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Mast Cell Tumours

Mast cells are white blood cells of the body that control allergic reactions. Mast cells contain a drug called **Histamine**. Histamine release produces swelling and hives, generalized itchiness, redness of the skin, vomiting, and possibly with more severe reactions (**anaphylactic reactions**). Mast Cell tumours are collections of these white blood cells. Most occur on the skin but they can also be seen under the skin (subcutaneously), or even on organs (Liver, Kidney, Spleen...). These tumour types can be dangerous, as they can contain large amounts of histamine, which if released too quickly, can produce an anaphylactic reaction. Clinical signs can be dependent on the location and type of mast cell tumour:

- Small irregular skin mass (sometimes red or pink) – can be multiple skin masses and can fluctuate in size.
- Masses can be red and inflamed with some swelling around the masses.
- Masses may show slow to rapid growth.
- Chronic weight loss.
- Chronic vomiting.
- Pain around mass.
- Mass that bleeds spontaneously.
- Acute Anaphylaxis: Trouble breathing, weakness, red skin, collapse, death.

Cause of Disease: The cause of mast cell tumours is unknown. In dogs, most mast cell tumours are associated with skin or subcutaneous masses. Rarely, they can affect other organs or cause mast cell leukaemia throughout the body. Mast cell tumours can be seen in dogs less than 1 year of age but more often are seen in older animals (8 years of age). There is a high incidence of occurrence in Boston terriers and Boxers. There has been no sex predilection noted in the dog. The tumours are graded from very organized with a low chance of metastasis (Grade 1) to more disorganized, rapidly reproducing cells with a high chance of metastasis (Grade 3). The higher-grade mast cell tumours carry a poorer prognosis.

In the cat, disease commonly affects other internal organs, such as the intestine, liver, spleen and other organs. Mast cell tumours have been reported in Siamese and have been shown to be more evident in the male cat. Mast cell tumours also tend to appear later in life (10 years of age). There is no numeric grading system evident for mast cell tumours in cats.

Diagnosis: As pets may have multiple skin nodules throughout their skin (e.g. Benign warts, adenomas, polyps, other types of cancer...), your veterinarian may suggest diagnostic tests to help determine the type of mass present.

Diagnostic tests:

- **A complete blood count and chemistry** will help your veterinarian to determine if there are any changes in the white blood cell count to suggest atypical white cells such as mast cell leukaemia, if there is infection, or generalized bleeding. Disease of the kidney, liver, pancreas or metabolic disease may also be detected.
- **Fine Needle Aspirate:** A fine needle aspirate of the mass will allow small number of cells to be collected. This is then sent to a histopathologist to determine if the mass may suggest a mast cell tumour. On occasion fine needle aspirates are not as diagnostic as surgical biopsies as only small populations of cells are sampled and some masses do not yield their cells as readily.
- **Surgical biopsy and mass removal:** With concerns of mast cell tumours, your veterinarian may suggest a wedge biopsy or complete mass removal and possible removal or aspirate of regional lymph nodes to assess what type of mass is present and if there are malignant cells in the lymph node as well.
- **X-rays:** X-rays of the chest and abdomen may be suggested to see if there is evidence of mass or organ enlargement that could suggest other sites of mast cell tumours.
- **Ultrasound:** Ultrasound imaging can aid in imaging of liver and abdominal organs, some cases can identify a potential mass, free fluid in the abdomen, or evidence of organ disease.

Treatment: The goal of treatment is surgical removal of the mast cell tumor and surrounding tissue. With multiple tumours, tumours affecting abdominal organs, or mast cell leukaemia, cure may not be possible.

- **Intravenous fluids / hospitalization:** In severe cases your pet may require hospitalization, monitoring and intravenous fluids.
- **Surgical removal and biopsy:** Surgical removal and biopsy of single or multiple masses are the key in controlling *localized* mast cell disease.
- **Medications:** The goal of medications is to control possible anaphylactic or allergic reactions that can occur with mast cell release of histamine. If systemic mast cell disease occurs, there are possible chemotherapeutic protocols, which your veterinarian may suggest, trying to bring about a remission state.

Please contact us immediately if:

- ***There is any weakness, lethargy, collapse or coma.***
- ***Your pet does not eat or drink.***
- ***There is vomiting, diarrhoea, increased thirst or urination.***
- ***Your pet begins to have swelling of the face, hives, redness of the skin, trouble breathing...***
- ***There is any overall change in your pet's health.***