Mark Longley talks us through an oncosurgical case

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Mark graduated from the University of Edinburgh in 2008. He spent two years working in mixed practice, and three years working in a small animal practice before completing an Internship at the University of Glasgow. Mark then completed an MSc and Surgical Residency at the University of Bristol.

He spent time working in a referral practice in the North West, before joining the team at Pride Veterinary Centre in 2019.

Mark enjoys all aspects of small animal soft tissue and orthopaedic surgery, but particularly enjoys surgical oncology and reconstructive surgery. He is also interested in stress fractures in cats and obtained an MSc by research in this area.

An 8-year-old cross breed dog was presented with a 3-week history of polyuria/polydipsia. The dog had shown occasional tenesmus but was otherwise clinically well. Physical examination showed mild dental disease. Thoracic auscultation and abdominal palpation were unremarkable.

What physical examination test would you perform next?

Rectal examination

A large, firm mass was noted on the left side of the anus in the region of the anal sac. Pelvic lymph nodes were not palpable.

What would be the next diagnostic test would you perform?

Serum biochemistry and haematology

Serum biochemistry obtained by the referring vet showed decreased phosphorus (0.6mmol/l, RI 0.8-2.2) and increased total calcium (3.83mmol/l, RI 1.98-3.0). Haematology was normal.

What would be the next investigation step?

Ionised calcium is indicated to confirm the diagnosis of hypercalcaemia. This was found to be 2.13mmol/l (RI 1.1-1.4).

What are the most likely differential diagnoses for hypercalcaemia in a dog?

- Anal sac carcinoma
- Lymphoma
- Parathyroid neoplasia
- Osteosarcoma
- Multiple myeloma
- Hypervitaminosis D (rodenticide toxicity)
- Hypoadrenocorticism (typically mild).

What additional tests could be performed in the absence of a clear cause of the hypercalcaemia?

PTH / PTHrp measurement.

Based on clinical examination and blood findings a diagnosis of anal sac neoplasia was suspected. What test would you perform to confirm this?

Fine needle aspiration cytology – anal sac carcinoma typically exfoliate cells readily on needle aspiration and further biopsy is usually not required.

How would you assess this dog further?

Further staging is indicated to assess for local and distant metastasis. Contrast CT is considered gold standard for this.

Alternatively, inflated thoracic radiographs (left and right lateral and ventrodorsal views) and abdominal ultrasonography may be used, however assessment of intrapelvic lymph nodes may be limited.

Contrast CT was performed under anaesthesia (Images 1, 2 and 3).

Image 1

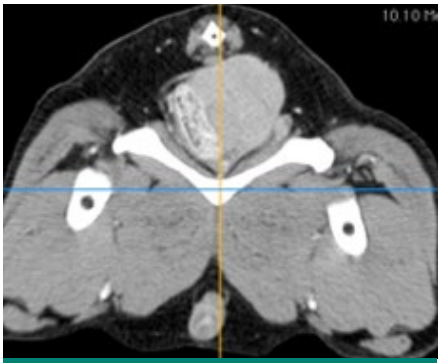


Image 2

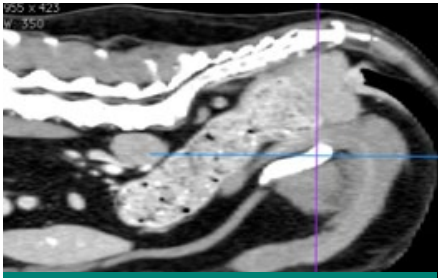
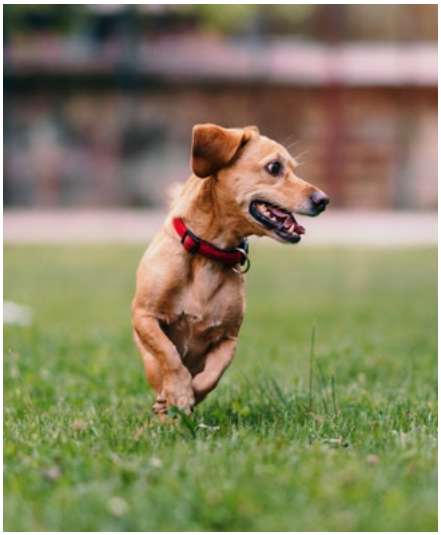


Image 3



What are the radiographic abnormalities?

(Images 4, 5 and 6) A large mass is evident in the left perianal region causing mass effect and compression of the caudal rectum (Orange arrows). There is marked enlargement of the left internal iliac lymph node (Yellow arrows). There is mild enlargement of the external iliac lymph node (Green arrow). The CT findings are consistent with metastatic involvement of the regional lymph nodes. The remainder of the CT scan was normal.

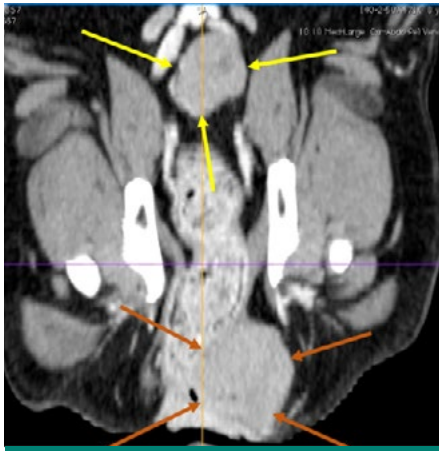


Image 4

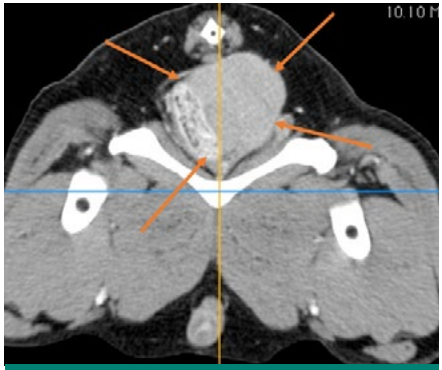


Image 5

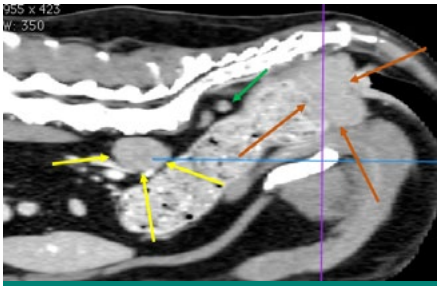


Image 6

What is the prognosis in this case?

Intravenous fluid therapy is indicated diurese the patient to minimise the risk of renal injury associated with the severe hypercalcaemia.

Furosemide (1-2mg/kg, po, bid) can help to control ionised calcium levels.

Prednisolone (0.5mg/kg, po, sid) can also be prescribed to aid with management of hypercalcaemia.

Bisphosphonates may be used in refractory cases in which surgery is not indicated, to control calcium mobilisation.

In most cases adequate control of serum calcium level requires surgery to remove the source of PTHrp.

Surgical excision of the left anal sac along with removal of the enlarged regional lymph nodes is recommended.

A para-anal approach was made to the left anal sac mass and the mass was resected marginally. This required removal of approximately 40 % of the external anal sphincter. The anal sphincter was reconstructed prior to incisional closure. The dog was repositioned and a caudal midline abdominal coeliotomy was performed and the iliac vessels were identified. The enlarged lymph nodes were removed prior to routine abdominal closure.

Ionised calcium level returned to normal level (1.4mmol/l, NI 1.1-1.4) at 24-hours post-surgery.

The dog recovered from surgery well and was able to defaecate normally 7 days post-surgery.

Histopathology confirmed the suspected diagnosis of anal sac adenocarcinoma with metastasis to the regional lymph nodes.

What adjunctive treatment options could be considered for this case?

Chemotherapy is frequently used adjunctively although optimal treatment remains poorly defined:

Standard adjunctive therapy for patients with anal sac carcinoma with lymph node metastases comprises a course of conventional chemotherapy, usually with carboplatin.

For patients where this is declined, metronomic chemotherapy may be used although evidence for this is lacking – This typically consists of cyclophosphamide and meloxicam administered orally every 24-hours. Cyclophosphamide may cumulatively result in development of sterile haemorrhagic cystitis. The drug should be discontinued in this instance and chlorambucil can be used as an alternative therapy.

Radiotherapy – Can aid with control of local disease and intraoperative treatment of sublumbar lymph nodes has also been reported. This treatment modality is not widely available.

What is the prognosis in this case?

Prognosis has been shown to be negatively affected by evidence of metastasis (MST 6 months), tumour volume (>10cm3 – MST 292d), preoperative hypercalcaemia (MST 256d) and dogs not treated with surgery (MST 402d).