

# Brain tumours in dogs and cats

## Meningiomas

These “benign” tumours start in the brain lining (the meninges), rather than in the brain itself. They are found inside of the skull but outside of the brain tissue. The most common symptom is seizures, but all sorts of neurological problems are possible, depending on which part of the brain is affected.

### Treatment

There are 3 main options for meningiomas:

- Surgery alone
- Radiation therapy
- Surgery with post-operative radiation therapy.

The best treatment depends on the species (dog or cat), the location of the tumour (and how easy it would be to fully remove it with surgery) and many other factors, such as patient age and whether they have any other diseases.



### Prognosis

Many cats with meningiomas are cured with surgery alone. Many dogs are cured with surgery and post-operative radiation therapy. [You can read more about a cat who had surgery for his meningioma here!](#)

## Gliomas

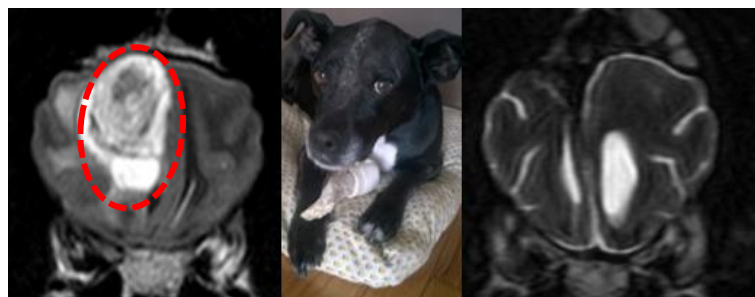
Gliomas start within the brain tissue itself, growing from the glue cells (“glial cells”) that hold the brain together. Oligodendroglioma and astrocytoma are the two most common types of glioma. Seizures are the most common symptom.

### Treatment

There are options:

- Radiation therapy alone
- Surgery followed by radiation or chemotherapy or both
- Enrollment in a clinical trial

We have a clinical trial enrolling dogs with glioma here at the University of Liverpool!



MRI scans from before and after surgery for a glioma. The dotted circle shows the tumour in the brain.

## Prognosis

Unfortunately, gliomas are more aggressive than meningiomas, and nearly always recur. Many dogs have an excellent quality of life after undergoing surgery or radiation therapy. We are working every day to improve the long-term prognosis for dogs and people with glioma!

## Pituitary Tumours – Cushing’s Syndrome and Acromegaly

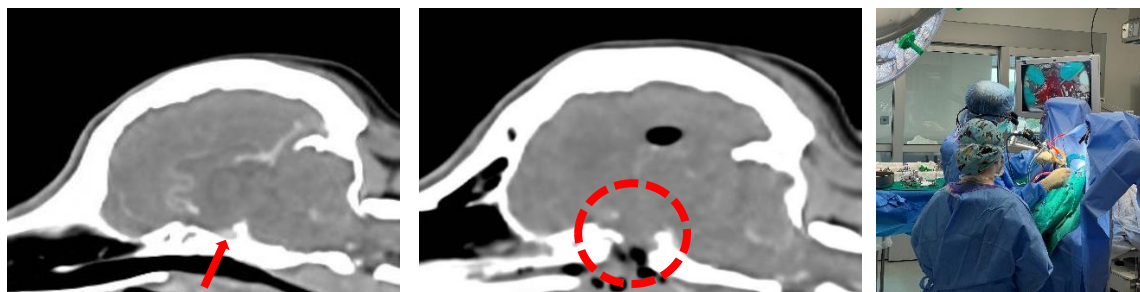
Benign tumours of the pituitary can cause over-production of hormones, leading to Cushing’s syndrome in dogs, or Acromegaly (“gigantism”) in cats.

## Treatment

We perform Transsphenoidal Hypophysectomy surgery in dogs and cats. We also offer radiation therapy of pituitary tumours. Cushing’s can be treated with medicines (e.g. trilostane) whereas acromegaly causes other problems (e.g. diabetes), the symptoms of which can be managed (e.g. insulin).

## Prognosis

The best prognosis for Cushing’s is with surgery, especially when there is a small pituitary tumour (microadenoma) rather than a large tumour (macroadenoma). Surgery can also be curative for acromegaly in cats.



CT scans from before and after surgery for a pituitary tumour causing Cushing’s. The bright white tumour (arrow) has been removed through a tiny hole in the skull.

## Brain and Pituitary Surgery

Our lead brain tumour surgeon, Professor Tim Bentley, has been performing brain surgery for 19 years. He was invited to write a textbook chapter on how to perform meningioma surgery in dogs and cats, and has lectured on brain surgery in the UK, US, Japan, Brazil, Malaysia and Spain.

## MLO and Other Skull Tumours

MLO (also known as MLTB) and other skull tumours grow within the skull. They usually grow outwards (where it might be possible to feel them) *and* inwards (compressing the brain).

## Treatment

The best treatment is often complete surgical excision, if that is possible depending on the size and location of the tumour. Radiation therapy is another option.

## Prognosis

MLO's can be cured by surgery, but this isn't guaranteed, and also depends on whether it is possible to remove the entire tumour with a margin of normal bone.

## Recent studies from the SATH Neurology team on these conditions

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3. Omar NB, Bentley RT, Crossman DK, Foote JB, Koehler JW, Markert JM, Platt SR, Rissi DR, Shores A, Sorjonen D, Yanke AB, Gillespie GY, Chambers MR. (2021) Safety and interim survival data after intracranial administration of M032, a genetically engineered oncolytic HSV-1 expressing IL-12, in pet dogs with sporadic gliomas. *Neurosurg Focus* 50, E5.
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11. Treggiari E, Maddox TW, Gonçalves R, Benoit J, Buchholz J, Blackwood L. (2017) Retrospective comparison of three-dimensional conformal radiation therapy vs. prednisolone alone in 30 cases of canine infratentorial brain tumors. *Vet Radiol Ultrasound* 58, 106-116