



NEOPLASTIC AND NON-NEOPLASTIC MASS LESIONS IN CAPTIVE MEERKATS (*SURICATA SURICATTA*).

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Introduction

Meerkats are a commonly kept species in zoological collections and the pet trade; however, only sporadic cases of neoplastic and non-neoplastic masses are documented in the scientific literature.



Materials & Methods

Twenty-five histologically diagnosed mass lesions from 21 individuals (10 males, 10 females, and 1 unknown) were extracted/analysed from ante-mortem and post-mortem submissions to IZVG (2003-2022).

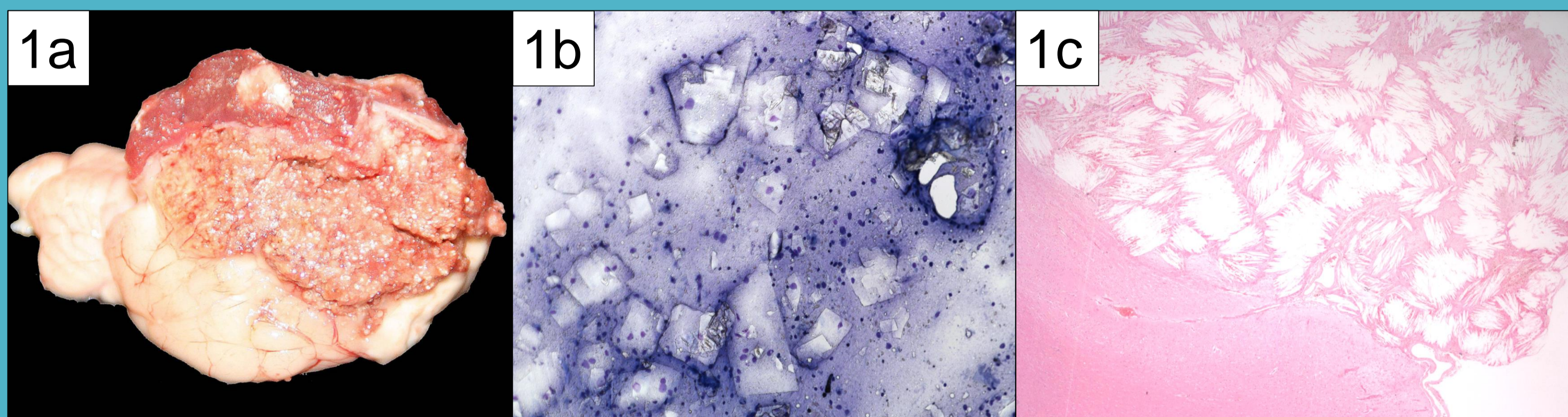


Fig 1: Meningeal cholesterol granuloma (“xanthoma”). 1a) Gross: firm, cream/yellow-tinged, irregular, fleshy nodular lesion (30 x 12 x 5mm) compressing cerebral hemispheres on both sides of the midline, with intralesional coarsely granular material. 1b) FNA cytology: cholesterol crystals scattered throughout granulomatous inflammation. 1c) Histopathology: numerous meningeal nodules of radiating clear acicular cholesterol clefts effacing cerebral tissue.

Results

- Overall population statistics:**
 - Frequency of tumours: 47.6% males vs 66.7% females.
 - Proportions of tumour types: 24% non-neoplastic (NNP) masses, 36% benign and 40% malignant tumours (Fig. 2).
- Age range and sex ratios:**
 - Neoplastic masses*
 - 7 to 16 years (avg. 9.9 years)
 - 5 males:13 females.
 - NNP masses (n=6, meninges = 4, skin = 1, and oviduct = 1):*
 - 3.83 to 9.5 years (avg. 7.8 years)
 - 5 males:1 female
- Most common primary affected organs:**
 - Females - uterus (42.8%), leiomyoma (4/6) (Fig. 4a).
 - Males - meninges (40%), all xanthomas (Fig. 1).
- Malignant neoplasia:**
 - Metastatic behaviour: 30%
 - Organs affected: pancreas [3/3] and the lungs, liver, and lymph nodes [all 2/3].
- Mesenchymal tumours:** All non-uterine sarcomas (2/7) were associated with the elbow joint (Fig.4d).
- Epithelial lung tumours:** All benign (Fig. 4b).
- Round cell tumours:** First ever confirmed cases of malignant lymphoma (n=3), 2 of which were associated with intestines (Fig. 4c).

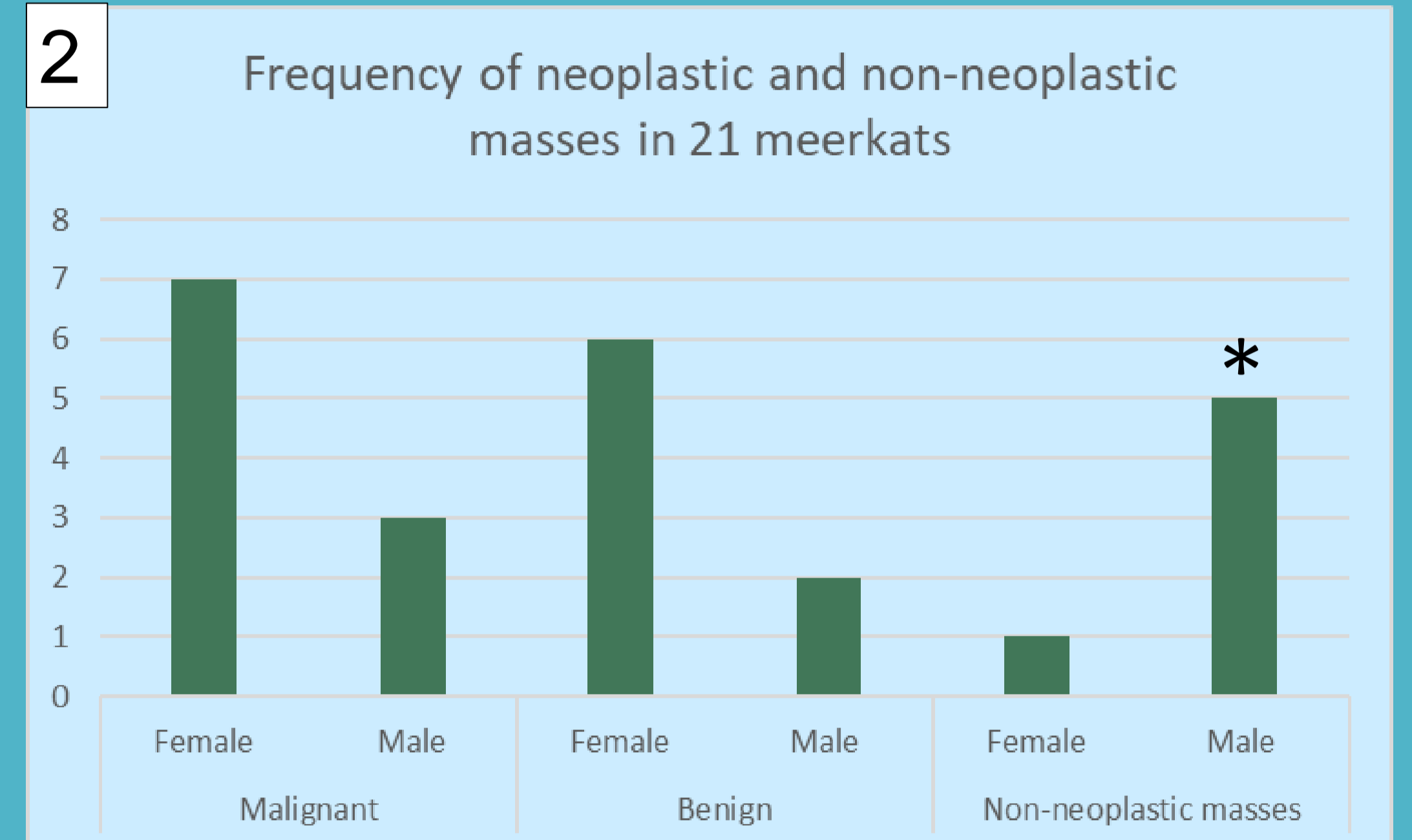


Fig 2: Histogram - Frequency of neoplastic and non-neoplastic masses in 21 meerkats, including sex ratios. Neoplasia is common in females, whilst males exhibit a significant predilection for xanthomas.

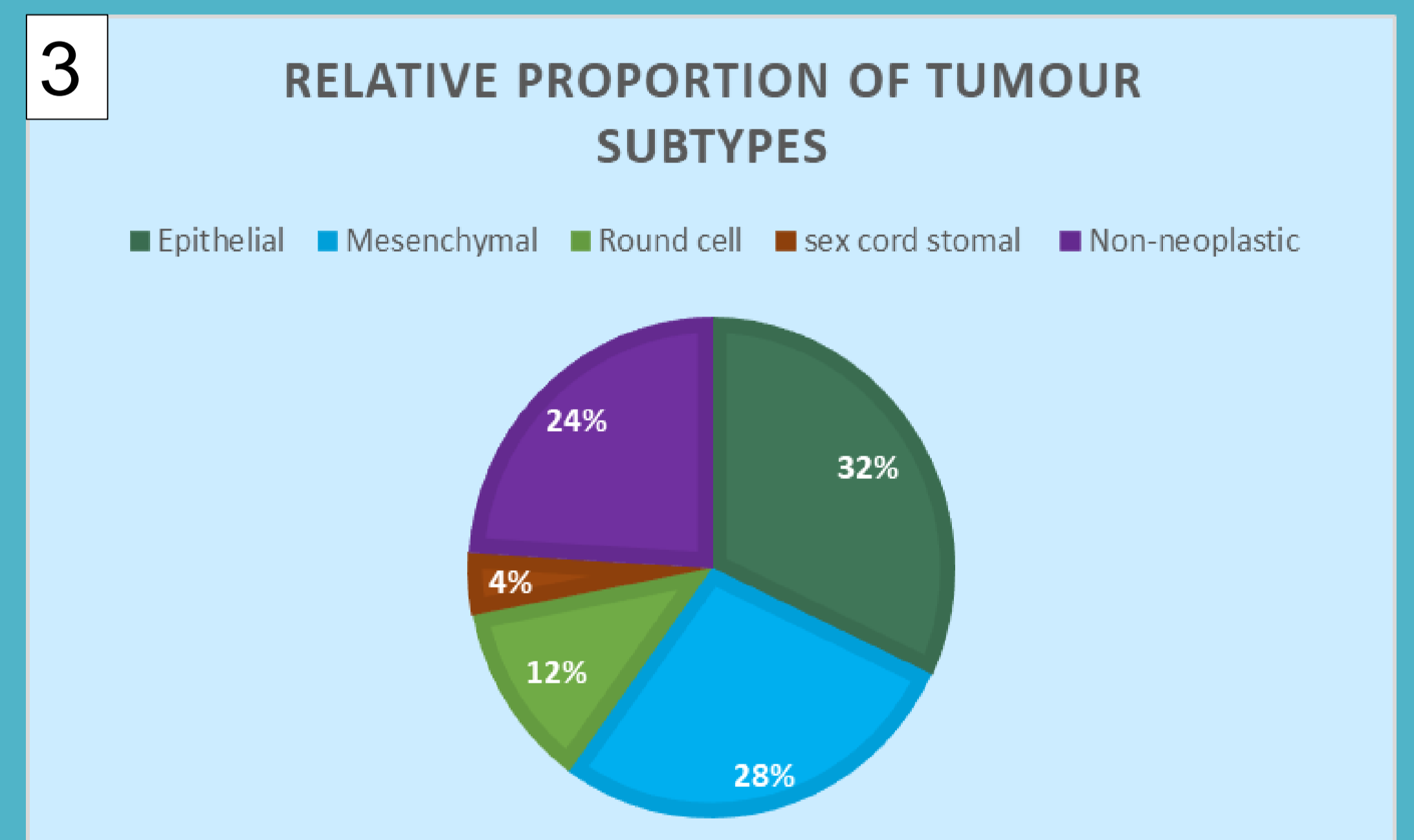


Fig 3: Pie chart demonstrating the relative proportion of tumorous masses diagnosed in Meerkats. Epithelial neoplasms are narrowly the most common subtypes (32%), followed by mesenchymal neoplasms (28%), then non-neoplastic masses (i.e., xanthomas; 24%).

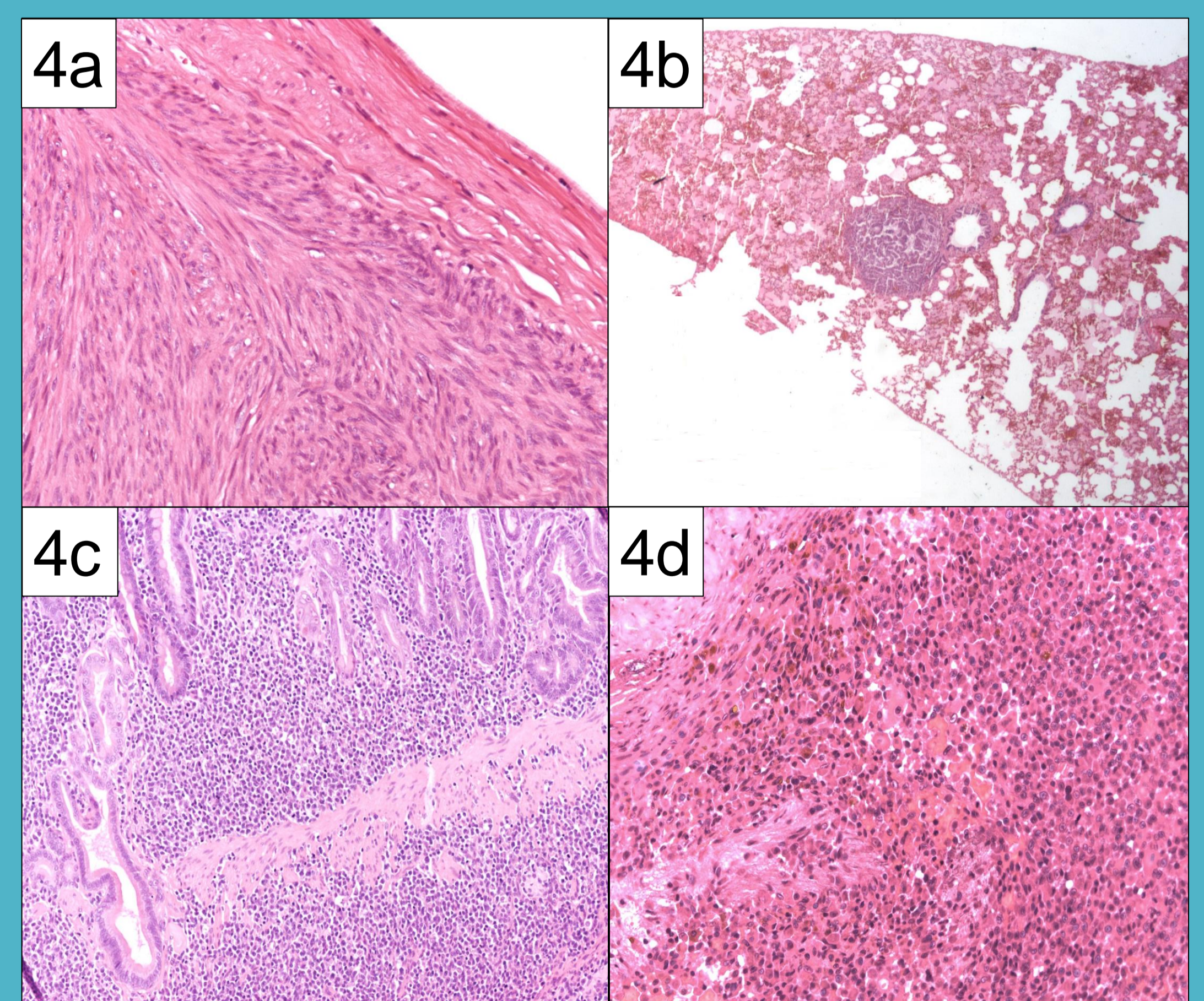


Fig 4: Histopathology of neoplasms in Meerkats. 4a) Uterine leiomyoma, uterus (HE, 200x). 4b) Bronchioalveolar adenoma, lung (HE, 20x). 4c) Intermediate to large cell lymphoma, small intestine (HE, 100x). 4d) Embryonal rhabdomyosarcoma, elbow (HE, 100x).

Conclusions

- Male meerkats:** Predisposed to xanthomas (5 males:1 female), particularly in meninges.
- Female meerkats:** Neoplastic masses predominate in females (92.8%), mostly affecting the uterus.
- Cholesterol granulomas:** Hypercholesterolemia and hyperlipidaemia (due to diet) can accumulate to form cholesterol granulomas in various locations.
 - Given the male sex predisposition, biological or behavioural factors may be underlying.

References:

- Allan KJ, Waters M, Ashton DG, Patterson-Kane JC. Meningeal cholesterol granulomas in two meerkats (*Suricata suricatta*). Veterinary Record. 2006 May 6;158(18):636.
- Sladky KK, Dalldorf FG, Steinberg H, Wright JF, Loomis MR. Cholesterol granulomas in three meerkats (*Suricata suricatta*). Veterinary Pathology. 2000 Nov;37(6):684-6.