

Sampling in abortion investigations

CRISTINA GANS

Getting a diagnosis in an abortion outbreak can be challenging. Less than 50% of abortions investigated result in a diagnosis. A variety of tests are available at Gribbles Veterinary (including PCR, histology, microbiology and serology) which enhances our ability to obtain a diagnosis. However, this can also be confusing in terms of sample collection.

To necropsy or not to necropsy?

When presented with an aborted fetus, there is the option to send the fetus to us for necropsy and sampling. Please make sure to ring your local laboratory before sending fetuses. Only our Auckland, Palmerston North and Dunedin laboratories have pathologists on-site to perform post-mortems.

There are several advantages to performing the necropsy yourself. The most important one, of course, is collecting the tissues while fresh, which maximises the chances of tissues being well-preserved for histology. Collecting fresh samples early in the

necropsy reduces the likelihood of post-mortem contamination.

Ideally take fresh samples immediately upon opening the thoracic and abdominal cavities.

Which samples to take?

If you do perform a field necropsy, getting the recommended fixed and fresh samples can maximise your chances of obtaining a diagnosis. A list of recommended samples for bovine and ovine abortions can be found below.

Brain may be a difficult sample to collect as it can be soft or autolysed. Ideally remove the brain intact by removing the calvarium (Figure 1). However, even if the brain is autolysed, soft or fragmented, it can still be useful diagnostically. Placing the brain into formalin will allow it to harden, even if you have to resort to “pouring” it in.

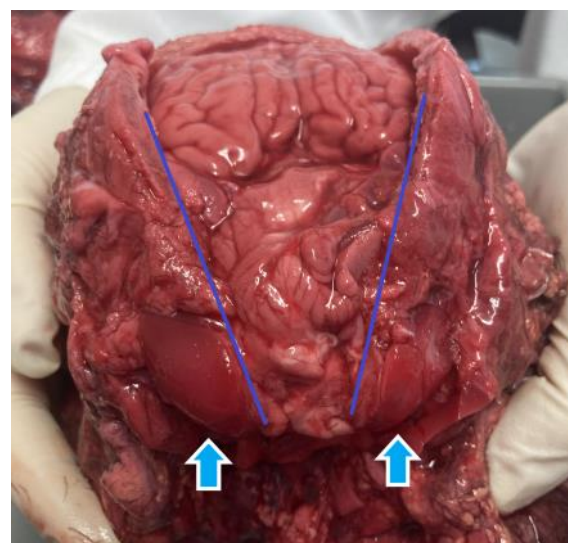


Figure 1 (above). Caudal view of the skull with the calvarium removed. The brain in this picture is soft and autolysed but was placed in formalin as part of a complete collection of samples for histology. Blue lines indicate where cuts along the skull can be made to remove the calvarium, with the occipital condyles (arrowed) as landmarks.

Placenta is an important sample to include if it is available. In some cases, the only gross

Figure 2. Placental lesions may be patchy, and multiple placental samples should be taken. In this case, multifocal pinpoint areas of necrosis (arrowed) in the cotyledon are consistent with placentitis from a fungal abortion.



Abortion samples to collect

- > **Fixed tissue:** Brain, lung, heart, liver, kidney, spleen, eyelid (bovine), skeletal muscle and placenta; plus any gross lesions.
- > **Fresh tissue:** Foetal stomach contents, lung, liver, kidney, foetal fluid (thoracic) or heart blood, placenta.
- > **Fresh serum** from the dam.

or histological lesions are evident in the placenta. Take multiple sections of cotyledonary and non-cotyledonary placenta, as lesions of placentitis can have a patchy distribution. For example, the mycotic abortion in Figure 2 displayed areas of necrosis that affected some cotyledons or parts of cotyledons.

Skin may sometimes have plaques due to fungal abortion. It's worth having a look at the skin and taking unusual lesions for histology. Similarly, eyelids can display histological lesions suggestive of *Ureaplasma* or fungal abortion in cattle.

It's important to note that gross lesions are rarely seen during an abortion necropsy. Some lesions may be due to autolysis or may be a variation of normal (such as amniotic plaques or adventitial placentation). If unsure, it's always best to collect a sample for histology. Photos of lesions with the submission are also helpful.

Which test to select?

The selection of tests ideally should be guided by herd/ flock history, vaccination status, any illness noted in the dam and farm environment.

Histology is a good test to start an abortion

investigation. While it doesn't often provide a specific diagnosis, it can provide information to direct other ancillary testing such as PCR or culture. Alternatively, PCR panels can provide a rapid and accurate diagnosis if a particular organism is suspected. A pathologist can help guide the selection of tests in an abortion investigation if required.

References:

Njaa, Bradley L., ed. Kirkbride's diagnosis of abortion and neonatal loss in animals. *John Wiley & Sons*, 2011.
Gribbles Veterinary. [Samples to collect for abortion investigations](#). *Paws, claws & udder things*, July 2019.

New Territory Manager, South Island

Gribbles Veterinary is very pleased to welcome Dan Lacey, the new South Island Territory Manager to our team.

Dan joins us from a background in Dairy and Food manufacturing, having worked in production, technical and plant manager roles for Fonterra and other large New Zealand companies.

With experience in training and personnel development, Dan enjoys getting out and meeting people and offering support to help

grow themselves and their business. The challenge of learning the veterinary side of the business and developing and expanding his analytical expertise is something he will relish.

Outside of work, Dan runs an aquatic rescue business out of his South Canterbury home (with the help of his wife), and can have up to 40 aquariums running at a time. They also have several pets including cats, dogs, birds and turtles (Dan jokes to his adult children this is in lieu of grandkids!).

Contact Dan on 027 476 7713 or dan.lacey@gribbles.co.nz.



Never underestimate the importance of a blood smear

ROBYN WINTERS

Blood cells begin to degenerate as soon as they leave the body, and continue to do so in the sample tube. Blood cells from different species degenerate at different rates. For example, bovine and rabbit blood cells

degenerate particularly quickly, but horse's cells do not.

By the time we receive the bloods in the laboratory, the cell morphology can have changed considerably from when it left the animal. The erythrocytes from a Persian cat

(Figures 1 and 2) show the difference 12 hours can make. The poikilocytosis is still present, but considerably more marked in the aged sample.

'How To' guides are available on our website to assist with making great blood smears.

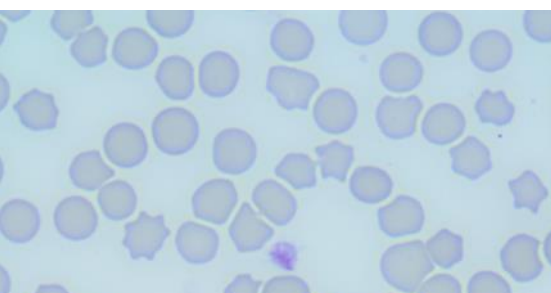
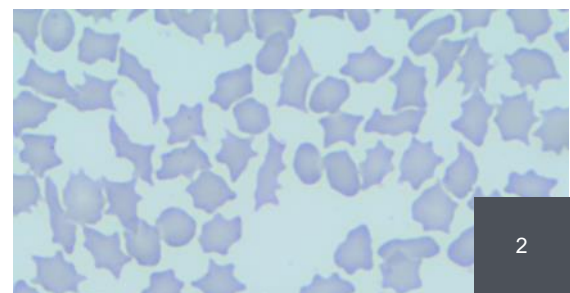


Figure 1 (left): Fresh blood smear made in-clinic at time of collection.

Figure 2 (right): Blood smear made from the EDTA on receipt at the laboratory (12-hours after sample collection).



A monster of a tumour . . .

CRISTINA GANS

Clinical history:

A five-year-old, female Rottweiler/ Labrador cross presented for a routine ovariohysterectomy. During the surgery a 5cm mass was identified in the left ovary. The entire uterus and both ovaries were submitted for histopathology.

Post-mortem findings:

After formalin fixation of the tissue, incision

Figure 1: Incision into the formalin-fixed ovarian mass reveals cystic structures with hair and yellow, pasty material suggestive of keratin.



into the ovarian mass, revealed a mixture of tissues including adipose and fibrous tissues and cysts with hair or pale yellow pasty material suggestive of keratin (Figure 1).

Pathology findings:

Histological examination of the left ovary revealed a circumscribed neoplasm compressing a narrow rim of normal ovarian tissue. Within the neoplasm were large areas of normal adipose and fibrous connective tissue as well as smaller areas of cartilage, glands lined by ciliated respiratory epithelium and nervous tissue with primitive neurons. Also present were large cystic follicles containing large numbers of hair shafts and keratin (Figure 2).

The remainder of the uterus and right ovary displayed no significant findings.

Diagnosis:

Ovarian teratoma

Discussion:

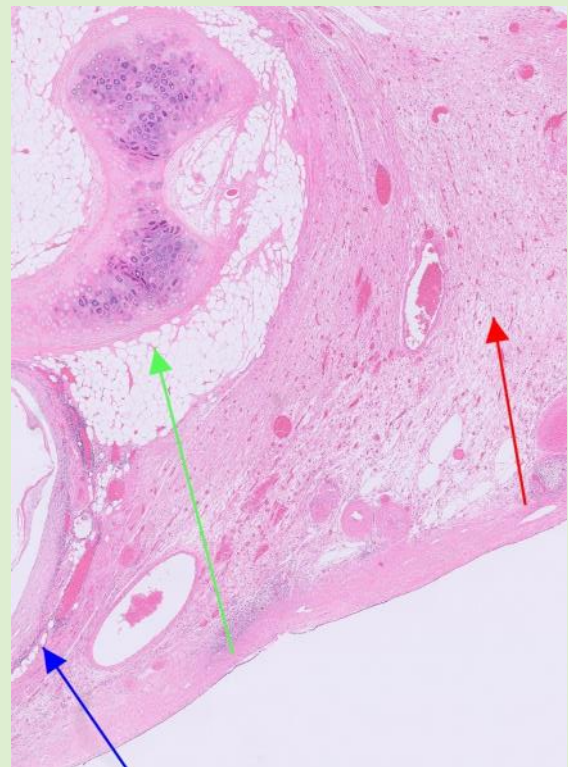
The presence of a neoplasm with tissues developing from two-three germ layers in a reproductive organ is consistent with a teratoma. The word "teratoma" is derived from the ancient Greek word "teras" meaning monster.

These tumours arise from totipotential germ cells, which can produce a number of tissues including bone, cartilage, teeth or hair. While

they are most commonly reported in the bitch, they comprise less than 1% of canine ovarian tumours, and are thus considered to be very rare. The vast majority of these tumours are benign, although rare malignant variants have been reported.

Thank you to Ashlin Urieli from Selwyn Rakaia Vet Services for this

Figure 2: Histology of the left ovary reveals an ovarian neoplasm with an array of well-developed tissues. In this picture, there is nervous tissue (red arrow), cartilage (green arrow) and part of a follicular cyst (blue arrow).



The winners and a mini-survey

During the NZVA conference in June, we ran a competition for those who participated in a short survey or signed up for our fabulous eResults.

Thank you to everyone who visited our stand and participated, we appreciate your feedback. The winners of the three daily draws for three sets of Jabra Elite 4 Active Noise Cancelling True Wireless In-Ear Headphones are:

- Celine Lye, Wellsford Vet Clinic
- Kate Lane, Ashburton Vets

- Simon Solomon, Tokoroa and Districts

CONGRATULATIONS!

You will be contacted by your local Territory Manager who will make arrangements to deliver your prizes.

If you weren't at conference but would like to **make our day** by completing a very short **customer service survey** (only 9 questions), please [click here to participate](#). Your feedback helps us improve our services so you are looked after in the best way possible.



Changes in our price book

As well as pricing changes this year, we have added a significant number of tests and removed one.

Most of the tests added in to our price book are not often requested, but we've aimed to provide you with a better overview of all the services we can offer. Note, many of these tests are marked as "price on application" as they may be referred overseas.

The one test that has been removed is the 'white cell count and diff'. We recommend using the 'smear examination', as it includes a differential plus cell morphology. The smear

examination provides much better diagnostic information as cell morphology is one of the key reasons blood smears should always be examined.

The WBC + diff option will be removed from our submission forms at the next reprint, but in the mean-time, any requests for it will automatically be changed to a smear examination.

Errata: There are a couple of pricing errors in the equine section and the correct pricing (ex. GST) is as follows:

- > Equine Training profile \$95.47
- > Sick Equine Profile \$113.81

For a laugh!

If you follow us on Facebook, you'll be familiar with our regular Friday slot. Here's our most popular one from the past month.

... and if you don't follow us, [head over](#) and hit the LIKE button now!



Stanislav Zak ▶ Purrtacular

8 hrs · 📍

Last month my cat disappeared. A week ago I found him and brought him home. Today my cat came back. Now I have two identical cats.



👍❤️ 6.2K

685 Comments

👆 836 📄 33 🔄 Share 🏆 Award

Didn't get to conference? Find the links to the paper's presented by the Gribbles Veterinary pathologists from the Conference proceedings below:

- > [Salmonella trends in companion animals in New Zealand](#) (Lisa Hulme-Moir)
- > [Cytology in practice - Part 1 and 2](#) (Sandy Weltan)



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VETERINARY



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