coloured papules, typically affecting the back of the hands, fingers, extensor areas of the arms and legs, and face. The predominant histological features are an increased number of fibroblasts and mucin deposition between the thickened collagen fibres. There are a few reported cases in the literature describing a unique subset of patients with scleromyxoedema presenting with granulomatous inflammation on histology (Stetsenko GY, Vary JC Jr, Olerud JE, Argenyl ZB. Unusual granulomatous variant of scleromyxoedema. J Am Acad Dermatol 2008; 59: 346–9). The diagnosis of scleromyxoedema is based on the correlation of clinical, histological and laboratory findings. The significance of these histological findings in patients with scleromyxoedema is unknown but highlights the spectrum of clinical and histological variation in these patients, which makes the clinical diagnosis of this disabling disease very challenging.

DP13
Utility of step sections in skin punch biopsies
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It is a well-established fact that step sections are the best ancillary aid in the examination of skin punch biopsies. Traditionally, most laboratories follow the ‘retrospective’ step section protocol in which deeper sections are prepared at the request of the reporting pathologist after examining an initial slide. The initial slide may contain a ‘ribbon’ of three serials (our original protocol) or three step sections cut at intervals of 50 μm. ‘Prospective’ step sections, where additional sections are prepared prior to receipt of the first slide, have been recently advocated. We investigated our protocol to identify how often step sections were helpful in improving diagnostic accuracy and/or resulted in a change of diagnosis, and whether prospective step sections would be more beneficial.
We reviewed 149 punch biopsies received during a 3-month period. In 56 cases, three or six step sections were requested by the reporting pathologist and they were cut at 50 μm. We requested an additional six step sections in 46 of 93 cases (where deeper sections were not originally requested), either to confirm the diagnosis or exclude any other pathology. In the group of 56 cases, step sections had diagnostic utility in 17 biopsies (30%). A set of six deeper sections was helpful in 13 of 38 (34%) cases vs. four of 18 (22%) with three deeper sections. In the group of 46 cases with additional step sections, nine cases (19%) had a change in diagnosis, including a previously undiagnosed squamous cell carcinoma. Step sections were especially helpful in revealing ulcers or vesicle formation. Clinical concordance was much higher in neoplastic and melanocytic lesions (81%) as opposed to the inflammatory biopsies (60%). Overall, step sections were required in at least 102 cases (64%) to improve the confidence of diagnostic accuracy or rule out other pathology, and were clearly beneficial in 26 of 102 cases (25%) to arrive at a correct diagnosis.

The use of prospective step sections would be expected to reduce turnaround time and increase diagnostic accuracy with minimal expected cost increase (Bruecks AK, Shupe JM, Trotter MJ. Prospective step sections for small skin biopsies. Arch Pathol Lab Med 2007; 131: 107–11). We now routinely cut six step sections prospectively, creating an additional slide per case, but expecting to achieve a balance between resources used, turnaround time and the anticipated impact on patient care.

**DP14**

Audit of squamous cell carcinoma reporting reveals a high proportion of follicular cases

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Contrary to the traditional thinking that cutaneous squamous cell carcinoma (SCC) arises mainly from pre-existing epidermal dysplasia, there has been a growing awareness that SCC commonly takes origin from the hair follicle (follicular SCC; FSCC) [Carter JJ, Preece T, Taijbee SM et al. Follicular variant of squamous cell carcinoma: a series of 59 cases (Abstract). Barcelona, ISDP XXXI Symposium, 21–23 October 2010]. Many FSCCs have circumscript or pushing borders and may therefore be for practical purposes in situ. We undertook this audit study to determine the proportion of SCCs that were follicular compared with nonfollicular (NFSCC) and the proportion of FSCCs that had entirely circumscript or pushing borders. We reviewed the histopathology reports of all SCCs (n = 103) in our computer system for 2013 but included only excision specimens in this audit. Cases coded as keratoacanthoma were excluded. Thirty-eight (59%) of excision specimens were reported as either follicular (n = 35) or FSCC keratoacanthoma-like (n = 3) compared with only 27 (42%) NFSCCs. The latter group included three cases arising in Bowenoid dysplasia, one basosquamous carcinoma and one spindle cell carcinoma. FSCC and NFSCC occurred mainly in the elderly (average age 81 vs. 83 years), on the head and neck (76% vs. 63%) and with a male predominance (76% vs. 82%). The commonest suggested clinical diagnosis for FSCC and NFSCC was SCC (61% and 62%) but slightly more FSCCs were clinically suggested to be basal cell carcinoma (36%) compared with NFSCCs (29%). A similar proportion of FSCCs and NFSCCs were reported to be well differentiated (28% and 30%) but a somewhat higher number of FSCCs were poorly differentiated (24%) compared with NFSCCs (15%). On average FSCCs were slightly larger (diameter 12.8 mm vs. 11.2 mm) and thicker (depth 3.3 mm vs. 2.8 mm) compared with NFSCCs. Many more FSCCs had circumscription or pushing-only borders (67%) compared with NFSCC (24%). Our audit showed that FSCCs (including keratoacanthoma-like lesions) were more common than NFSCC. Invasive Bowenoid dysplasia was uncommon. We confirmed that many FSCCs have circumscribed or pushing borders only. The latter lesions may not require follow-up as for invasive conventional SCC. We strongly recommend that (i) the classification of SCC (and the RCPath dataset) takes account of the high incidence of FSCC so that the pathogenesis, treatment and prognosis of such lesions can be researched more fully; and (ii) the type of invasive borders (circumscribed vs. infiltrative) should be included in histopathology reports to guide optimal patient management.

**DP15**

Clinicopathological features of Merkel cell carcinoma: a 10-year tertiary referral centre experience

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Merkel cell carcinoma (MCC) is an aggressive cutaneous malignancy of neuroendocrine origin. MCC affects mainly the elderly population on sun-exposed sites, typically the head and neck. The annual incidence is reported at 0.3/100 000 and increasing. Local and regional recurrence is common with approximately one-third of patients dying due to MCC. To obtain more information on recent U.K. experience, we reviewed the clinical features, staging, histopathology and outcomes of patients with MCC at our institution. From our departmental database, 54 patients with a diagnosis of MCC between 1 January 2003 and 31 December 2012 were identified. Clinical records for 31 of 54 patients were available. The male-to-female ratio was almost 1 : 2 and the average age at diagnosis was 78 years. MCC was present at the following sites: head and neck = 16, lower limb = 7, upper limb = 4, trunk = 4. The mean duration of the lesion was 30.4 weeks (range 4–156). MCC lesions were described as nodules in 17 of 31 cases, growing or rapidly growing in 18 of 31, and bleeding in five of 31 cases. A clinical diagnosis of MCC was suspected in one of 31 cases. The mean time from first clinic appointment to histopathological diagnosis was 4.7 weeks (range 1–20). The mean tumour size was 24 mm (range 6–160). Staging imaging was recorded in 17 of 31 patients and one patient received sentinel lymph node biopsy. Staging was as follows (n = 31): IB
16, IIA one, IIB 11, IIIB three. MCCs were usually positive for CD56 (14 of 14 cases), Cam5.2 (10 of 11), CK20 (11 of 15), chromogranin (10 of 11) and synaptophysin (six of six); and negative in all tested cases for Melan-A, S100 and thyroid transcription factor-1. Lymph node dissection was performed in eight patients, of whom six had evidence of regional spread. Thirteen of 31 patients underwent adjuvant therapy. By 24 months of follow-up, 16 of 26 (62%) patients were recurrence free, seven of 26 (27%) had local or regional recurrence, and three of 26 (11%) developed distant metastatic disease (five patients were followed up externally). In this group, six of 26 patients died within 24 months of diagnosis, with five of six having evidence of disease recurrence or metastasis. MCC is rarely suspected clinically. Clinicopathological features and outcomes in this series are consistent with previously reported data. Our department has utilized a routine immunopanel, incorporating newer immunostains throughout the 10-year period. The arrival of new prognostic markers such as p63 and bc12 may improve stratification to treatment modalities. Due to the highly aggressive nature of MCC, patients may benefit from the development of duration-to-treatment-targets following diagnosis.

DP16
An immunohistochemical study of myoepithelial cells in cutaneous cystic apocrine neoplasms
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The presence of an intact myoepithelial cell (MEC) layer is a well-recognized feature of benignancy in cystic neoplasms of the breast. Interestingly, prominent apocrine change in such lesions is often associated with inconsistent and rarely complete loss of MEC. Very little is known about this phenomenon in comparable cutaneous lesions. There have been recent reports of metastatic sweat gland carcinomas having an intact myoepithelial lining, but it is difficult to assess critically such observations without knowing the status of MECs in benign lesions. The aim of this study was two fold: to compare five immunohistochemical markers (calponin, smooth muscle actin (SMA), p63, CK14 and CD10) for their effectiveness in staining MEC and also to see whether significant differences in the intensity and distribution of MEC staining related to the degree of apocrine change existing, using cutaneous cystic apocrine neoplasms as a study model. Cases of apocrine hidrocystoma and cystadenoma (n = 44) were reviewed and their proliferative features assessed. Epithelial proliferation, where present, always involved cells showing obvious apocrine features and was taken as a surrogate marker of apocrine change. A scoring system was developed to allow scoring of MEC staining intensity and distribution. The MEC intensity and distribution scores in proliferative (n = 29) and nonproliferative (n = 15) lesions were assessed and differences between the two groups were statistically analysed using Fisher’s exact test. Calponin and SMA stained MEC in the most consistent manner. p63 had the advantage of being a crisp nuclear stain but often showed a discontinuous pattern of staining with gaps in between MECs. CK14 strongly highlighted MEC throughout but occasionally stained a population of luminal epithelial cells. CD10 failed to stain obvious MEC in many cases and was often difficult to distinguish from dermal staining. When comparing proliferative and nonproliferative cases, only SMA and p63 revealed a statistically significant decrease (both P < 0.05) in the MEC staining intensity in the former group. Our results reveal that immunohistological staining for MEC in cutaneous cystic apocrine neoplasms is variable. Ideally a panel of markers should be used and one needs to be aware of the limitations associated with any individual marker. Reduced MEC staining intensity in some proliferative cases may be similar to the inconsistencies associated with benign breast neoplasms showing apocrine change. We hope that the findings of this study will improve our understanding of the role of MEC in a much broader group of cutaneous sweat glandular neoplasms, many of which have an apocrine derivation.

DP17
Clustered scalp cysts: the uncommon naevus trichilemmocysticus
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Trichilemmal or pilar cysts are benign keratin-filled sacs formed from the outer root sheath of hair follicles. Naevus trichilemmocysticus is a type of cystic naevus first described in 2007. We present a case of this unusual condition in an adult. A 46-year-old man presented to the dermatology department with a nodule on the right frontal scalp that had been present for 25–30 years. Further smaller nodules had appeared in the surrounding area over time. The newer nodules were occasionally painful. The larger lesion had been sore and discharged white cheesy material on several occasions, and had been treated with antibiotics with a presumed diagnosis of infected cyst. The patient was otherwise well with no significant past medical history. Examination revealed a firm, lobulated nodule on the right frontal scalp 20–25 mm in size. This was freely mobile over underlying structures and associated with comedo-like openings on the surface. Similar, but smaller, nodules 5–10 mm in size were located anterior to this nodule and one was located posterior to the index lesion in a linear blashkoid distribution. Examination of the rest of the skin showed it to be normal. A benign appendageal tumour or naevus was suspected and one of the smaller nodules was excised for histological diagnosis. Histology revealed a normal epidermis, and in the dermis there were several cysts lined by squamous epithelium that lacked a granular layer and were filled with keratin. These features were consistent with a diagnosis of trichilemmal cysts. The histology, combined with the history and Blaschkoid distribution of these cysts, was strongly suggestive of trichilemmal cyst naevus or naevus trichilemmocysticus. Due to recurrent symptoms of pain and discharge, the patient was referred to the plastic surgeons for excision of the larger...
symptomatic lesion. Naevus trichilemmocysticus was first described in 2007 (Tantcheva-Poor I, Reinhold K, Krieg T, Happel R. Trichilemmal cyst nevus: a new complex organoid epidermal naevus. J Am Acad Dermatol 2007; 56: 72–7). Similar lesions had been occasionally described in the literature; however, the distinct name and definition of naevus trichilemmocysticus had not previously been applied. Differential diagnoses include other appendageal naevi such as naevus comedonicus and naevus corniculatus, as well as simple epidermal or trichilemmal cysts. There are as yet only a few reports of naevus trichilemmocysticus. It is likely that as recognition of this unusual conditions increases, case reports will become more frequent.

**DP18**

**Self-healing juvenile cutaneous mucinosis**

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A 12-year-old girl, with no past medical history, presented in early 2012 with a 6-month history of asymptomatic, 10–15-mm, firm nodules proliferating across her right back and spreading to her axilla. Two further erythematous, indurated, nodular lesions developed on the right lateral breast over the following 6 months. Biopsies were taken on three occasions. Although the nodules persisted for some time, all of them have resolved apart from two buttonhole lesions that appeared in the summer of 2013. The first punch biopsy in April 2012 showed a dermal, interstitial, histiocytic infiltrate (CD68 positive, CD31 negative) with focal admixed chronic inflammatory cells. Very close examination revealed the presence of some mucin between collagen bundles. A repeat punch biopsy in May 2012 found a proliferation of plump, rounded and elongated cells with bright pink cytoplasm, vesicular nuclei and a single basophilic nucleolus, within the dermis and extending focally into the subcutis. The collagen appeared hyalinized and in the background there was hae-morrhage and a patchy lymphohistiocytic inflammatory cell infiltrate. The cells within the proliferation were positive for calponin but negative for smooth muscle actin, desmin and caldesmon. Colloidal iron stain demonstrated small amounts of mucin. The final biopsies (excisional and 4 mm punch) in June 2013 showed a mid-to-deep-dermal, ill-defined aggregate of plump histiocyte-like cells with granular-to-foamy cytoplasm. There was no dermal mucin deposition on staining with Alcian blue and diastase-periodic acid-Schiff. The clinical and histopathological features are in keeping with those described as self-healing juvenile cutaneous mucinosis (SHJCM). This is a rare, benign disorder of unknown origin characterized by multiple transient, cutaneous papules and nodules. Since the first description in 1973 only 18 cases have been reported. Histopathological examination is mandatory for diagnosis and exclusion of malignant disorders. In the literature SHJCM nodules have typically been described as mucinous areas associated with bands of fibrosis in the subcutis. This case is similar to a recently reported variant form of SHJCM, with histological features that may mimic fasciitis, especially proliferative fasciitis, or nonspecific panniculitis, and in which the typical dermal mucin deposits can be subtle, or even absent, in subcutaneous nodules (Barreau M, Dompmartin-Blanchere A, Jamous R et al. Nodular lesions of self-healing juvenile cutaneous mucinosis: a pitfall! Am J Dermatopathol 2012; 34: 699–705).

**DP19**

**Use of a pro forma dramatically improves compliance with RCPPath recommendations for the histopathological reporting of squamous cell carcinoma**

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The meticulous diagnosis and reporting of cutaneous squamous cell carcinoma (SCC), using RCPPath minimum datasets, is important because histological parameters play a major role in defining patient treatment and prognosis [Slater D, Walsh M. Dataset for the Histological Reporting of Primary Cutaneous Squamous Cell Carcinoma and Regional Lymph Nodes (2nd edition). London: Royal College of Pathologists, 2012]. The use of datasets is also recommended to support the activity of the multi-disciplinary meeting (MDT) and enable the collection of accurate data for cancer registries. We changed from brief synoptic reports to a specific pro forma, modified from the RCPPath SCC minimum dataset, in March 2013. Here we present our audit of the histopathology reports for all 55 excision specimens of SCC (excluding in situ lesions) in our computer system for 2013. For all parameters assessed data was more frequently absent for excision specimens reported by short synoptic (non-pro forma) style compared with cases reported using the introduced pro forma (average microscopy data parameters missing per case 5.1 compared with 0.7). The percentage of reports with missing data in the microscopy part of the report, for each parameter, with non-pro forma and pro forma reporting, were as follows: diameter 100% vs. 11.4%; MDT risk status 88.9% vs. 4.5%; pT stage 77.8% vs. 0%; Clark’s level 66.7% vs. 2.3%; histological subtype 55.6% vs. 32.1%; type of tumour border 44.5% vs. 11.4%; deep margin measurement 33.3% vs. 4.5%; comment on lymphovascular invasion 22.2% vs. 0%; comment on perineural invasion 11.1% vs. 0%; radial margin measurement 11.1% vs. 2.3%; differentiation 0% vs. 0%; depth 0% vs. 0%. Our audit showed that the use of a specific pro forma led to a dramatic increase in the reporting of the diameter of the lesion in the microscopy section of the report, MDT risk status, pT stage and Clark’s level in reports of SCC. There were also improvements: the reporting of histological subtype, type of invasive border, margin status and presence of lymphovascular and perineural invasion. In order to comply optimally with the recommendations of the RCPPath minimum dataset, use of a pro forma would appear to be essential.
DP20
Factor XIIIa identifies macrophages and cells of mesenchymal origin in human skin
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Factor XIIIa (FXIIIa) or fibrin stabilizing factor is a transglutaminase that was initially described to characterize dermal dendritic cells (DCs) or dendrocytes in healthy skin and AIDS-associated cutaneous Kaposi sarcomas. These initial studies have led to the current use of antibody staining against FXIIIa to identify dermal DCs in clinicopathological analysis. The observation of FXIIIa on migratory dermal DCs and peripheral blood monocyte-derived DCs consolidated the evidence for its utility as a DC antigen. More recently, FXIIIa expression was described on CD163+ dermal macrophages rather than DCs, questioning its validity as a marker of dermal DCs. In addition, FXIIIa expression is widely used in dermatopathology to characterize benign fibrohistiocytic lesions such as dermatofibromas, although the precise identity of FXIIIa+ cells in dermatofibromas remain uncertain. CD1a is expressed in much lower amounts by dermal DCs compared with Langerhans cells and as such is less suitable for dermal DC evaluation. We recently demonstrated the ability of FXIIIa and CD11c to identify dermal macrophages and DCs, respectively, in whole mount skin (Wang XN, McGovern N, Gunawan M et al. A three-dimensional atlas of human dermal leukocytes, lymphatics, and blood vessels. J Invest Dermatol 2014; 134: 965-74, suggesting the potential use of these antigens in dermatopathology analysis. In this study, we evaluated the use of antibodies against FXIIIa and CD11c to identify dermal macrophages and DCs in paraffin-embedded skin sections. We also examined the lineage of FXIIIa-expressing cells in dermatofibromas and cutaneous Kaposi sarcomas. Our findings confirmed that FXIIIa is an excellent marker of dermal macrophages and CD11c is a reliable antigen to identify dermal DCs in human skin. We also reveal the promiscuous expression of FXIIIa by mesenchymal-derived cells in dermatofibromas.

DP21
Twenty-four year retrospective review of the diagnosis and management of lentigo maligna
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Lentigo maligna (LM) can be a challenging diagnostic entity, where patients can be unaware of subtle changes in previously long-standing lesions. There is an increased risk of local recurrence compared with other subtypes of melanoma. LM has a predilection for the head and neck, where extensive surgery to completely excise such lesions is undesirable. LM can extend beyond the clinically apparent lesion whereby it is difficult to ascertain surgical margins and adequacy of treatment. We sought to review our diagnosis and management of LM and lentigo maligna melanoma (LMM). Over a 24-year period 734 patients diagnosed with primary LM or LMM were identified (January 1989 to October 2013). Of these, 51% were male; the median age was 73 years (range 31–101). In 1998 11 LMs were diagnosed histologically compared with 92 in the first 10 months of 2013. This represents a more than 10-fold increase. The median age at diagnosis remains the same. While there may be some reporting bias, and this may reflect change in management over time, the figures support an increasing incidence of melanoma. An initial biopsy, rather than an excision, was performed in 37% of lesions. Of these, 22% showed LM on biopsy but completion surgery showed LMM. Of these lesions 18% were punch biopsied initially, whereas 27% had an incisional biopsy. These results suggest that incisional biopsies are not as sensitive as excluding LMM as punch biopsies. This is in contrast to the adage that incisional biopsies are preferable to punch biopsies for melanocytic lesions. We postulate that as the area biopsied with a punch is smaller than that with an incisional biopsy, one would sample the area of greatest concern to provide the highest diagnostic yield. It is also possible that there may be loss of detail with sectioning of incisional biopsy specimens, whereas punch biopsies are often embedded and a single section thus provides a more accurate histological assessment. This large, retrospective series suggests that the incidence of LM and LMM is increasing, and that punch biopsies provide better diagnostic accuracy for the diagnosis of LMM than incisional biopsies.

DP22
Giant condylomata acuminata of Buschke and Lowenstein: a peristomal variant
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Giant condylomata acuminata (GCA) is a rare, locally invasive tumour that may undergo malignant transformation. We describe a case of peristomal GCA transforming into invasive squamous cell carcinoma (SCC). A 74-year-old man with a background history of ulcerative colitis had an ileostomy sited 50 years previously. In 2011, he started to develop an acuminate, papillomatous peristomal eruption. Biopsy showed reactive changes with no concerning features of dysplasia, and these lesions were treated with curettage three times over the following 2 years. In summer 2013, he developed ulcerating plaques affecting the previously papillomatous areas and an erythematous nodular lesion involving the superior part of the ileostomy and adjacent skin. Histological examination of the ileostomy lesion showed hyperplastic skin, parakeratotic scale, atypia and focal small islands of atypical squamous epithelium. Biopsy of the peristomal skin showed dense neutrophilic infiltration of the epidermis and dermis, with acantholysis, epithelial atypia and atypical islands of squamous epithelium. A staging computed tomography scan showing no significant nodal disease preceded the wide excision of his ileostomy. Histopathology of the excised tissue showed moderately dif-
ferential invasive SCC. Human papillomavirus (HPV type 16) DNA polymerase chain reaction was positive for the peristomal skin sample but negative for the ileostomy tissue. GCA was first described by Buschke and Lowenstein in 1925 to describe a penile tumour that clinically resembled both an SCC and condyloma acuminatum. It is often described as an exophytic, cauliflower-like growth. The occlusion of the stoma appliance in this case probably flattened an otherwise exophytic growth. The tumour is caused by HPV and often arises from a pre-existing warty lesion. GCAs typically ulcerate and have a high rate of recurrence, and can undergo malignant transformation with subsequent infiltration into deep tissues. While highly destructive locally, the tumour rarely metastasizes. Typically affected sites include the genital, perianal and perineal regions. This is the first report, to our knowledge, of a peristomal GCA progressing to an invasive SCC into the stoma. Recurring, changing papillomatous lesions in the peristomal area should be reviewed with a high index of suspicion in relation to GCA tumours as they can cause significant morbidity and mortality.

**DP23**

**Septal eosinophilic panniculitis associated with adalimumab therapy for dissecting cellulitis of the scalp**

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A 49-year-old man with dissecting scalp cellulitis refractory to multiple treatments including oral antibiotics, intralesional and oral steroids, isotretinoin and dapsone, was commenced on adalimumab. His past medical history included recurrent generalized folliculitis and furunculosis, microcytic anaemia attributed to the beta-thalassaemia trait, chronic abnormal cholestatic liver function tests for which he was being followed up in the hepatology department, and hypertension. His medication consisted of intermittent courses of ciprofloxacin over the previous 6 months and bendroflumethiazide, which was long-standing. Adalimumab was introduced at 40 mg subcutaneously every fortnight. Improvement in scalp inflammation and discharge, and reduction in Dermatology Life Quality Index from 21 to 10 were noted at month 5. However, after the twelfth injection, a tender lump on the right lower leg was noted. Examination revealed a warm firm skin-coloured subcutaneous nodule on the medial right knee. Histology demonstrated panniculitis with a predominantly septal distribution and a conspicuous number of eosinophils, but no vasculitic or granulomatous component. Multiple investigations were noncontributory and included serum angiotensin-converting enzyme, alpha-1 antitrypsin, antistreptolysin-O titre, T-spot, hepatitis B and C, HIV, antinuclear antibodies, double-stranded DNA, immunoglobulins, serum electrophoresis and chest radiograph. Drug-induced panniculitis was suspected and ciprofloxacin was initially stopped. However, he continued to develop new tender panniculitic lesions on the lower limbs for the following 2 months and adalimumab was therefore also discontinued. Following this he developed no further lesions and the pre-existing ones gradually resolved. A number of adverse cutaneous reactions to anti-tumour necrosis factor (TNF-α) agents have been reported. However, panniculitis, has not previously been described; in fact, successful off-label use of anti-TNF-α agents in panniculitis has been reported. While there has been one previous report of lobular panniculitis associated with ciprofloxacin, our patient had a predominantly septal pattern and continued to develop lesions despite discontinuation of ciprofloxacin. Eosinophilic panniculitis can be septal or lobular and is considered to be a reactive process to a variety of underlying systemic conditions (Adame J, Cohen PR. Eosinophilic panniculitis: diagnostic considerations and evaluation. J Am Acad Dermatol 1996; 34: 229–34). Rarely, it has been described as a local phenomenon following subcutaneous or intramuscular drug injection, or as a recall phenomenon following allergen-specific immunotherapy (Masferrer E, Martín-Ezquerra G, Martínez-Escala E et al. Eosinophilic panniculitis triggered by intramuscular penicillin and occupational setting. Allergy 2011; 66: 436–7). Despite extensive investigations, no obvious alternative systemic cause was isolated in our patient, and the lesions appeared at sites remote to adalimumab injections. We would like to highlight panniculitis as a possible adverse cutaneous reaction to anti-TNF-α agents, whose use in dermatology continues to expand.

**DP24**

**Post irradiation morphea: a report of two cases of an under-recognized complication of breast cancer treatment**

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Skin changes in the breast following radiotherapy for breast cancer can be alarming. The differential diagnosis often includes recurrent malignancy, radiotherapy-induced atypical vascular proliferation and radiation dermatitis. Although it was first recognized in 1905 that radiotherapy can be a catalyst for morphoea, it is only in recent years that there has been an increasing awareness of cases of morphoea developing following the treatment of breast cancer with radiotherapy (Alhathool A, Hein R, Andres C et al. Post-irradiation morphea: case report and review of the literature. J Dermatol Case Rep. 2012; 6: 73–7). Fewer than 40 such cases of postirradiation morphea of the breast have been reported so far. The time lapse between exposure to radiation and the onset of the clinical signs has varied from a few weeks to 32 years. In some cases, the skin changes extend beyond the field of prior irradiation. The clinical presentation is variable with early inflammatory cases often mimicking cellulitis and radiation dermatitis. Lesions in the late sclerotic stages may be clinically confused with tumour recurrence. Postirradiation morphea is histologically indistinguishable from the idiopathic form of the disease. We describe two cases of post irradiation morphea following breast cancer treatment. Case 1 is a 69-year-old lady who described an 8-year duration erythematous erup-
tion on her chest, on the same side as where she had undergone breast cancer treated with surgery, radiotherapy and chemotherapy 13 years previously. The possibility of tumour recurrence was raised at surgical consultation and the biopsy showed mild superficial and deep perivascular and perineural lymphoplasmacytic infiltrates, and subtle thickening of the dermal connective tissue suggestive of inflammatory morphea. Treatment with potent topical steroids was tried with little improvement although the patient admitted poor compliance. Case 2 is a 54-year-old lady who developed erythema and oedematous changes affecting her right breast, 5 years following adjuvant chemo radiotherapy treatment. Biopsy confirmed the clinical diagnosis of morphea and showed thickened collagen bundles with several perivascular and perineural collections of plasma cell-rich-lymphoid aggregates. As the patient was asymptomatic a conservative approach was taken without the intervention of topical steroid treatment. We highlight the importance of the recognition of post irradiation morphea in the differential diagnosis of skin changes following radiotherapy in breast cancer treatment. The diagnosis is supported by typical histological findings and patients should be reassured that the development of this condition has not been associated with prognosis in breast cancer. Referral to dermatology by those caring for patients with breast cancer this condition is recommended if there is any diagnostic or management uncertainty.

DP25
An unusual rash in the gluteal cleft
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We present an 82-year-old man with a relatively short history of a well-demarcated scaly red plaque in the gluteal cleft. Prior to his clinic appointment he had tried using Daktarin cream to no avail. The initial differential diagnoses included lichenified eczema, psoriasis and yeast infection. A punch biopsy showed hyperkeratotic acanthotic epidermis. A column of parakeratosis was noted with underlying loss of the granular cell layer and scattered dyskeratotic cells. This focus was suggestive of cornoid lamella. Combining the clinical presentation and histological findings, a diagnosis of porokeratosis pschotropica was made. Porokeratosis represents a group of keratinization disorders that are characterized by annular plaques with evidence of cornoid lamellae microscopically. It is often initially misdiagnosed as dermatitis, tinea or psoriasis. Porokeratosis pschotropica (which has also been described as verrucous porokeratosis) is a rare subtype of porokeratosis, which is often missed due to lack of awareness. The gluteal cleft is a typical site and lesions often present as scaly butterfly-shaped plaques with raised edges. It is not uncommon for the growth to be over several years. Histopathological examination shows digitate epidermis with numerous columns of parakeratosis overlying epidermal dells, where there is diminished granular layer and a number of dyskeratotic keratinocytes [Takiguchi RH, White KP, White Jr CR, Simpson EL. Verrucous porokeratosis of the gluteal cleft (porokeratosis pschotropica): a rare disorder easily misdiagnosed. J Cutan Pathol 2010; 37: 802–7]. Some case studies also report evidence of dermal amyloid deposition in this rare subtype. Treatment of porokeratosis pschotropica is often difficult. A number of different topical therapies have been used with varying degrees of success, which include tacrolimus, 5-fluorourcil, corticosteroids and imiquimod, as well as topical and systemic retinoids (Tallon B, Blumental G, Bhawan J. Porokeratosis pschotropica: a lesser-known variant. Clin Exp Dermatol 2009; 34: e895–7). There is also one case report in the literature that describes total resolution of the condition following surgery with a dermatome. The decision of which treatment to use should be adjusted with respect to the location, degree of involvement and symptoms experienced by the patient. Malignant transformation in porokeratosis has been described in all the five common subtypes, but none has been recorded to date in porokeratosis pschotropica. However, as there are only a limited number of these cases reported in literature, careful long-term follow-up may be warranted.