drip.vet

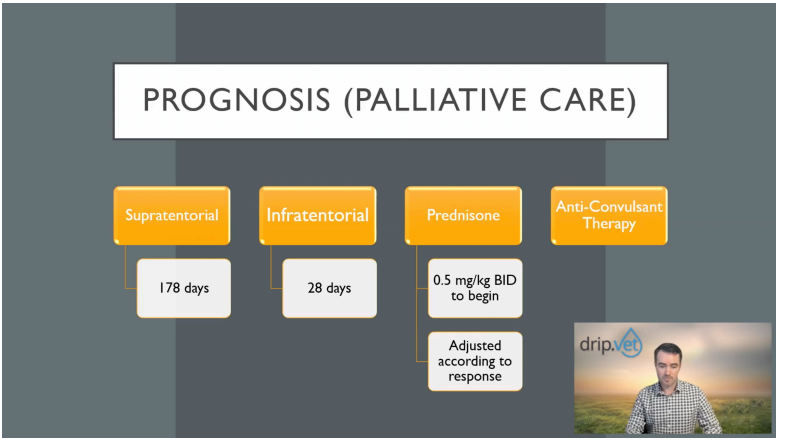
Encephalopathy

DRIP 2

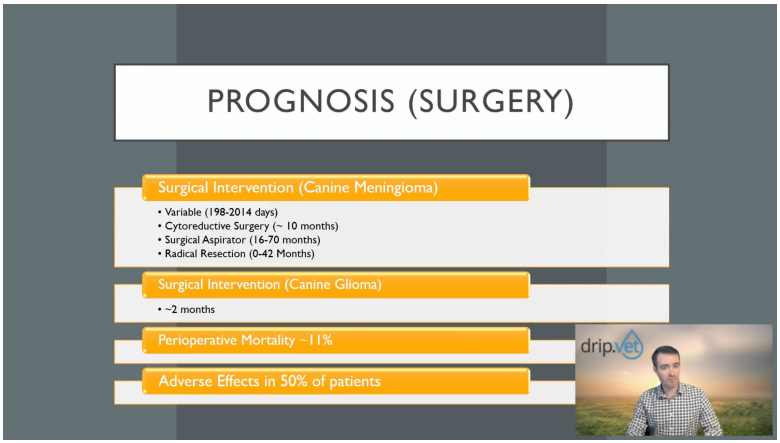
May 2, 2022

Instructor: Logan Donaldson
DVM, Diplomate ACVIM (Neurology)

Be advised this document is here to enhance your learning experience and is a cumulative of the slides and transcript & area for your notes. You are welcome to take your notes electronically or print then use it to supplement your learning while watching the drip



And so once we get past palliative care, we say, well, what other options are available to us?



One of the big things we talk about is surgery. And the surgical prognosis is pretty variable. It also depends on what type of tumor it is and what histologic subtype of tumor is available to us as well. There are some frustrations with some of these studies. They are all great studies, but we don't have any large cohort studies. The largest study that is available to us is 36 patients, to my knowledge.

And some retrospective analysis of some of these studies have shown that some studies have had to exclude early perioperative death, which artificially elevates some of those mean survival times as well. Additionally, about 25% of these patients will have unrelated neoplasia. So staging these patients is incredibly important.

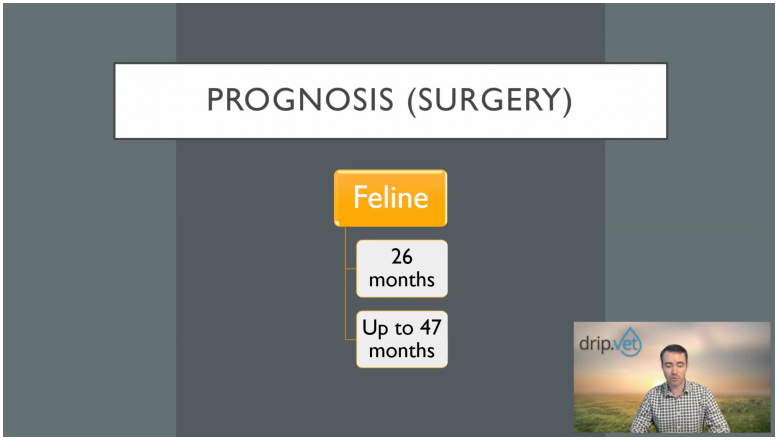
And so when we look at these patients and we say, OK, what's the prognosis? Well, the studies that we've looked at are very variable. Anywhere from 198 days, which may not be that much more than 180 or 170 that we got from just prednisone alone, all the way up to 2,000 some odd days with patients that have surgical aspiration using ultrasonic aspirators. Again, some of these studies we're trying to ferret out how we're really falling into some of these time frames.

With cytoreductive surgery, we're usually looking at about 10 months. The surgical aspirator, again, you can see that's where we get to potentially as long as 70 months in some of these patients.

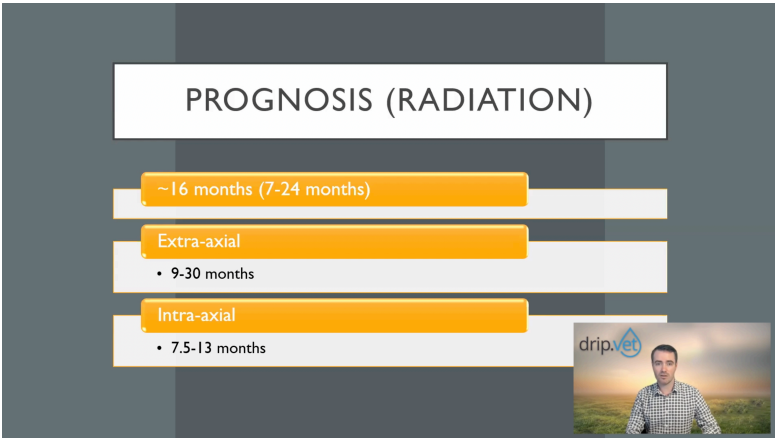
And then there's a new paper that's come out recently about radical resection. And this radical resection paper showed that these patients have a life lifespan anywhere from 0 to 42 months. Some of these patients were still alive at the time the paper was printed. But about 18% of these patients did not actually survive the perioperative period, which is actually slightly higher than the perioperative mortality of about 10% or 11% that we usually attribute with surgery on these primary brain tumors.

In patients that have a glioma, even with surgical intervention, we're usually looking at a lifespan of about two months. And so there is some question as to whether or not this is even considered appropriate to perform in some of these patients. But also, we just have to have that conversation with the family.

And then about 50% of these patients undergoing surgery, we are dealing with adverse effects of the surgery. And that could be permanent or transient worsening of the patient or death associated with it as well. And so you're looking at a 50% chance potentially of a significant to permanent decline after surgery. And so that plays a role, especially into some of these mean survival times, especially when we know that some of these numbers may very well be falsely elevated due to the statistical anomalies within the studies themselves.



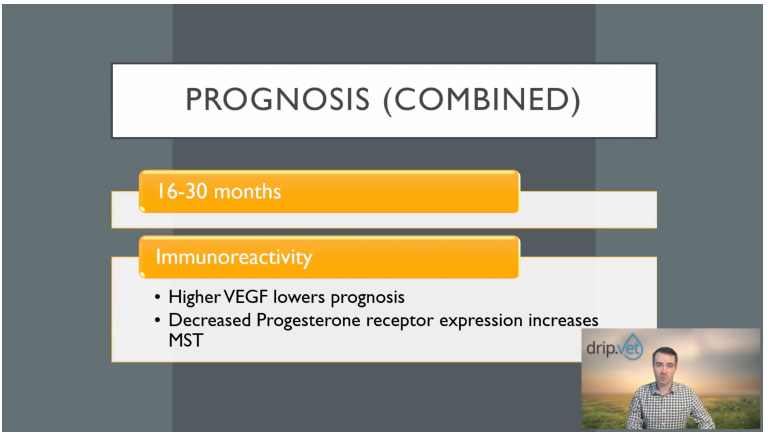
Now, when we talk about cats, they're a little bit of a different story here. Most cats have a mean survival time about 26 months. And some of the cases that have been reported are up to 47, 48 months. Personally, I did surgery at the beginning of my residency on a patient and repeated that surgery in the last month of my residency, which was over 3 and 1/2 years later. And so most cats that have a meningioma that's removed successfully with surgery, they have a very good prognosis for a long term period.



Now with radiation, we're usually looking at about 16 months. The reason why it's tough to break down a lot of these lifespans is because with radiation, we're usually not getting histologic subtyping through biopsies or surgery. Of course, the more aggressive the histologic subtype, the less likely we're going to have a good prognosis or outcome in these patients.

If we're dealing with extra axial tumors, which typically are meningiomas, we might be looking at anywhere between 9 and 30 months with radiation. And yes, these, again, are variable, but this is taking all of the studies we have and putting them together.

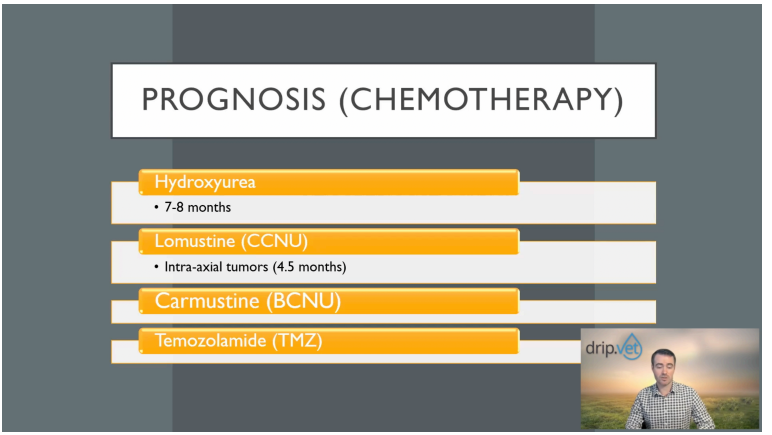
From an intra-axial standpoint, we might get 7 and 1/2 to 13 months. So if we're dealing with an intra-axial glioma, would it be more appropriate to do radiation over surgery? Well, unfortunately, based off the limited studies we have, especially comparison studies, there still is currently not a clear choice between radiation or surgery, especially if we don't have a histologic subtyping as a sole treatment.



And then the next thing we talk about is, well, as a sole treatment, OK, but what about as a combined treatment? As a combined treatment, we're usually getting an average of about 16 to 30 months on these patients. And so you can compare these numbers and say, this is where we really want to go and this is the direction we would want to go. Most of the time when we're looking at combined treatments, we're talking about having these procedures performed at facilities that can both do the surgery and radiation therapy.

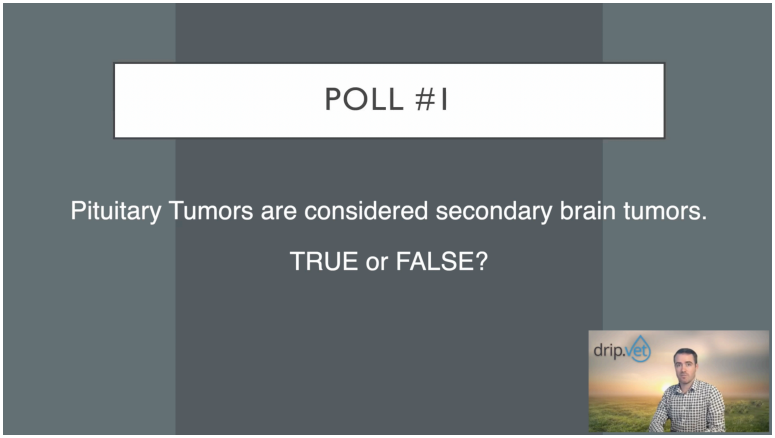
But sometimes we do perform one or the other procedure at different institutions. For instance, we don't have a radiation therapist. So whenever we do any type of intracranial surgeries, we always have them referred to one of the universities for radiation oncology as well. One of the other things we can get from doing this combined approach is getting histologic subtyping on these patients. And so in patients that have a higher vascular endothelial growth factor, this actually lowers prognosis. And this is when they have more than 75% of the cells demonstrating immunoreactivity to VEGF.

But what we've also noticed is that decreased progesterone receptor expression will increase median survival time, especially in meningiomas. And so that actually helps us to help frame some of this prognosis and median survival time conversation with the families if we end up being able to get that answer through a surgical situation.



Now when we talk about chemotherapy, unfortunately, in the central nervous system, it's just not very effective. With hydroxyurea, might bring us out to about seven to eight months when we're using palliative care with meningiomas. This may increase that lifespan from that five or six month time frame to maybe seven or eight. And so for some people, that is worth it. But we do deal with myelosuppression. And so you are playing with the pros and cons there.

One of the other medications we will use is the lomustine or CCNU. And we may actually get a couple extra months with that drug if we're using it for gliomas. But you're still dealing with the side effects of using a chemotherapy agent in these cases versus just prednisolone alone. Carmustine and temozolomide may not be very effective for these patients. And so they're uncommonly used.



And so this brings me to the first poll question of the day. And so this is just a conversation before we get into the secondary brain tumors that we were looking at. Just wanted to know from a pituitary standpoint, are we thinking that there are more secondary brain tumors or primary brain tumors?