

Medical management of cutaneous lymphoma and associated ileus in a Labrador dog

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Abstract

A 6 years old male Labrador dog was presented to Small Animal Medicine unit of Veterinary Clinical Complex, Veterinary College and Research Institute, Orathanadu with the history of hair loss and multiple skin lumps all over the body. Dog was treated for atopic dermatitis past three weeks. On Clinical examination revealed generalized alopecia, lymphadenopathy and nodule like skin lumps all over the body. Hemato-biochemical analysis were revealed anemia, lymphocytosis and hypoproteinemia. FNAC of skin lump revealed cutaneous lymphoma. Radiography and ultrasonography examination revealed no evidence of metastasis. Dog was treated with modified Wisconsin Madison protocol. On 15th week of protocol dog showed distended abdomen and constipation, further abdominal ultrasonography revealed distended loop and ileus. Hence the present case was diagnosed as vincristine associated ileus in a dog. Neostigmine was administered to restore the intestinal motility. Dog showed uneventful recovery from cutaneous lymphoma as well as vincristine associated ileus.

Keywords: Dog, Cutaneous lymphoma, , Ileus, Neostigmine Vincristine

Introduction

Canine cutaneous lymphoma also known as epitheliotropic lymphoma, typically a T-cell lymphoma, (Zandvli *et al.*, 2016). According to the WHO, cutaneous lymphoma classified as *Mycosis fungoides*, Sezary syndrome and pagetoid reticulosis (Moore *et al.*, 2009). Cutaneous T-cell lymphoma was typically present as a chronic multifocal skin disease, but also affect the mucus membrane and mucocutaneous junctions (Moore *et al.*, 2009). Skin lesions include diffuse erythema, scaling, focal hypopigmentation, plaques and nodules (Magnol *et al.*, 1996). Diagnosis includes clinical pathology, imaging techniques like radiography, CT and ultrasonography, cytology, histology, immunophenotyping, PCR and biomarkers evaluation. Treatment protocol for cutaneous lymphoma was Modified Wisconsin Maddison protocol (Ettinger *et al.*, 2017). This protocol includes cytotoxic drugs like Doxorubicin, Cyclophosphamide, Vincristine and Prednisolone. Each drug exhibits different kind of side effects. Doxorubicin associated with significant cardiac toxicity (Johnson-Arbor and Dubey, 2022), Cyclophosphamide associated with urinary toxicity such as hemorrhagic cystitis and Vincristine associated

with neurotoxicity with peripheral neuropathy, paralytic ileus and myelosuppression (Katzung *et al.*, 2012). Vincristine induced paralytic ileus could be treated by administration of parasympathomimetic drug Neostigmine (Ilbanet *et al.*, 2019). In the present case similar kind of Vincristine associated paralytic ileus was recorded and it was managed with Neostigmine without altering the Modified Wisconsin Maddison protocol.

Case History and Clinical Observations

A 6 years old male Labrador dog was presented to Small Animal Medicine unit of Veterinary Clinical Complex, Veterinary College and Research Institute, Orathanadu, with the history of hair loss and raised erythematous skin lesions all over the body. The dog was treated for atopic dermatitis for past three weeks.

On clinical examination animal revealed pale mucous membrane, enlargement of the palpable lymph nodes and nodular like skin eruptions were noticed all over the body surface (Fig 1 and 2). Hematological examination revealed anemia and lymphocytosis. Serum biochemistry revealed hypoproteinemia. Dermatological examination revealed negative for fungal infection and scabies.

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Fig 1. Nodule like skin lumps



Fig 2. Generalized alopecia

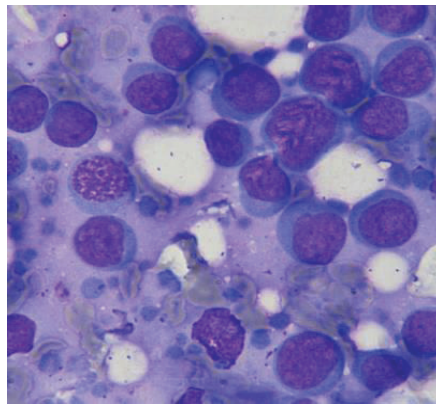


Fig 3. Lymphoblastic cells

Fine Needle Aspiration Cytology of nodular skin eruptions were revealed more number of lymphoblastic cells with less basophilic cytoplasm (Fig 3). Ultrasonography and radiographical examination revealed absence of metastasis. These findings were strongly suggesting of cutaneous lymphoma. .

Treatment and Discussion

Animal was treated with 19 weeks Modified Wisconsin Maddison protocol. The drugs used

in this protocol were Doxorubicin @ 30mg/m², Cyclophosphamide @ 0.5mg/m², Vincristine @ 0.5mg/m² and Prednisolone @ 2mg/kg for one week tapering dose upto 0.5mg/kg (Zandvliet, 2016; Ettinger *et al.*, 2017). Dog showed signs of recovery from cutaneous lymphoma whereas during the Maddison protocol at 15th week dog had constipation and distended abdomen (Fig 4). Ultrasound examination revealed distended intestinal loops and ileus (Fig 5). Abdominal radiography revealed fecal stasis (Fig 6).



Fig 4. Distended abdomen

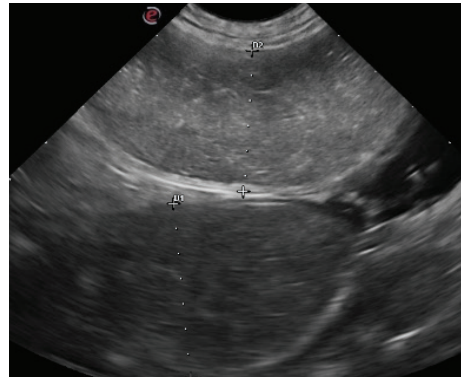


Fig 5. Distended intestinal loops



Fig 6. Fecal stasis

In this present case ileus may be due to Vincristine and it leads to autonomic neuropathy and gastrointestinal disturbances (Vera *et al.*, 2017). Cytotoxic nature of Vincristine damages the myenteric plexus which implicate intestinal hypomotility and directly suppress motility in colorectum. This ileus condition was treated by oral Neostigmine @ 0.2mg/kg, a cholinergic drug. Neostigmine having anticholinergic esterase activity and increasing the activation of muscarinic receptors by inhibiting the breakdown of acetylcholine, thereby stimulating the colonic motor activity and decreasing the intestinal transit time and induce the GI contractions especially in the colon (Katzung *et al.*, 2012). Similarly, this condition in human was called as Ogilvie's syndrome. Patients had developed Ogilvie's syndrome two to ten days after infusion of vincristine and the syndrome resolving after its discontinuation (Sandler *et al.*, 1969). Hence the periodical evaluation of GI system should be advocated during the Modified Wisconsin Maddison protocol to early identification of paralytic ileus. Neostigmine was found to be very effective to restore GI motility due to Vincristine associated ileus during the Modified Wisconsin Maddison protocol in a dog.

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Fig 7. Animal after recovery

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