

Signalment: 13 year old, female spayed, mixed Rottweiler.

History:

The patient was presented with a mass on the fifth digit of the right forelimb. Bone lysis of the II and III phalanges, was observed upon radiological examination. The owner indicated the mass started to grow a month ago. Amputation of the fifth digit was performed and fragments of the mass sent for histopathological analysis.

Histopathologic Description:

Fragments of a densely cellular, invasive neoplastic mass are examined. The overlying epidermis shows ulceration with secondary mixed inflammatory infiltration. The mass is arranged in sheets and nests of round to polygonal neoplastic cells with small zones of spindling in a fibrovascular stroma. The majority of neoplastic cells are round, large, have abundant, clear, vacuolated cytoplasm and round vesicular nuclei with prominent nucleoli. Few mitotic figures are observed.

Morphologic diagnosis: Balloon Cell Melanoma

Comment:

Considering the location of the mass a subungual balloon cell melanoma was diagnosed. Subungual malignant melanomas are tumors of melanocytes of the nailbed epithelium. Subungual balloon cell melanomas are uncommon in dogs. The balloon cell change is considered to be a degenerative change in conjunction with abnormal melanogenesis. Balloon cell melanomas are frequently amelanotic, however fine melanin dusting may be present in some tumors [1]. The prognosis in this case is thought to be similar to other nailbed malignant melanomas because of the bone invasion. The peak incidence of subungual malignant melanomas is 8-13 years of age. Breeds at increased risk are Scottish terrier, Standard schnauzer, Irish setter, Miniature schnauzer, Rottweiler and Golden retriever [2]. These tumors tend to be slow growing with invasion and destruction of underlying bone at time of initial diagnosis. Metastases occur via lymphatics to regional lymph nodes and lungs [2].

A follow-up: It healed very well. One year after amputation the patient died suddenly (found dead). No post-mortem evaluation was done.

Additional Testing:

Immunohistochemistry: Vimentin positive. Variably positive for S-100, neuron-specific enolase, Melan-A and PNL-2. Cytokeratin negative.
Fontana-Masson silver stain: Highlights the small amounts of melanin in amelanotic melanomas.

Contributor:

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References:

1. Thelma Lee Gross, P.J.I., Emily J. Walder, Verena K. Affolter, *Skin diseases of the dog and cat - Clinical and Histopathologic Diagnosis*. Second ed2005: Blackwell Publishing.
2. Meuten, D.J., *Tumors in Domestic Animals*. Fourth ed2002: Blackwell Publishing.

Figures:

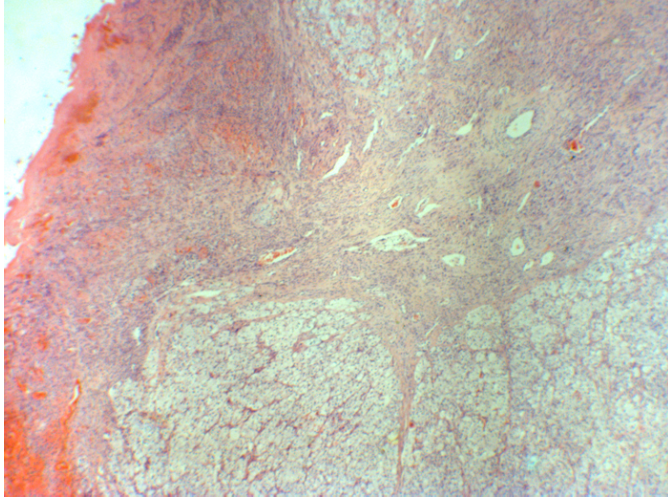


Figure 1. Balloon Cell Melanoma, digit, dog. Note round cell and spindle components.

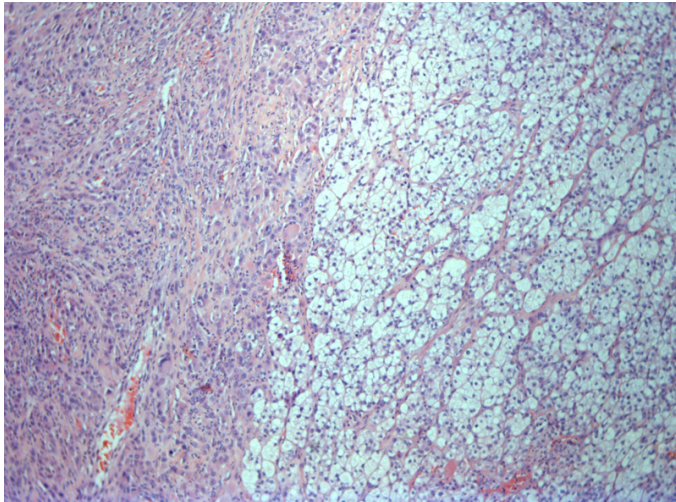


Figure 2. Balloon Cell Melanoma, digit, dog. Note round cell and spindle components.

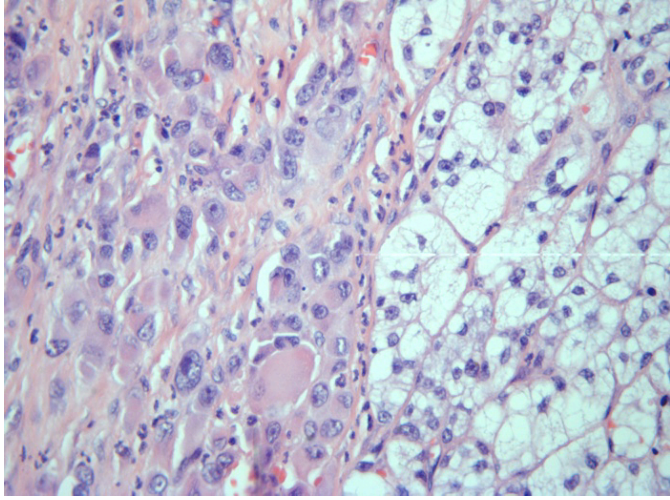


Figure 3. Balloon Cell Melanoma, digit, dog. Note round cell and spindle components.

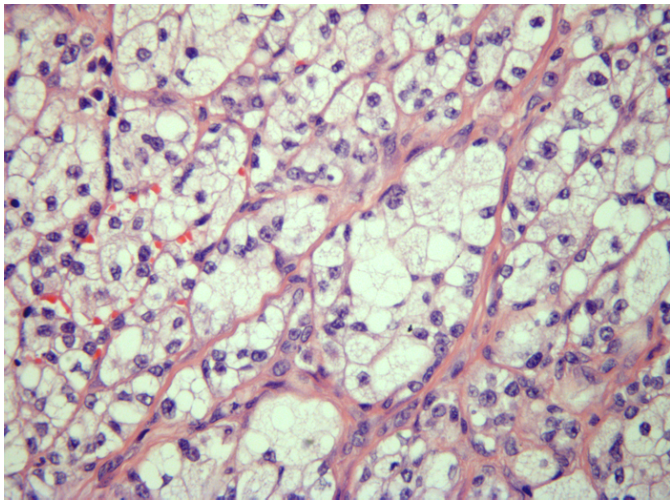


Figure 4. Balloon Cell Melanoma, digit, dog.