CASE REPORT

REVISED Case Report: Cutaneous melanocytic schwannoma with concomitant melanocytoma in a canine [version 2; peer review: 1 approved, 2 approved with reservations, 1 not approved]

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Abstract

Schwannoma is a nerve sheath tumour arising from differentiated Schwann cells, and melanocytic schwannoma (MS) is a rare variant where the Schwan cells produce melanin pigment. MS is typically associated with spinal nerve roots and there have been only ~20 reports of cutaneous or subcutaneous MS to-date in humans. In canines, there have only been two reports of MS, both associated with spinal root nerves. In this report, we describe a 7-year-old Weimaraner cross breed dog that presented with two pigmented lesions on the eyelids. The lesions were surgically removed and histological analysis revealed well-circumscribed, non-encapsulated, expansile, neoplasms that were displacing most of the dermis and adnexa. The first lesion was composed of spindloid cells arranged in short interlacing streams with large amounts of pale eosinophilic cytoplasm that sometimes contained fine melanin granules. In areas there were spindle cells arranged in verocay bodies which led to a diagnosis of MS. In contrast, the second lesion was composed of polygonal cells arranged in thick sheets with large amounts of pale eosinophilic cytoplasm that sometimes contained fine melanin granules. The diagnosis was melanocytoma (which is one of the macroscopic differential diagnoses for MS). Whilst melanocytoma is a commonly occurring cutaneous lesion in canines and surgical removal is considered curative, due to little being known about MS in dogs, the outcome remained guarded, as MS in humans has an unpredictable nature, and recurrence and metastasis have been reported.

Open Peer Review

Approval Status ✓ ? ? ✗

	1	2	3	4
version 2 (revision) 26 Feb 2024	✓ view		? view	✗ view
version 1 24 Aug 2023	? view	? view		

1. **Tatsuya Deguchi**, Rakuno Gakuen University, Ebetsu, Japan
2. **Volkan Ipek**, Burdur Mehmet Akif Ersoy University, Burdur, Turkey
3. **Maria Teresa Mandara**, University of Perugia, Perugia, Italy
4. **Rebecca C Smedley**, Michigan State University, Michigan, USA

Any reports and responses or comments on the article can be found at the end of the article.

Keywords
Schwannoma, melanocytoma, melanoma, melanin, neoplasm, verocay body, dog

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Author roles: Monakali OH: Data Curation, Investigation, Writing – Review & Editing; **O'Dell N**: Conceptualization, Supervision, Writing – Review & Editing; **van der Weyden L**: Conceptualization, Writing – Original Draft Preparation, Writing – Review & Editing

Competing interests: No competing interests were disclosed.

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REVISED **Amendments from Version 1**

Minimal changes were made to the original submission. These changes include ideas and points highlighted by a reviewer. These include:

A comment on the microscopic margins; "The microscopic margins were clean". Furthermore, information about the common sites for metastasis in human melanotic schwannomas, "the following have been reported as sites for metastasis are lungs and pleura mediastinum, diaphragm, pericardium, endocardium, bone, liver, and spleen".

Any further responses from the reviewers can be found at the end of the article

Background

Schwannoma is a nerve sheath tumour arising from differentiated Schwann cells and in adult humans it is the most common type of benign peripheral nerve tumour. Although typically associated with spinal nerve roots, schwannomas can occur as a primary neoplasm in the skin, soft tissue and visceral organs[1]. Melanocytic schwannoma (MS), or melanotic schwannoma, is a rare variant of nerve sheath tumour composed of Schwann cells that produce melanin[2]. MS accounts for <1% of primary peripheral nerve sheath tumours in humans[1] and only ~200 cases of MS have been described in the literature, with only ~20 of these cases being cutaneous and subcutaneous MS[3–6], highlighting the rarity of MS at this tissue site. In dogs, there have only been two cases of MS described in the literature; a single study of two dogs from nearly 40 years ago (a 2 year-old mixed breed male and Doberman pinscher female)[7]. Both dogs presented with a 2 week period of progressive uncoordination/leg weakness, and examination revealed a lesion at the T12 region of the male and cauda equina of the female (leading to the owners' decision to euthanise)[7]. Thus our case study is the first report of cutaneous MS in a dog, with a concomitant melanocytoma.

Case report

A 33kg 7-year-old female spayed Weimaraner cross breed from Pretoria, South Africa, was presented to a specialist veterinary ophthalmologist for consultation about a large pigmented growth on her left lower eye lid, amongst another smaller pigmented eyelid mass and two larger soft subcutaneous masses in the right axilla and the left ventral abdomen respectively. The dog had not visited the Onderstepoort Veterinary Academic Hospital prior to this presentation, and no other abnormalities were detected with her eyes, although some nuclear sclerosis was noted, which is common in older dogs. A blood smear found red blood cells, white blood cells and platelets to all be present with no abnormalities or parasites detected. Fine needle aspirates were performed on both soft subcutaneous masses and only adipocytes were seen in the cytology smears. The owner elected for all four lesions to undergo surgical resection under general anaesthesia and the masses were placed in 10% buffered formalin for histopathological analysis at the Faculty of Veterinary Science, University of Pretoria. The dog was discharged back to the owner the next day and returned 14 days later to Outpatients for removal of the sutures.

The formalin-fixed tissues were embedded in paraffin wax, sectioned and stained with haematoxylin and eosin. Both eyelid growths (A – larger, and B – smaller) were pedunculated, firm black dermal masses that histologically presented as well-circumscribed, non-encapsulated, expansile, cell dense neoplasms with clean margins, that were displacing most of the dermis and adnexa, with the overlying epidermis being mildly hyperplastic and characterised by acanthosis and elongated rete pegs (Figure 1a and Figure 2a). Neoplasm A was composed of spindloid cells arranged in short interlacing streams and supported by a small amount of fibrovascular stroma (Figure 1b). The cells had variably indistinct cell borders, large amounts of pale eosinophilic cytoplasm that sometimes contained fine melanin granules, as well as oval to elongated basophilic nuclei with finely stippled chromatin, and variably distinct central nucleoli. In areas there were spindle cells arranged in verocay bodies (Figure 1c). There was moderate anisokaryosis and anisocytosis, with only one mitotic figure seen. In the adjacent dermis, there was multifocal mild to moderate ectasia of sweat glands, a moderate multifocal inflammatory cell infiltrate (predominately neutrophils and macrophages) around the adnexal structures and a moderate number of randomly scattered melanomacrophages. The diagnosis was melanotic schwannoma.

Neoplasm B was composed of polygonal cells arranged in thick sheets supported by a moderate amount of fibrovascular stroma (Figure 2b). The cells had indistinct cell borders and large amounts of pale eosinophilic cytoplasm that sometimes contained fine melanin granules, as well as round to oval nuclei with coarse sparse chromatin and a variably distinct central single nucleolus. There was moderate anisokaryosis and anisocytosis, and no mitotic figures were seen. There were single or clusters of neoplastic cells scattered in fairly large numbers along the epidermal-dermal junction and rarely in the epidermis, and multifocally interspersed with moderate numbers of melanomacrophages. The diagnosis was melanocytoma.

The soft subcutaneous masses, two smooth-surfaced masses measuring approximately 20 × 15 × 10mm and 35 × 20 × 20mm respectively, were composed of mature/well-differentiated adipocytes with no spindle cell proliferation and minimal fibrovascular stroma, consistent with that seen in the cytology smears (Figure 1c). The diagnosis was lipoma, which is a benign tumour that is very common in dogs.

A year after removal of the masses, the owner was contacted and confirmed there was no regrowth.

Discussion

The 2007 World Health Organization (WHO) classification of human peripheral nerve tumours (PNTs) has been adapted for veterinary use due to the gross and histological similarities between these tumours in humans and dogs[8]. There are four major subtypes of PNT, namely schwannoma, neurofibroma,

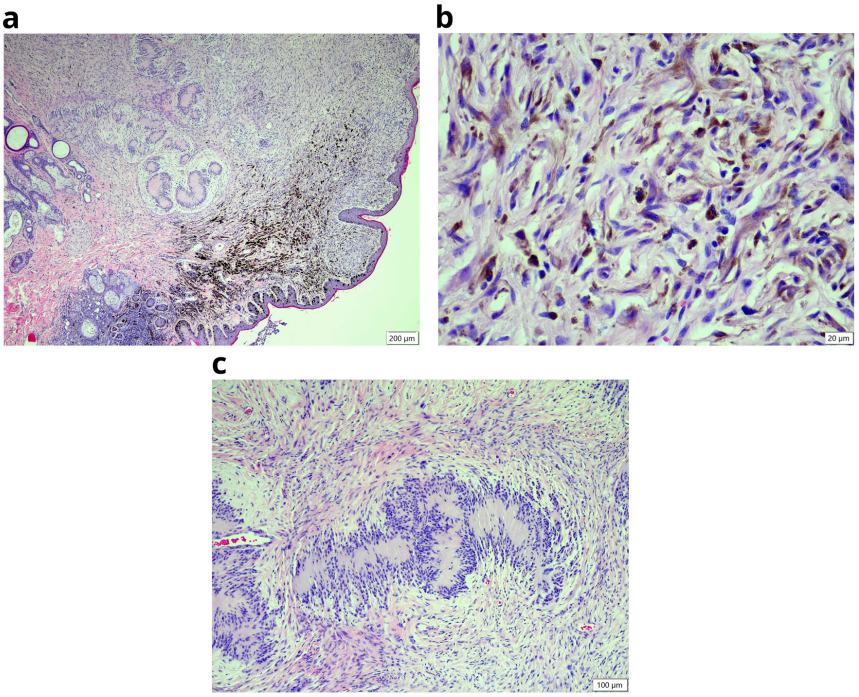

Figure 1. Histopathology of the melanocytic schwannoma (neoplasm A). (**a**) Low magnification revealing the non-encapsulated, expansile, cell dense proliferation of neoplastic spindloid cells displacing the dermis and adnexa. Also note the verocay bodies present within this cellular proliferation (HE stain, 40× magnification). (**b**) High magnification revealing the cellular morphology of the pigmented neoplastic cells (HE stain, 400× magnification). (**c**) Presence of distinct verocay bodies within the neoplastic proliferation (HE stain, 100× magnification).

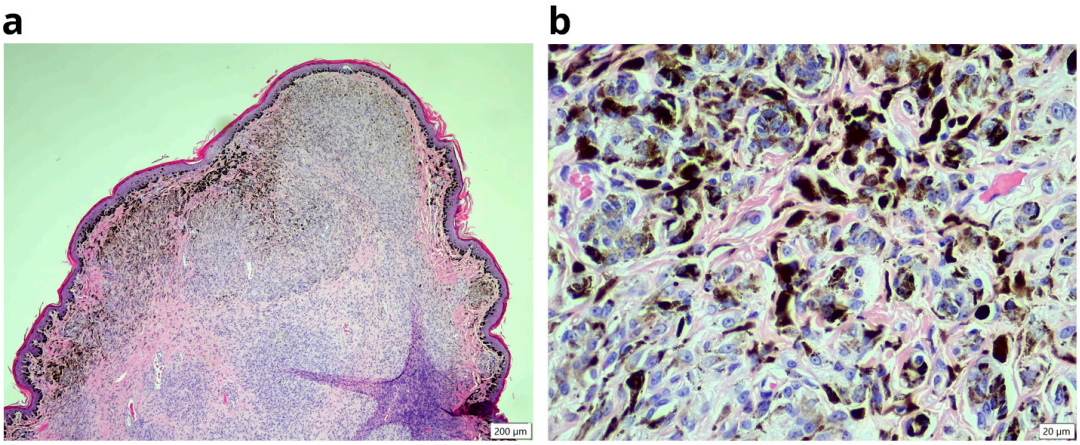

Figure 2. Histopathology of the melanocytoma (neoplasm B). (**a**) Low magnification revealing the pedunculated, non-encapsulated, expansile, cell dense proliferation of neoplastic pigmented spindloid cells displacing the dermis and adnexa (HE stain, 40× magnification). (**b**) High magnification revealing the cellular morphology of the highly pigmented neoplastic cells (HE stain, 400× magnification).

perineuroma and malignant peripheral nerve sheath tumour (PNST). In the dog, the most common subtype of PNT is schwannoma, which is a benign encapsulated nerve sheath tumour composed of well-differentiated neoplastic Schwann cells[8]. Canine schwannomas are typically found intradurally within spinal nerve roots or extradurally in the brachial plexus and consist of relatively densely packed cells with ovoid to elongated fusiform shapes and eosinophilic cytoplasm with indistinct borders, supported by a variably dense collagen matrix[8]. The tumours are composed of dense cellular sheets arranged in patterns of interwoven bundles, concentric whorls or streams; in humans this dense cellular form is classified as the Antoni type A pattern[9] and it is the most common type seen in the dog[8]. In contrast to humans where verocay bodies (formed

by stacked parallel rows of palisading nuclei separated by anuclear zones) are a common occurrence and pathognomic[10], verocay bodies are extremely rare in dogs[8].

MS is one of the rare variants of schwannoma, with the cells displaying ultrastructural features of Schwann cells but also possessing melanosomes. They are typically found in the gastrointestinal tract and paraspinal sympathetic chain, with only ~20 reports of cutaneous and subcutaneous MS in humans to-date[3–6] and none in animals. We present here the first report of cutaneous MS in an animal, specifically a dog that presented with two cutaneous pigmented lesions, a melanocytoma and a MS. Melanocytoma and malignant melanoma are differential diagnoses for MS and it can be difficult to differentiate between these tumour types as they generally express S-100, due to their shared neural crest origin, and one or more melanosomal markers[1,3]. However, melanocytomas and melanomas do not display evidence of schwannian differentiation, specifically verocay bodies, and together with the proliferation of pigmented spindle cells seen in this case, the diagnosis of MS was made. The presence of verocay bodies have been previously reported in some cases of canine schwannoma[10] but not others[11].

Conventional schwannoma is typically an encapsulated, benign tumour. In contrast, whilst MS is generally considered a benign lesion, it is typically a circumscribed yet unencapsulated tumour, which may reflect its potentially more aggressive nature, consistent with its unpredictable clinical course. Indeed, the benign nature of this tumour has come from case studies with only a short-term follow up, as there have been reports of recurrence (15–35%,) and metastasis (26–44%) in patients with long-term follow up (3–7 years)[12–16]. In humans, MS has been reported to metastases to the following sites, lung and pleura, mediastinum, diaphragm, pericardium, endocardium, bone, liver, and spleen[17]. In addition, since clinicopathologic evaluation is a poor predictor of the biologic behavior of MS[13], appropriate long-term follow-up has been recommended as it may recur or metastasize even in the absence of overt malignant features.

In contrast to MS, melanocytoma is a benign neoplasm arising from the melanocytes in the epidermis, dermis or adnexa, and is common in dogs[18]. In dogs, melanocytomas have a predilection for the eyelids. The majority of canine melanocytomas are slow-growing and amenable to surgical excision, with ~90% of dogs with cutaneous melanocytomas reported to be alive after 2 years (in comparison with dogs with cutaneous melanoma, in which 50% lived less than 7 months after diagnosis[18]). Thus whilst both the excised lesions in this case showed clear margins, which lessens the chance of recurrence, the overall prognosis remains guarded and close follow up is recommended, due to the paucity of information of MS in canines and the unpredictable nature of this tumour type in humans.

In conclusion, our case report adds to the limited knowledge of this tumour type that is rare in both humans and animals, especially a cutaneous presentation. The rarity of this tumour type highlights the benefits of a 'One Medicine/One Health' approach[19], where human and veterinary medical experts combine their experience/knowledge and what we learn in one species can be used to benefit the other.

Consent

Written informed owner consent has been obtained from the owner of the patient to publish this paper. The Research Ethics Committee of the Faculty of Veterinary Science at the University of Pretoria approved this case report (REC160-22).

Data availability

All data underlying the results are available as part of the article and no additional source data are required.

Reporting guidelines

Figshare: CARE checklist for 'Case Report: Cutaneous melanocytic schwannoma with concomitant melanocytoma in a canine'. https://doi.org/10.6084/m9.figshare.23896725

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Open Peer Review

Current Peer Review Status: ✔ ? ? ✘

Version 2

Reviewer Report 03 July 2024

https://doi.org/10.21956/wellcomeopenres.23197.r85470

✘

Rebecca C Smedley
Michigan State University, Michigan, USA

Thank you for describing this tumor with an uncommon cellular pattern. It highlights the need to better characterize pigmented tumors with neural patterns. I agree with the reviewer who indicated that immunohistochemistry is necessary to make this diagnosis, however. Electron microscopy would also be nice.

I frequently see cutaneous melanocytomas that have a neural appearance. I would argue that it may be possible for melanocytic neoplasms to form Verocay bodies in some occasions. Melanocytic neoplasms have a wide range of patterns, and I don't think you can use pattern alone to determine cell type. There is a case in the human literature of a purported dermatofibroma that exhibited Verocay bodies for example [1]. Another paper described Verocay bodies in a malignant melanoma [2]. A third human paper stated: "Recent evidence shows that a subset of melanocytes develop from schwannian precursors that detach from developing nerves during normal development [3]. This provides a potential biological mechanism for the observation that melanocytic nevi often have areas of schwannian differentiation. This observation suggests that a tumor could potentially show differentiation that parallels this developmental pathway and exhibit both schwannian and melanocytic attributes yet lack the full characteristics of melanocytes, including a lack of ability to produce melanin." [3].

Some papers state that peripheral nerves need to be present in the section to diagnosis a schwannoma. Thus, I think differentiation between a pigmented schwannoma and a melanocytic neoplasm is much muddier than simply looking at the pattern/arrangement of the cells. IHC may still not be definitive, but I would like to see Melan-a, PNL-2, TRP-2, and laminin at least.

If there are neoplastic melanocytes within the overlying epithelium, which I wondered about in the provided image but could not tell for sure at that magnification, I would diagnose this mass as a melanocytic neoplasm and not a schwannoma. It was also not clear if both masses were from the same eye, the same eyelid, or different eyelids.

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Is the background of the case's history and progression described in sufficient detail?
Yes

Are enough details provided of any physical examination and diagnostic tests, treatment given and outcomes?
Yes

Is sufficient discussion included of the importance of the findings and their relevance to future understanding of disease processes, diagnosis or treatment?
Partly

Is the case presented with sufficient detail to be useful for other practitioners?
No

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Tumor pathology, melanomas in particular

I confirm that I have read this submission and believe that I have an appropriate level of expertise to state that I do not consider it to be of an acceptable scientific standard, for reasons outlined above.

Reviewer Report 20 June 2024

https://doi.org/10.21956/wellcomeopenres.23197.r85464

?

Maria Teresa Mandara
University of Perugia, Perugia, Italy

- The paper describes an interesting differential diagnosis exercise concerning a cutaneous melanocytic schwannoma vs cutaneous melanocytoma for a rare neoplastic lesion such as the melanocytic schwannoma is in the dog. Histologically both the tumors can express mesenchymal and epithelial patterns since they share similar embryonal origin from the neural crests. This makes very difficult to base diagnosis just on morphological findings,

especially in the cutaneous site. Verocay bodies are histological patterns strongly suggesting the diagnosis of schwannoma. So, if they can be sufficient to differentiate melanocytoma from MS (lesion 1), not the same can be assumed in the second lesion which, in the absence of similar pattern, needs to be differentiated from MS. A great support for final diagnosis could be provided from immunohistochemistry referred to laminin, EMA, etc. Actually, we know that both the tumors share similar markers so that discussion about this point needs to be included.

- Actually, since Verocay bodies are rarely expressed by the canine schwannoma, they can't be the base for the current diagnosis of schwannoma. Looking at Fig.1b and Fig.2b it is difficult to differentiate one tumor from the other. The first one could be melanocytic tumor having a mesenchymal pattern and the latter a schwannoma mimicking epithelial features. Starting from this point, immunolabelling can really add useful information in the diagnosis of cutaneous melanocytic schwannoma, maybe not. What your opinion? Please, discuss this point.
- As an option to immunolabelling, the author could try to perform electron microscopy form formalin fixed samples.

Backgroound

- *in adult humans it is the most common type of benign peripheral nerve tumour* (address to reference)
- *In dogs, there have only been two cases of MS described in the literature; a single study of two dogs from nearly 40 years ago (a 2 year-old mixed breed male and Doberman pinscher female)* A further study should worth adding. (Case report: MRI and CT imaging features of a melanocytic tumour affecting a cervical vertebra in an adult dog, and review of differential diagnosis for T1W-hyperintense lesions. Elli Elizabeth Michaelidou, et al. 2024)

Case Report

- What the weight of the two soft cutaneous masses for the purpose of this study?
- Fig. 1c does not correspond to the text. Please, verify this picture.

Discussion

together with the proliferation of pigmented spindle cells seen in this case, the diagnosis of MS was made.

- If Verocay bodies can be sufficient to differentiate melanocytoma from MS (lesion 1), not the same can occur for the second lesion which, in the absence of similar pattern, should be differentiated from MS based on immunohistochemistry or electron microscopy.

Is the background of the case's history and progression described in sufficient detail?

Yes

Are enough details provided of any physical examination and diagnostic tests, treatment given and outcomes?

Partly

Is sufficient discussion included of the importance of the findings and their relevance to future understanding of disease processes, diagnosis or treatment?

Partly

Is the case presented with sufficient detail to be useful for other practitioners?
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Neuropathology

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Reviewer Report 07 March 2024

https://doi.org/10.21956/wellcomeopenres.23197.r75440

Tatsuya Deguchi
Faculty of Veterinary Medicine, Veterinary Teaching Hospital, Hokkaido University & Department of Companion Animal Clinical Sciences, Companion Animal Internal Medicine, School of Veterinary Medicine, Rakuno Gakuen University, Ebetsu, Japan

I think this revised report reflects my comments.

Is the background of the case's history and progression described in sufficient detail?
Yes

Are enough details provided of any physical examination and diagnostic tests, treatment given and outcomes?
Yes

Is sufficient discussion included of the importance of the findings and their relevance to future understanding of disease processes, diagnosis or treatment?
Yes

Is the case presented with sufficient detail to be useful for other practitioners?
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Small animal, dogs, radiation therapy, tumor

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Version 1

Reviewer Report 21 March 2024

https://doi.org/10.21956/wellcomeopenres.21815.r70703

?

Volkan Ipek
Faculty of Veterinary Medicine, Department of Pathology, Burdur Mehmet Akif Ersoy University, Burdur, Turkey

The article presents a detailed and insightful case study of a rare melanotic schwannoma (MS) in a dog, highlighting the challenges and nuances in diagnosing such uncommon tumors. One of the key strengths of the paper is its thorough exploration of the histopathological characteristics of MS, particularly the identification of specific features such as Verocay bodies, which play a critical role in differentiating MS from other melanocytic tumors like melanocytomas and melanomas.

However, I believe that the article could further enrich its contribution to the literature by incorporating the use of basic immunohistochemical markers, including nerve and melanocytic markers. Although the histopathological characteristics are sufficient for diagnosing this subtype, immunohistochemistry in such a rare tumor could provide a more comprehensive understanding of its cellular composition and behavior. The use of such markers could potentially offer more definitive insights, especially in distinguishing MS that does not show the characteristic histological findings of a schwannoma.

Overall, while the paper makes a significant contribution to the field of veterinary oncology by documenting a rare case of cutaneous MS in a dog, its impact could be further enhanced with a deeper exploration of immunohistochemical characteristics. This addition would not only strengthen the diagnostic process but also provide valuable insights into the tumor's pathology, potentially benefiting future research and clinical practices in the field.

Is the background of the case's history and progression described in sufficient detail?
Yes

Are enough details provided of any physical examination and diagnostic tests, treatment given and outcomes?
Partly

Is sufficient discussion included of the importance of the findings and their relevance to

future understanding of disease processes, diagnosis or treatment?
Partly

Is the case presented with sufficient detail to be useful for other practitioners?
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Dogs, immunohistochemistry, tumor diagnosis

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 30 Mar 2024

Olwam Monakali

Thank you for affording us the opportunity to revise our manuscript entitled “Case Report: Cutaneous melanocytic schwannoma with concomitant melanocytoma in a canine”. Please find our comments below.

Reviewer 2 The article presents a detailed and insightful case study of a rare melanotic schwannoma (MS) in a dog, highlighting the challenges and nuances in diagnosing such uncommon tumors. One of the key strengths of the paper is its thorough exploration of the histopathological characteristics of MS, particularly the identification of specific features such as Verocay bodies, which play a critical role in differentiating MS from other melanocytic tumors like melanocytomas and melanomas.

We thank the reviewer for their appreciation of our case study, specifically the detailed histopathological characteristics.

However, I believe that the article could further enrich its contribution to the literature by incorporating the use of basic immunohistochemical markers, including nerve and melanocytic markers. Although the histopathological characteristics are sufficient for diagnosing this subtype, immunohistochemistry in such a rare tumor could provide a more comprehensive understanding of its cellular composition and behavior. The use of such markers could potentially offer more definitive insights, especially in distinguishing MS that does not show the characteristic histological findings of a schwannoma.

Many studies in human pathology have demonstrated that MS typically shows immunohistochemical positivity for HMB-45, S100, and vimentin [1-5], and schwannomas typically show immunohistochemical positivity for CD56, S100, and vimentin [6-9]. Thus, we would want to use the neurogenic marker CD56, which is typically positive in schwannomas and negative in MS, and the melanocytic marker HMB45, which his typically negative in schwannomas and positive in MS. However, we do not have these antibodies available in our diagnostic facility. We have S100 and vimentin antibodies, but as they stain positive for both schwannomas and MS (as well as a variety of other tumour types), it would

not add any additional information. We understand that performing IHC would certainly be interesting. However, since this was a diagnostic case report, we feel that performing IHC is beyond the scope of our report, as the reviewer themselves acknowledge that "the histopathological characteristics are sufficient for diagnosing this subtype". References: 1. Jensen OA et al., 1990. PMID: 2206515 2. Myers JL et al. 1990. PMID: 1689947 3. Zhang HY, et al. 2005. PMID: 16157048. 4. Kang, YE, et al., 2018. PMID: 29132201 5. Soyland, DJ. Et al. 2021. PMID: 33948334 6. Taconet, S. et al., 2014. PMID: 25310741 7. Zhou, J. et al., 2015, PMID: 26191302 8. Agaimy, A & Wunsch PH, 2017. PMID: 17923471 9. Jaiswal P, et al., 2023. PMID: 37485115

Overall, while the paper makes a significant contribution to the field of veterinary oncology by documenting a rare case of cutaneous MS in a dog, its impact could be further enhanced with a deeper exploration of immunohistochemical characteristics. This addition would not only strengthen the diagnostic process but also provide valuable insights into the tumor's pathology, potentially benefiting future research and clinical practices in the field.

We are delighted that the reviewer feels our case report makes a "significant contribution to the field of veterinary oncology" and hope they can understand our rationale for not performing the additional immunohistochemical characterisation. We hope our case report is now suitable for indexing.

Yours Sincerely, Olwam Monakali.

Competing Interests: None.

Reviewer Report 30 October 2023

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This case report is well-designed. Please make the following revisions:

1. Include macroscopic findings and photographs taken during the surgery.

2. Provide detailed surgical findings such as surgical margins.

3. Regarding the sentence "A year after removal of the masses, the owner was contacted and confirmed there was no regrowth," include information about evaluations for metastasis,

such as chest X-rays, and record the subsequent follow-up related to metastasis.

4. Add details about the site of metastasis in human tumors.

5. Discuss the pathological findings to support the benign behavior of canine MS.

Is the background of the case's history and progression described in sufficient detail?
Yes

Are enough details provided of any physical examination and diagnostic tests, treatment given and outcomes?
Partly

Is sufficient discussion included of the importance of the findings and their relevance to future understanding of disease processes, diagnosis or treatment?
Yes

Is the case presented with sufficient detail to be useful for other practitioners?
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Small animal, dogs, radiation therapy, tumor

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 26 Jan 2024

Olwam Monakali

Firstly, thank you for the feedback Tatsuya Deguchi.

1. Unfortunately, the surgeon responsible for the case has seen left our University which has made it difficult to for us to gather macro-surgical information (pictures).
2. Microscopically, the margins were clean and this will be included in the report.
3. Shortcoming: There was no diagnostic long term follow up. The client feedback served sufficient for the clinical clinicians.
4. According to Pathology of Melanotic Schwannoma article by Borislav A. Alexiev; Pauline M. Chou; Lawrence J. Jennings. The following have been reported as sites for metastasis are lungs and pleura mediastinum, diaphragm, pericardium, endocardium, bone, liver, and spleen.
5. Microscopically, there cellular and morphological characteristics of the tumour were indicative of a benign. Although there was moderate anisokaryosis and anisocytosis, there is was only one mitotic figure seen in the tumour sections examined. As discussed in the case report, the tumours may have metastatic potential, but there is limited animal literature on this, as such the prognosis was guarded.

Competing Interests: None.