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Cutaneous lipoma in dogs

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Abstract

In a study on identification of canine cutaneous tumours over a period of three years lipoma was diagnosed in eighteen dogs. Cytologic smears of the cases revealed clusters of polyhedral to round cells with irregular borders and vacuolated cytoplasm with eccentrically placed flattened nuclei. Histopathological examination of the excised masses revealed neoplastic cells with vacuolated cytoplasm and flattened peripherally placed nuclei. Based on the above findings, the tumours were diagnosed as lipomas.

Keywords: Dog, FNAC, cytology, histopathology, lipoma

Introduction

Lipomas are benign tumours of fatty tissue which are less perilous compared to their malignant counterpart liposarcoma. They may be single to multiple in site and occur over the thorax, abdomen, thighs and proximal limbs (Cowell *et al.*, 2007) ^[1]. Sharif *et al.* (2006) ^[2] reported lipomas are more common in females (68%) than in males (32%). Rajni (2005) ^[3] reported that lipomas appeared as round and soft masses and on section the masses were greasy in consistency, pale whitish and shiny. Meuten (2002) ^[4] reported that large clear vacuoles replace the cytoplasm of adipocytes with peripheralisation and compression of nuclei. Many to most of lipomas don't require surgical intervention yet they may become a cause of worrying concern, if the masses are large, if they restrict feed intake, movement and their presence in areas which may be cause pain to animal. Lipomas on microscopic examination may appear very similar to normal fat tissue, hence expertise and careful clinical examination of the mass is required to differentiate the benign lipomas from fatty change and normal fat tissue as well as the malignant fat tumour i.e. liposarcoma. The present paper reports on the diagnosis of cutaneous lipoma in eighteen dogs presented to the Madras Veterinary College Teaching Hospital.

Materials and Methods

A total of 500 dogs with masses at different sites of the body, both solitary and multiple, presented at the Small Animal Clinics, Madras Veterinary College Teaching Hospital, Chennai were included in the present study to identify cutaneous tumours over a period of three years. The dogs presented were of different breeds, belonged to different age groups and were of both sexes. The masses were examined for gross changes in size, shape, colour etc.

Collection of samples for cytology

Fine needle aspiration biopsy (FNAB) was performed by clipping off the hair and cleaning with surgical spirit. The aspirates were expelled onto a slide and the smears were either air dried immediately or wet fixed (95 per cent ethanol or absolute isopropanol). Wet fixation was done immediately by plunging the slides into the fixative for 30 minutes. Smears for cytologic screening were then stained with cock tail stain of Leishman-Giemsa (LG). The smears were further viewed under the microscope for cellularity and staining characters of the cell, its nucleus and cytoplasm.

Collection of samples for histopathology

Tissue samples were also collected in cases with surgical excision. Cut section of the tumour mass was evaluated for its external and internal appearance. The tumour samples were then sectioned and representative samples were fixed in 10 per cent Neutral Buffered Formalin for

48 hours, dehydrated in alcohol and cleared in xylene and then embedded in paraffin. Sections were cut at 3-5µm thickness and stained by Haematoxylin and Eosin.

Results and Discussion

Among the 500 cases suspected for neoplasia, 160 cases were diagnosed as neoplastic masses. Of the 160 cases, eighteen cases were identified as lipomas based on gross appearance, cytology and histopathological examination.

Breed, age, sex and location wise incidence of the identified tumour is given in Table-1.

Six cases were recorded in Non-descript, five in Lhasa Apso and three in Labrador. Two cases were recorded in Dobermann and one case each in Dachshund and Terrier breed. Nine cases were recorded each in males and in females. In the present study, lipoma were represented equally by males and females, contributing nine cases each against many reports on more incidence of lipoma in females. Simkus *et al.* (2015) [5] had reported high incidence of lipoma in female dogs (66.7%) than male dogs (33.3%). Julie *et al.* (2013) [6] also reported higher incidence in old females than males.

On analysis of age wise incidence, high incidence of eight cases was recorded in 5-10 years age group and 6 cases in 1-5 years age group and 4 cases in more than 10 years age group. O'Neill *et al.* (2018) [7] also reported that the incidence of lipoma was less in aged dogs. Trunk had high incidence of lipoma cases (n=8) and five cases were recorded in neck, four cases in limb and a single case was observed in the inguinal region. Goldschmidt and Hendrick (2002) [8] had earlier reported that the proximal extremity of limb and trunk are the most common site for lipomas.

Grossly, the tumours appeared as round to spherical, pendulous, soft to firm masses with size varying between 4-15 cm (Fig.1-4). The cut section revealed greasy pale white glistening surface (Fig.5, 6).

The cytology smears appeared very greasy suggesting fatty material in the aspirate. Further examination of the cytology smears after staining revealed clusters of polyhedral to round cells with irregular borders. Vacuolated cytoplasm and eccentrically placed flattened nuclei (Fig.7) were seen. Similar observations have been made by Fleury *et al.* (1994) [9]. Mayhew and Brockman (2002) [10] also reported that lipomas had spherical or polygonal cells with a very thin rim of pale eosinophilic cytoplasm and nucleus located at the periphery of the cell. Though lipomas are relatively diagnosed at ease by cytological examination alone, few cases may evade from being diagnosed as cellularity in the smear may be

lost by the action of the alcohol based fixatives commonly used for fixing the smears. Cowell *et al.* (2007) [11] also opined that the cytology smears from lipoma may appear acellular due to washing off of fat by the alcohol fixative present in most of the Romanowsky stains.

The tissue material collected for histopathological screening floated in the formalin which was again very well suggestive of lipoma. Histopathological examination revealed neoplastic cells with vacuolated cytoplasm and separated by delicate, thin fibrous stroma into lobules (Fig.8). Nuclei of the cells were found pushed to the periphery and flattened along the cell wall. Based on the above findings lipoma was diagnosed.

Conclusion

Lipomas are commonly encountered in canine practice in recent times due to appreciable and awesome care and affection of pet owners over their pets, feeding them with more than their physiological requirements which often progress to fat accumulation, obesity and lipoma. Though breed and sex predisposition have also been claimed to be popular predisposing factors for the development of lipoma, obesity has been witnessed to be a major contributing factor in recent times as lipoma is more commonly encountered in dogs with more body weight. Hence, it is the need of the hour to educate and create awareness to owners on adoption of a rationale feeding regimen to dogs to prevent obesity and lipoma in their pets.

Table 1: Breed, Age, Sex and Locationwise incidence of canine cutaneous lipoma (n=18)

1.	Labrador	Female	5 yrs	Inguinal region
2.	Spitz	Female	10 yrs	Trunk
3.	Non-descript	Male	11 yrs	Neck
4.	Daschund	Female	5 yrs	Limb
5.	Doberman	Male	10 yrs	Trunk
6.	Labrador	Male	1.5 yrs	Limb
7.	Terrier	Female	11 yrs	Trunk
8.	Spitz	Male	5 yrs	Neck
9.	Non-descript	Male	10 yrs	Trunk
10.	Spitz	Female	10 yrs	Neck
11.	Spitz	Female	12 yrs	Limb
12.	Non-descript	Male	10 yrs	Neck
13.	Non-descript	Male	12 yrs	Neck
14.	Non-descript	Male	9 yrs	Trunk
15.	Spitz	Female	10 yrs	Limb
16.	Labrador	Male	10 yrs	Trunk
17.	Dobermann	Female	5 yrs	Trunk
18.	Spitz	Female	4.5 yrs	Trunk

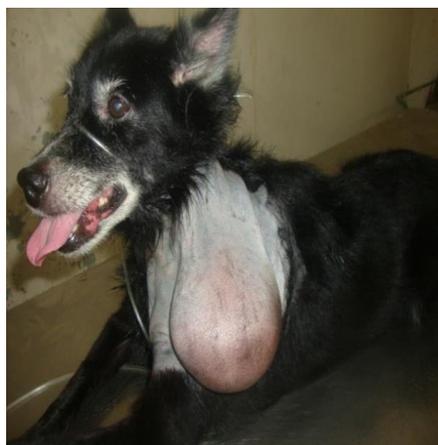


Fig 1: Lipoma – Spitz -Neck – Pendulous, firm mass



Fig 2: Lipoma-Non-descript - Neck – Circumscribed mass with focal necrosis



Fig 3: Lipoma – Labrador-Left hindlimb –Pendulous soft mass



Fig 4: Lipoma – Spitz-Right limb-Pedunculated, fluctuating mass



Fig 5: Lipoma – White, glistening, soft mass



Fig 6: Lipoma – Cut section- White,glistening, greasy surface

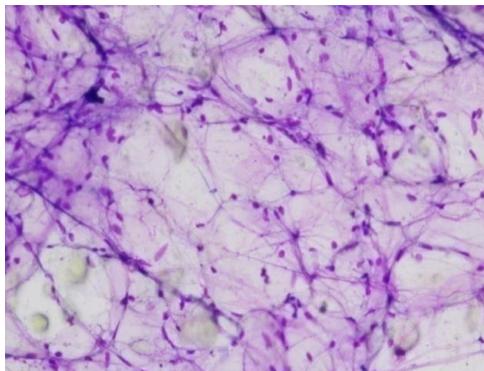


Fig 7: Lipocytes with eccentric nuclei LG x100

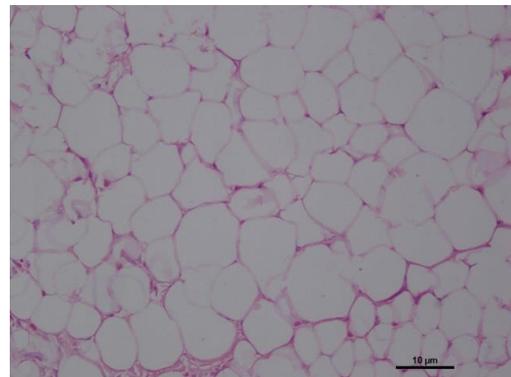


Fig 8: Lipoma- Variable sized neoplastic adipocytes with eccentric nuclei H&E x 100

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