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CLINICAL AND PATHOLOGICAL FEATURES AND OUTCOME OF A HOOF MELANOMA IN AN ANDALUSIAN BAY GELDING

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INTRODUCTION

Melanomas involving the horse foot are poorly described. Their diagnosis was usually established based on signalments and *post-mortem* examination. Anaplastic malignant melanoma have been the unique histopathological type described at the foot[1,3].
Here we describe the clinical and histopathological features of a melanoma with dermo-epidermal activity.

MATERIAL AND METHODS

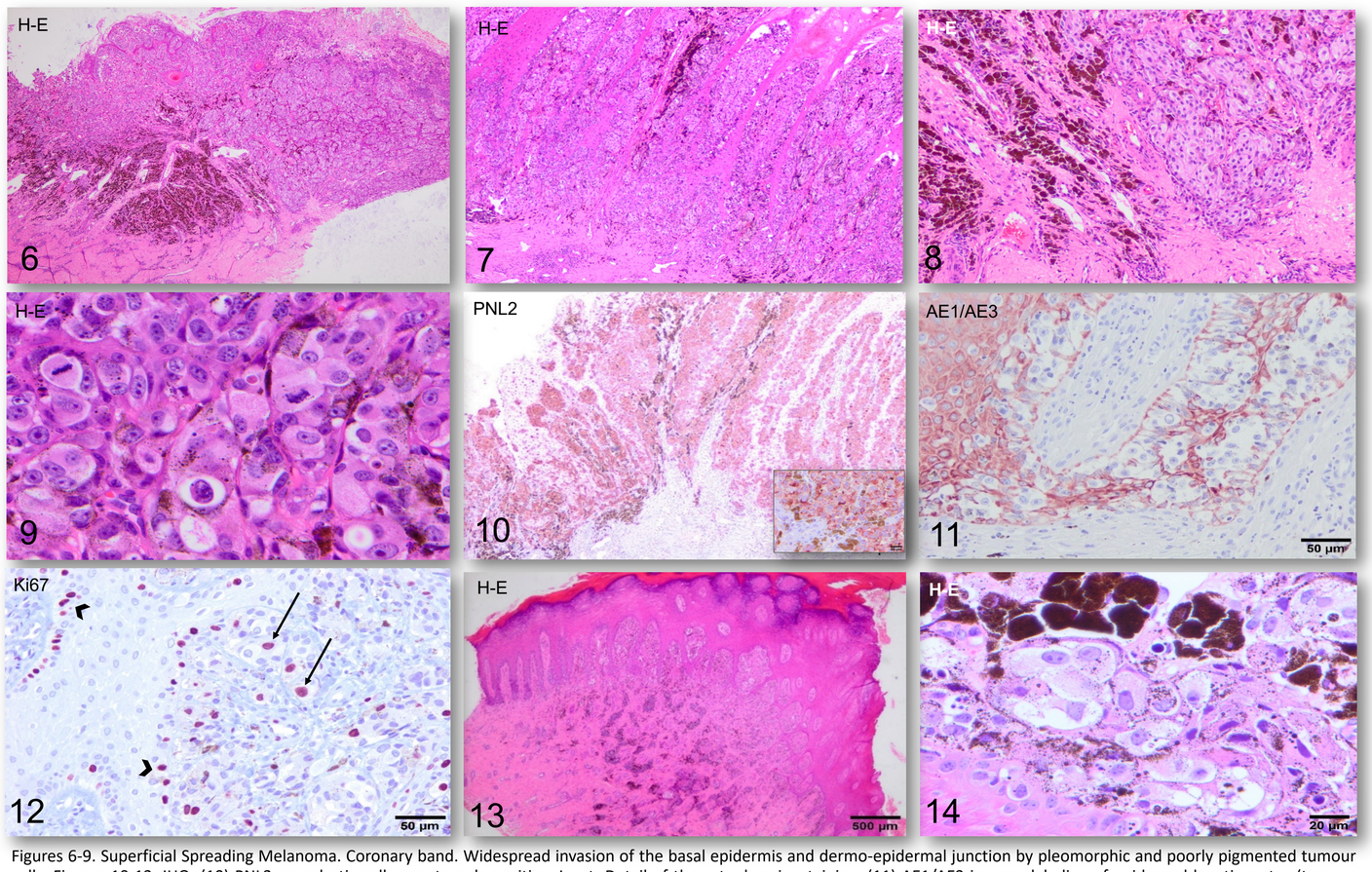
A 12-year-old bay Andalusian gelding was presented with lameness of the right forelimb and history of recurrent abscesses involving the lateral aspect of the hoof wall (Fig. 1). When keratoma removal was performed, a poorly defined plaque-like pigmented lesion (2 x 2 x 0.4 cm in size), was found lateral at the coronary band, extending to the proximal lamellar tissue (Fig. 2). Partial resection of the hoof wall was made and a biopsy was submitted for histopathology. Further advanced diagnostic imaging technique (magnetic resonance imaging (MRI) was performed, showing no involvement of the surrounding structures beyond the superficial dermis (Fig. 3).

Six months after surgical resection and local chemotherapy, the hoof wall defect was partially covered by granulation tissue and a new dark flattened mass was notice at the lateral aspect of the coronary band. New biopsies were taken. The horse was comfortable at walk during the period and nowadays there are non evidences of tumour invasion or metastasis (Figs. 4, 5).

RESULTS AND DISCUSSION

A melanocytic tumour, characterised by small nests of large polygonal/ epithelioid cells infiltrating the basal and suprabasal epidermis, dermo-epidermal junction, and the superficial dermis, was observed (Figs. 6-8). Tumour cells exhibited euchromatic nuclei, prominent nucleoli, moderate pleomorphism and mitotic index and variable amounts of melanin in the cytoplasm (Fig. 9). Melanophages were abundant (Figs 6-9). The immunophenotype was PNL2+++, S100++, AE1-AE3-- (Table 1, Figs 10, 11). The proliferation index, assessed by K67 expression, was 18,8% (Figs 12).

A diagnosis of melanoma with dermo-epidermal activity was made (consistent with Superficial Spreading Melanoma). Six-month after the treatment, biopsies showed identical superficial growth pattern, areas of partial tumour regression and active healing (Figs. 13, 14).



Figures 6-9. Superficial Spreading Melanoma. Coronary band. Widespread invasion of the basal epidermis and dermo-epidermal junction by pleomorphic and poorly pigmented tumour cells. Figures 10-12. IHQ. (10) PNL2, neoplastic cells are strongly positive. Inset: Detail of the cytoplasmic staining. (11) AE1/AE3 immunolabeling of epidermal keratinocytes (tumour cells are negative). (12) Ki67, nuclear immunolabeling of neoplastic melanocytes (arrows) and basal keratinocytes (arrowhead). Follow-up biopsies (13 and 14). Partial tumour regression, reepithelialization, lymphocytic infiltration and persistence of the melanoma with dermo-epidermal activity.

Few publications have described subtypes of equine melanocytic tumours in non-gray horses[1-3] and only one proposes new 3 variants resembling human melanocytic naevi[2]. Superficial Spreading Melanoma is included in the Human Melanomas Classification (WHO 2018), into a subgroup of "Intermediate Melanomas" that are subject of debate and discussion. The diagnosis and follow-up of the this case will provide applicable data to clinicians and pathologists.

CONCLUSIONS

- This is the first Foot Melanoma with dermo-epidermal activity pattern (like Superficial Spreading Melanoma) report in horses.
- After six months of follow-up, the tumour maintains a horizontal growth pattern and clinically the horse is comfortable at walk.
- The classification and prognostic factors of equine melanomas remain insufficient. More clinical, pathological, and molecular data are needed, taking the classification of human melanomas as a guide.

Tabla 1. Immunohistochemical profile

Antibody/Specificity	Immunostaining	Intensity/pattern
PNL2 Monoclonal Mouse anti-Human melanoma antigen (DAKO)	Majority of tumour cells	+++/ Diffuse Cytoplasmic staining
S100 Polyclonal Rabbit anti-human (DAKO Z0311)	Numerous tumour cells positive Some dermal cells	+/++ Diffuse Cytoplasmic and nuclear staining
AE1/AE3 Monoclonal Mouse anti-Human cytokeratins (DAKO)	Tumour cells negative Keratinocytes positive	+++/Diffuse Cytoplasmic
Ki67 Monoclonal Mouse anti-Ki67 antigen (DAKO, clone MIB-1) * Percentage of +++ T cells out of 750 T cells	Many tumour cells (18,8%)* Basal keratinocytes	+++ Diffuse Nuclear staining

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Acknowledgements: Thanks to the owner, Mrs Claudia Cabrera, for her great humanity and willingness to carry out the studies, treatment and follow-up of the tumour.