Companion Meeting

Friday May 31

Dermatopathology

Bayside Room 104 / 11:15 - 1:00 pm

Convenor

Dr Vicki Howard & Dr Jessamine Reddy
Douglass Hanly Moir Pathology, Sydney NSW

Case presentations:

Dr. Trevor Beer,
Clinipath Pathology, West Perth, WA:
"3 cases of desmoplastic trichoepithelioma with perineural involvement".

Dr. Nathan Harvey,
PathWest, QEII Medical Centre, Perth, WA:
"Circumscribed Sebaceous Tumours".

Dr. Cameron Snell,
St Vincent's Hospital, Melbourne, VIC:
"Cutaneous lymphoproliferative diseases of the legs".

Dr. Oana Crainic,
Royal Prince Alfred Hospital, Sydney:
"Melanocytic Matricoma".

May 31 to June 2, 2013
Sydney Convention & Exhibition Centre,
Darling Harbour,
Sydney NSW Australia

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Desmoplastic trichoepitheliomas with perineural involvement

Dr Trevor W Beer
Dermatopathologist, Clinipath Pathology, West Perth

Desmoplastic trichoepitheliomas (DTE) are uncommon but well recognised benign skin adnexal tumours. Recently, a few reports have described the presence of tumour cells extending into the perineural space. The differentiation of DTE from other skin tumours can at times be difficult, and this dilemma is compounded in those cases showing perineural involvement (PNI).

Clinical Features
Desmoplastic trichoepitheliomas most often affect young or middle aged women and the tumours are typically small, arising on the face. DTEs with perineural involvement seem to have a similar clinical appearance and context to the more conventional tumours.

Histopathological Features
Strands of epithelial cells extend into the dermis to form a partly circumscribed lesion with no involvement of subcutis. Tumours tend to be more broad than deep in extent with regular bland, basaloid cells showing inconspicuous mitotic activity. The stromal desmoplasia seen is not associated with a retraction artefact. Follicular differentiation gives rise to luminal keratinisation in occasional dilated epithelial structures and calcification is common. In textbook descriptions of DTE, PNI is not indicated as a feature, and McKee’s “Pathology of the Skin” specifically excludes it. When perineural extension is present, it tends to be of limited extent, affect small nerves and be confined to within the tumour.

Table: Literature Review Of Desmoplastic Trichoepitheliomas With Perineural Involvement

<table>
<thead>
<tr>
<th>Site</th>
<th>Age</th>
<th>Sex</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jedrych, Leffell, McNiff, 2012</td>
<td>Face</td>
<td>14-66</td>
<td>5F, 2M</td>
</tr>
<tr>
<td>McCalmont, Humberson, 2012</td>
<td>Face</td>
<td>62</td>
<td>1F</td>
</tr>
<tr>
<td>Harvey, Leecy, Beer, Wood, 2013</td>
<td>Face</td>
<td>14, 22</td>
<td>2F</td>
</tr>
<tr>
<td>+ 1 subsequent unpublished case</td>
<td>Face</td>
<td>61</td>
<td>1F</td>
</tr>
</tbody>
</table>

Differential Diagnosis
Syringomas may have a similar histological appearance, but exhibit true ductal differentiation and are often multiple and periorbital in distribution. Desmoplasia and perineural invasion are not features. Differentiation from infiltrative basal cell carcinoma (BCC) or microcystic adnexal carcinoma (MAC) can be more challenging. BCC tends to present in older patients with significant solar damage and ulceration may be seen. Tumours may also reach a large size over time and can extend into subcutis, in contrast to DTE. In both BCC and MAC, circumscription is often poor and perineural invasion may be more widespread, extending away from the main lesion and sometimes involving larger nerves.

Many papers have addressed the value of immunohistochemistry in differentiating DTE from mimics. Some studies are of small size giving limited predictive power,
and some require subjective interpretation of the immunostains. Whilst typical staining patterns may be evident in series of neoplasms, the results on an individual case may be unreliable. However, the presence of isolated CK20 positive Merkel cells within groups of neoplastic cells supports a diagnosis of trichoepithelioma. Merkel cells are said to be completely absent or very rare in BCC and MAC. Other immunostains said to assist in the differentiation of desmoplastic trichoepithelioma from malignant lesions (such as CD34, bcl-2 and p75) tend to have limited discriminatory value.

**Summary**
Desmoplastic trichoepitheliomas are benign adnexal tumours showing follicular differentiation, which can be confused with a number of malignant neoplasms. In rare cases, foci of perineural involvement can be seen (11 cases to date, with an incidence estimated to be less than 2%). Clinicopathological correlation is essential and the presence of CK20 positive Merkel cells can be helpful in making the correct diagnosis. Although limited follow up data are available, no recurrence or other adverse outcome have been reported. However, a cautious approach to the diagnosis is recommended on small biopsy samples, and in some instances an excision sample may be required for definitive diagnosis.

**References**
Harvey NT, Leecy T, Beer TW, Wood BA. Desmoplastic trichoepitheliomas with perineural involvement. Pathology, 2013;45:196-8.
Interobserver Variability in the Diagnosis of Circumscribed Sebaceous Neoplasms of the Skin

Nathan T Harvey1,2, Charley A Budgeon3,6, Tamazin Leecy1,2, Trevor W Beer4, Joseph Kattampallil6, Lawrence Yu1,2,5, Christopher Van Vliet1, Russell Muirhead1, Susan Sparrow1, Nicole Swarbrick1,2, Benjamin A Wood1,2

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2. School of Pathology and Laboratory Medicine, The University of Western Australia, Crawley, Western Australia.
3. Centre for Applied Statistics, University of Western Australia
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6. Department of Research, Sir Charles Gairdner Hospital, Hospital Avenue, Nedlands, Western Australia.

Sebaceous neoplasms encompass a range of lesions, including benign entities such as sebaceous adenoma and sebaceoma, as well as sebaceous carcinoma. The distinction of sebaceous carcinoma from benign lesions relies on histological identification of architectural or cytological features of malignancy. Unequivocal infiltrative growth, which characterises many sebaceous carcinomas, is generally readily recognised and suggests malignancy. However, well differentiated (low grade) sebaceous carcinomas may have a well circumscribed silhouette, with equally sized lobules. These features are also typically seen in benign lesions. Thus, the distinction between well differentiated sebaceous carcinoma and benign sebaceous neoplasia is largely predicated upon assessment of the severity of cytological atypia, nuclear pleomorphism, mitotic activity and the identification of atypical mitoses. These criteria are often subjective and the thresholds at which a malignant interpretation is appropriate are not well defined. Furthermore, one concept regarding the distinction of sebaceous adenoma and sebaceoma relies on a presence of greater than 50% germinative cells in the lesion, a quantitation which is highly subjective without formal morphometry. In clinical practice we have noted a significant degree of interobserver variation with regard to the diagnosis of these circumscribed sebaceous lesions (CSL). Variation has been noted across a range of sebaceous lesions, including the separation of sebaceous hyperplasia from sebaceous adenoma, in the classification of benign sebaceous neoplasms and in the distinction of benign lesions from sebaceous carcinoma. Obviously, diagnostic variation in the assessment of CSL may carry significant clinical implications, particularly in terms of under-diagnosis or over-diagnosis of malignancy, but also in selection of cases which may be associated with Muir Torre syndrome for mismatch repair protein testing.

In order to test the level of interobserver variability in the diagnosis of well circumscribed sebaceous lesions we collected a study set of 61 such lesions from our archives. De-identified duplicate haematoxylin and eosin stained sections were prepared from each case using standard techniques. The sections were then independently assessed by 9 pathologists blinded to the original diagnosis, who recorded their favoured diagnosis for each case from one of five categories:

1. Sebaceous hyperplasia
2. Sebaceous adenoma
3. Sebaceoma
4. Sebaceous carcinoma
5. Other (for this category a specific diagnosis was requested)
The participating pathologists were asked to apply the criteria they use in routine practice, and no specific diagnostic features were suggested. The pathologists came from 3 institutions and included 4 dermatopathologists (defined by post-fellowship training in dermatopathology and current practice exclusively or nearly exclusively in dermatopathology) and 5 surgical pathologists with current practice including reporting of skin specimens. Post-fellowship experience ranged from 4 to 25 years.

A total of 57 cases (93%) had a majority diagnosis, where at least 5 pathologists reached the same conclusion. However, only 7 cases (11%) had consensus agreement across all 9 pathologists. Many cases had multiple diagnoses suggested, with 3 or more submitted diagnoses in 26 cases (43%). Of particular note was the fact that 38 cases (62%) were diagnosed as sebaceous carcinoma by at least one pathologist. There was marked variability amongst the pathologists in the proportion of cases diagnosed as carcinoma, ranging from 5% to 57% of cases (Figure 1).

The Fleiss’ Kappa statistic for all pathologists and all 5 diagnostic categories was 0.44, amounting to only fair to moderate agreement (Table 1). This did not differ appreciably when dermatopathologists and surgical pathologists were considered as separate groups. To assess whether there was better agreement for categorisation of benign versus malignant, Kappa statistics were recalculated using the broader diagnostic categories of benign (incorporating sebaceous hyperplasia, sebaceous adenoma and sebaceoma), malignant (sebaceous carcinoma) and other (Table 1). There was minimal change in the overall Kappa value after this recalculation, but a difference did emerge between dermatopathologists and surgical pathologists. In this instance, dermatopathologists displayed greater agreement as a group (Kappa 0.47) than surgical pathologists (Kappa 0.31).

The diagnosis of sebaceous carcinoma carries significant connotations. This tumour is reported to have a 30-40% risk for local recurrence, necessitating further surgery, a 20-25% risk for metastasis and a risk of death of up to 20% 5-7. Treatment involves at least a wide excision, in some cases with adjuvant radiotherapy 8. Thus, overdiagnosis of this condition places the patient at risk of significant overtreatment, while underdiagnosis may be associated with adverse outcomes.

This study has confirmed our anecdotal experience that there is significant interobserver variability in the diagnosis of cutaneous CSL. Difficulties in applying cytological criteria to the separation of benign and malignant CSL are highlighted and perhaps magnified by differing schools of thought as to the biological nature of these lesions. Most controversially, Ackerman famously proposed that lesions conventionally considered to represent sebaceous adenoma are in fact a form of well differentiated sebaceous carcinoma, though this view has not been widely accepted 9. It has subsequently been suggested that these lesions represent a form of intraepithelial sebaceous carcinoma 10. Misago et al. described a lesion referred to as the “secretory” subtype of well differentiated sebaceous carcinoma, which shows a lobular architecture with retained holocrine secretion 11. These tumours all showed areas described as “sebaceous adenoma-like”, and the possibility that they represented a transition from sebaceous adenoma to carcinoma was raised by the authors. Kazakov et al. described significant difficulty in classifying a small series of sebaceous neoplasms which displayed a ‘benign’ architecture but atypical cytology 12.
The differing views regarding the appropriate classification of these lesions was highlighted by the vigorous debate in the literature following publication of this article 13-15.

In addition to the subjective nature of many of the proposed criteria, there is a lack of clear thresholds for features which might indicate malignancy in a CSL. In particular, while an increase in mitotic figures is often suggested as a feature in favour of malignancy 12, 16, no cut off values have been established that relate to clinical outcome. We have noted that many otherwise apparently benign sebaceous lesions show readily identifiable mitotic figures, an impression which was confirmed in this case set.

While well-defined and reproducible criteria for the diagnosis of malignancy would be expected to lead to an improvement in interobserver variability, one difficulty in establishing such criteria lies in determining the biological nature of these lesions. High grade pattern, defined by infiltrative growth and poor sebaceous differentiation, has been associated with a worse prognosis in sebaceous carcinoma, and in one study there were no deaths recorded when the lesions were less than 6mm in size 6. Given that small, well differentiated sebaceous carcinomas are plausibly cured by complete excision, it is difficult to establish the threshold at which such a diagnosis should appropriately be applied.

In addition to the variability observed in distinguishing benign from malignant lesions, there were many cases where there was overlap in the diagnosis of benign lesions. Both sebaceous hyperplasia and sebaceous adenoma were submitted as diagnoses in 17 cases (28%), while both sebaceous adenoma and sebaceoma were submitted as diagnoses in 21 cases (34%). We believe that much of this variability is also due to application of subjective diagnostic criteria. All three benign lesions are composed of well circumscribed lobules of cells. Sebaceous adenoma and sebaceoma show an expansion of the number of basaloid germinative cells when compared to sebaceous hyperplasia. Commonly utilised criteria are more than 2 layers of germinative cells for distinguishing sebaceous adenoma from sebaceous hyperplasia, while if germinative cells occupy more than 50% of the tumour the designation of sebaceoma is preferred 16. While practical, this latter distinction is arbitrary and is unlikely to identify a biologically different tumour corresponding to some authors’ conceptualisation of sebaceoma 17. Indeed, the term “sebomatricoma” has been proposed as a designation for all benign sebaceous neoplasms to address this difficulty 18.

The distinction of sebaceous hyperplasia from a benign sebaceous neoplasm has been less controversial in the literature, but our study indicates that there is still significant interobserver variability with regard to this differential diagnosis. This has a practical implication, in that sebaceous neoplasms are associated with Muir Torre syndrome and it is generally recommended that such lesions are screened for DNA mismatch repair protein status by immunohistochemistry, whereas sebaceous hyperplasia does not carry this recommendation 16, 19.

In conclusion, we have demonstrated that there is substantial interobserver variability in the diagnosis of CSL. This was seen in both the separation of benign and malignant lesions, as well as in the classification of the benign entities. This interobserver
variability is likely to have significant clinical implications in terms of potential for over or under treatment, as well as in selection of cases for mismatch repair protein evaluation and potential detection of a syndromic association with visceral malignancy. In addition, such diagnostic variability has implications for the design of studies intended to examine the clinical and biological distinctions between these entities. Future work will be aimed at determining the clinical and molecular characteristics of these lesions and to relate these to reproducible histological criteria.

ACKNOWLEDGEMENTS
We wish to thank Ms Elena Poulet for preparation of the slides for the study set. The authors have no conflicts of interest or financial support to declare. This study is currently undergoing peer review for publication in the journal Pathology.

REFERENCES
Figure 1: The proportion of cases diagnosed as sebaceous carcinoma by each participating pathologist

Table 1: Fleiss’ Kappa statistics for the different diagnostic categories.

<table>
<thead>
<tr>
<th>5 diagnostic categories (Sebaceous Hyperplasia, Sebaceous Adenoma, Sebaceoma, Sebaceous Carcinoma, Other):</th>
<th>Fleiss' Kappa</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>All pathologists (n=9)</td>
<td>0.44</td>
<td>0.02</td>
</tr>
<tr>
<td>Dermatopathologists (n=4)</td>
<td>0.44</td>
<td>0.03</td>
</tr>
<tr>
<td>General pathologists (n=5)</td>
<td>0.40</td>
<td>0.03</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3 diagnostic categories (Benign, Malignant, Other):</th>
<th>Fleiss' Kappa</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>All pathologists (n=9)</td>
<td>0.40</td>
<td>0.06</td>
</tr>
<tr>
<td>Dermatopathologists (n=4)</td>
<td>0.47</td>
<td>0.10</td>
</tr>
<tr>
<td>General pathologists (n=5)</td>
<td>0.31</td>
<td>0.07</td>
</tr>
</tbody>
</table>
The co-occurrence of cutaneous Rosai-Dorfman disease and diffuse large B cell lymphoma in a patient with disease restricted to the legs.

Cameron Snell, Penny McKelvie, Matthew Facey, Richard Williams

St. Vincent’s Pathology, Melbourne

Background: Sinus histiocytosis with massive lymphadenopathy (SHML) or Rosai-Dorfman disease (RDD) was first described in 1969 (1). Lymph nodes are more commonly involved, but any organ may be affected, hence the term RDD has replaced that of SHML. RDD is rare and usually affects individuals in childhood and young adults with a slight male predominance, typically presenting with painless bilateral lymphadenopathy of the head and neck with fever, elevated erythrocyte sedimentation rate, leukocytosis and polyclonal hypergammaglobulinaemia (2). The commonest extra-nodal site is in skin, and patients with disease limited to skin comprise an entirely different demographic, usually elderly white women (3). Cutaneous RDD (cRDD) follows a clinical course that either results in resolution regardless of treatment, or persistence and relapse, similar to systemic RDD (3).

RDD has been described in association with other lymphoproliferative diseases. There have been 24 previous cases of lymphoma described in patients with RDD (4-10). These are predominantly B-cell lymphomas, most commonly diffuse large B cell lymphoma. Only one report has described the co-existence of cRDD with a systemic lymphoma (8). Our case is the first description of the co-occurrence of cRDD with a primary cutaneous lymphoma.

Case: An 80 year old female presented with an indurated 3cm plaque on the left lower leg. The clinical differential diagnosis was wide including amelanotic melanoma, atypical fibroxanthoma and cutaneous lymphoma. On punch biopsy, there was a dense accumulation of large histiocytoid cells in the dermis accompanied by large numbers of lymphocytes, neutrophils and occasional eosinophils. Some histiocytes showed emperipolesis of lymphocytes. The histiocytoid cells were positive for S100 and CD68, and negative for CD1a, CD21/35, HMB45 and Melan A. Infection was excluded using special stains and a diagnosis of RDD was made. Due to the absence of lymphadenopathy or other extracutaneous disease, this was considered to be cRDD. Two weeks later, an unusual developing rash-like lesion diffusely involving the right posterior lower leg was biopsied which showed a blastic lymphoid malignancy in the dermis. The cells were CD20+, BCL-6+, BCL-2-, MUM-1+ (in 20%), CD10-. The diagnosis of primary cutaneous diffuse large B-cell lymphoma, leg type was made after systemic disease was excluded. IgH gene rearrangement studies were performed on both specimens to exclude clonal relationship but neither showed sufficient B-cells to detect a discrete monoclonal peak.

Discussion: There have been several hundred cases of RDD reported in the literature, mostly limited to case reports or small series (10). Approximately 10% are associated with immunologic disease, whereas those associated with lymphoma are anecdotal. The aetiology of RDD remains unknown, although it is considered non-neoplastic. Viral agents such as human herpes virus-6 and Epstein-Barr virus have been implicated via immune system dysregulation (11, 12). In a series of nine RDD cases, human herpes virus-6 was detected in seven by in situ hybridisation (13). The development of RDD is likely multifactorial, but many documented patients have
coexisting immunologically mediated disorders such as asthma, systemic lupus erythematosus and rheumatoid arthritis (14).

In cases with co-existing lymphoma, RDD may develop secondary to immune dysfunction. Alternatively, immune dysfunction predisposing to RDD may also provide the conditions for developing a co-existent lymphoma. In conclusion, we consider that the reported frequency of coexistence of lymphoma with RDD suggests an aetiological link. Both diseases may also be limited to skin, as illustrated by our case.

REFERENCES:

Clinical history
76 yr old male presented in February 2013 with a slightly keratotic bluish papule with indistinct margins on the right cheek. The patient had a history of multiple actinic keratosis, basal cell and squamous cell carcinomas. The clinical diagnosis was haemangioma and a skin biopsy was obtained.

Microscopic description
Histologically the lesion consisted of a well circumscribed pigmented tumour in the upper-mid dermis. The tumour was composed of a double cell population formed by pleomorphic basaloid cells with abrupt transition to anucleated shadow cells, and dendritic melanocytes some of them with prominent melanin pigment. The immunostains show patchy positive staining for broad spectrum keratin AE1 / AE3, 34BE12, BerEp4, EMA. Immunostains for melanocytic markers HMB45, PNL2, S100, and MelanA show increased numbers of melanocytes with dendritic processes which were evenly scattered in the lesion. There were mitoses present up to 18/HPF. No granulomatous reaction, calcification, cyst formation, or identifiable connection with the overlying epidermis or adnexal epithelium were observed.

Diagnosis: Melanocytic matricoma

Discussion:

We retrieved 8 cases of melanocytic matricomas from our consultation files at RPAH reported by Prof McCarthy and Prof Scolyer between 2005-2013. The clinicopathological characteristics are in the table below:

<table>
<thead>
<tr>
<th>Patient</th>
<th>Age</th>
<th>Sex</th>
<th>Site</th>
<th>Macroscopic description</th>
<th>Follow up</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>52</td>
<td>M</td>
<td>nose</td>
<td>nodular pigmented lesion</td>
<td>no local recurrence</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>after 7 months</td>
</tr>
<tr>
<td>2</td>
<td>80</td>
<td>M</td>
<td>left elbow</td>
<td>pigmented keratotic nodule 5mm</td>
<td>no local recurrence</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>after 3 years</td>
</tr>
<tr>
<td>3</td>
<td>64</td>
<td>M</td>
<td>left lower eyelid</td>
<td>well defined pigmented nodule 4mm</td>
<td>N/A</td>
</tr>
<tr>
<td>4</td>
<td>61</td>
<td>M</td>
<td>mid-face</td>
<td>bluish nodule 4mm</td>
<td>N/A</td>
</tr>
<tr>
<td>5</td>
<td>86</td>
<td>F</td>
<td>left cheek</td>
<td>non-pigmented nodule, growing slowly over a few months, bleeding on irritation</td>
<td>no local recurrence</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>after 6 months</td>
</tr>
<tr>
<td>6</td>
<td>86</td>
<td>M</td>
<td>left scalp</td>
<td>small keratotic non-pigmented appearing lesion, with a bluish appearance on curetting, well circumscribed, shelled out easily, approximately 6mm</td>
<td>no local recurrence</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>after 8 months</td>
</tr>
<tr>
<td>7</td>
<td>76</td>
<td>M</td>
<td>right cheek</td>
<td>keratotic, non-pigmented papule with indistinct margins</td>
<td>no local recurrence</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>after 3 months</td>
</tr>
<tr>
<td>8</td>
<td>84</td>
<td>M</td>
<td>left leg</td>
<td>raised pigmented papule 8mm</td>
<td>no local recurrence</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>after 3 months</td>
</tr>
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</table>
A literature review found 14 published cases reports to date of this rare entity. Our series of 8 cases is the largest reported, as far as we are aware.

Clinically these unique neoplasms present as pigmented or non-pigmented papules on severely sun-damaged skin of elderly patients. They were small lesions within a range 2-8mm (mean 5.7mm). The clinical differential diagnoses included pigmented basal cell carcinoma, pigmented seborrhoeic keratosis, haemangioma, blue naevus and melanoma. The age range was 52 to 86 years (mean age 73 years) and a predominance of face involvement (5/8 cases) was noted, three lesions occurred on the scalp, elbow and leg. Seven out of 8 patients were males and one patient was a female.

Histologically all cases had similar features. They presented as a well-circumscribed dermal tumor showing asymmetrical pigmentation, arranged in solid nests and lobules composed of basaloid cells with scant amounts of cytoplasm and prominent nucleoli reminiscent of matrical and supramatrical cells. Cytological atypia, as well as mitotic figures, were seen. Dispersed singly and in small aggregates were “shadow cells” within the tumor, and there were admixed pigmented dendritic melanocytes. Surrounding the tumor there was a sclerotic stromal response sometimes containing melanophages. The dermis and overlying epidermis revealed changes of significant sun damage including solar elastosis, epidermal atrophy and actinic keratosis.

The histologic differential diagnosis of melanocytic matricoma includes the pigmented variants of pilomatricoma, matrical carcinoma, basal cell carcinoma, and malignant melanoma. Although the characteristics of melanocytic matricoma, such as circumscription, small size, and clinical history, most likely suggest a benign nature despite the presence of variable cytologic atypia and frequent mitoses, long-term follow-up is not yet available to exclude aggressive behavior.

Ever since melanocytic matricoma was first described by Carlson et al in 1999 there has been some discussion about whether there is sufficient clinical and pathologic evidence to support the hypothesis that it is a separate entity from matricoma. Matricoma is described as having a silhouette composed of many small, discrete aggregations positioned throughout the dermis and sometimes just into the subcutaneous fat. In contrast, melanocytic matricoma is characteristically a single superficial dermal nodule. Importantly, melanocytic matricoma has a characteristic proliferation of dendritic melanocytes.

It has been suggested that matrical carcinoma with prominent melanocytic hyperplasia might in fact be a malignant form of melanocytic matricoma; this variant of carcinoma is a poorly defined, multinodular tumor that penetrates deeper layers and contains mitotically active cells and areas of necrosis. Melanocytic matricoma is distinct from pilomatricoma, both clinically and pathologically. Clinically, pilomatricoma usually presents as a nodule in younger patients, while melanocytic matricoma appears to present as a papule in elderly individuals. Pathologically, pilomatricoma is a solid neoplasm with a cystic tendency, located in the deep dermis and subcutis, with calcification and granulomatous
reaction usually present. In distinction, melanocytic matricoma lacks a cystic component, is more superficially located, and apparently does not tend to calcify or elicit granulomatous response. Most importantly, pigmented pilomatriomas do not tend to exhibit prominent melanocytic hyperplasia, while melanocytic matricoma invariably contains a prominent proliferation of pigmented dendritic melanocytes.

It is known that hair follicles in anagen (growth phase) contain matrical and supramatrical cells as well as pigmented melanocytes that give hair its color. Mitotic activity is also common. Because melanocytes are more prominent in the early anagen phase, melanocytic matricoma is suggestive of early-stage follicular differentiation during anagen; this contrasts with pilomatricoma, which is characterized by late-stage differentiation.

In conclusion, melanocytic matricoma is a distinctive clinical and pathologic entity that, up to this point, represents a benign pigmented papule in sun-damaged areas of older individuals, formed by a superficial, dermal, pigmented nodular proliferation of matrical and supramatrical cells admixed with dendritic melanocytes. Dermatologists and dermatopathologists should be aware of this entity and a correct interpretation is important due to its clinical and histopathologic overlap with other malignant lesions, including melanoma.

Bibliography: