BACKGROUND

Two dogs were imported from Angola into South Africa on the 5th of February 2014 and landed at Cape Town International Airport. From the airport they were transferred to the Cape Town import quarantine station in Montague gardens. It was immediately observed by the quarantine staff that the health certificate and testing history of the dogs were not complete and detailed (health certificate) or compliant (testing history). Dogs entering the country are required to be tested negative for a number of diseases which do not occur or are endemic in South Africa. One of these diseases is leishmaniasis. Dogs are meant to be imported with blood results that are from samples taken less than 30 days prior to movement. The two dogs imported from Angola had been sampled on the 21st November 2013; 76 days prior to movement.

The test performed by the OVI for pre-import Leishmania is an indirect fluorescent antibody test which tests for Leishmania infantum antibodies. This test was negative on the pre-import samples.

THE DOGS

The two imported dogs are both Bull Terriers: a four-year-old male and a six-year-old bitch. While they were imported from Angola it sounds like they principally come from Russia. Their period of residence in Angola is not known.

SOUTH AFRICAN EVENTS

The quarantine station contacted their central authority to establish the way forward for these animals after the irregularities were noted. It was decided to keep them in quarantine and re-do the series of tests that are meant to be performed pre-import. The dogs were sampled on the 11 Feb and results for all tests including Leishmania were negative and were released on by the lab on 13 Feb. The dogs were released to their owners on 14 Feb.

Six days later, on 20 Feb, the bitch was presented at Penzance Veterinary Clinic in Hout Bay with a generalized nodular skin condition. The condition looked a bit like a pustular dermatitis with multifocal nodules between 1-5mmØ spread diffusely over the body. The owner was not aware of how long the nodules had been present. Based on the history (recent import from Angola) the vet was concerned it may be a tropical disease rather than pyoderma and elected to take a skin biopsy the following day as the bitch was booked in for a sterilization anyway.

BIOPSY RESULTS

Even though the diagnosis of Leishmania on histopathology requires a lot of expertise and experience and South Africa is not endemic for the disease the pathologist (Dr Rick Last - VetDiagnostix) suspected Leishmania when evaluating the biopsy samples and did a further Giemsa stain to visualize amastigotes intracellularly in macrophages and cutaneous fibroblasts. This led to a diagnosis of presumptive (def. having a reasonable basis for belief or acceptance) leishmaniasis. The private vet then contacted the Provincial veterinary services as any disease detected within South Africa that is not endemic/expected should be reported and regarded as controlled.

THE FOLLOW UP

While all the information regarding the dogs and owners could be collated from the private veterinarian, the import quarantine station and the OVI we have had no success in contacting the owner, despite numerous attempts - even to the degree of visiting the property at which the owner resides. The owner also has not returned to the private vet for suture removal after the spay (as of the writing of this article it has been 14 days since the operation). We contacted and informed the health department (as this is a potential zoonosis) of the case. It is crucial in this case to contact the owners to discuss control measures and options given the nature of the disease.

THE DISEASE

Canine leishmaniasis is caused by various species of Leishmania. The disease in both humans and dogs can cause a visceral or a cutaneous form. The human visceral form is caused primarily by L. infantum or L. donovani. Most L. spp cause the cutaneous form in humans. L. infantum is the most commonly reported species in domestic animals and the distinction between species causing the visceral vs. cutaneous forms in humans is not seen in animals. L. infantum is responsible for zoonotic leishmaniasis.

The distribution of the disease is generally limited to tropical and sub-tropical regions. In humans the clinical presentations are correlated to the species involved - L. donovani causes visceral leishmaniasis in South Asia and parts of Africa while the same disease is caused by L. infantum in the Mediterranean and Middle East.

PERTINENT EPIDEMIOLOGY

Leishmania completes its life cycle in two hosts - the phlebotomine sand fly vector and a mammal where the
Intracellular amastigote form develops and replicates. In few cases *Leishmania* can be transmitted by blood donation, vertical transmission and venereal transmission while suspected but unproven methods of transmission also include dog-dog transmission through bite wounds. Mechanical transmission by fleas and biting flies is also potentially possible. Imported *Leishmania* can be seen in non-endemic areas but the disease usually doesn’t become established without the appropriate vector presence. The various species of *Leishmania* are also dependent on varying species of phlebotomid flies. There is a remarkable scarcity of data regarding phlebotomid fly presence and distribution in South Africa with very few having been caught and identified over the past decades. Interestingly though there have been sand flies caught in Cape Town (albeit very few and only one paper described them); and they were consequently called *P. capensis*. It is important to realize that not any sand fly will successfully transmit any *Leishmania* parasite successfully - it seems as if this is quite a specific relationship.

Leishmaniasis is a typical disease where there is a high prevalence of subclinical disease and there are a broad range of clinical manifestations in dogs. The sub-clinical nature of the disease is not necessarily permanent and any condition which induces immunosuppression may induce clinical disease. This is important in the human health context of the disease as HIV/AIDS concomitant infection with *Leishmania* may induce a clinical leishmaniasis.

Age seems to be an important factor in the epidemiology in dogs and a bimodal distribution is seen with dogs aged 3 and below and 8 and above are often most affected. Bull Terriers are not one of the breeds predisposed to infection.

The occurrence of leishmaniasis in South Africa is limited to isolated events with unpublished observations noting the visceral form of the disease twice in dogs. The cutaneous form of the disease has been reported twice in sheep (unpublished observations) in RSA with one other published case in an unknown species in the North West Province.

**PUBLIC HEALTH CONSIDERATIONS**

*L. infantum* is the responsible species for zoonotic disease and we are not sure which species this current case is. South Africa’s high prevalence of HIV/AIDS is however important to remember and leishmaniasis is not a disease one wants to have in our population.

**CONTROL**

In this case the question has arisen: why not just treat the animal to get rid of the infection? The issue is that treatment is not straightforward and while you can get a clinical end point to the disease the length and likelihood of success of treatment is often dependent on the clinical presentation of the animal. Patients that recover can relapse. In the case of a single animal infected in a non-endemic country this is deemed an unacceptable risk to take. It is for this reason that ideally the dog either be sent back to Angola or be euthanized. The import requirements for dogs into South Africa also states that if a dog is found positive for *Leishmania* in quarantine in South Africa it will be re-exported or euthanized at the owner’s expense.

**CONCLUSIONS**

An interesting point regarding *L. infantum* infection in dogs is that clinically healthy dogs with self-limiting disease may show a low serological response with concomitant low parasite load. As the disease becomes more severe it becomes unlikely that it is self-limiting and this is when parasite burdens are high and the likelihood of transmission increases. It is for this reason that it is not ideal that we have no contact with this owner. Even if ideal control measures in this case (euthanasia or return to endemic country) could not be carried out, the monitoring of such an animal would be crucial. In the same vein the companion dog that was also imported would ideally need to be followed over a period of months with serial serological testing and clinical examination - this given the potentially long incubation period of the disease.

Over and above the diagnostics mentioned in this case there are some important points to consider regarding diagnosis. The diagnosis can be complex and is not as straightforward as we have found here - and this highlights the excellent observations of both veterinarian and diagnostician involved. The IFAT test which OVI uses has advantages as it is a quantitative test and for import purposes a positive test be all that is required to screen dogs entering the country. Of course the disadvantage of this is the incubation period can be long and the infection localized, which is why it is imperative that clinical examination of animals be seen as just as important a test on import screening - and not just seen as a matter of procedure/administration. There are other diagnostic tests available in countries more used to seeing this disease and these include other serological assays like ELISA as well as molecular assays like PCR.

It is highly unlikely that infection will spread even if the dog is not removed from the country. The major reason for this is the very unlikely presence of a vector capable of transmission and an overall very low prevalence of disease in the environment from which to induce an outbreak. Risk, however negligible, is never zero and the consequence of transmission and spread, both in terms of animal and human health, in the authors opinion outweighs the trauma of the loss of one animal by the owner.

**References:**


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**Acknowledgments**

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Fig 2. A Phlebotomus sandfly

Courtesy: www.stanford.edu/
South Africa regains its zonal FMD free status

On the 14th of February the World Organisation for Animal Health’s (OIE) scientific commission informed South Africa that South Africa’s FMD free status of the FMD zone where vaccination is not practiced has been re-instated. This will have a positive impact on the export of ruminant meat from South Africa. The message from the OIE however also mentioned that an expert mission will be scheduled towards the end of 2014 to ensure that the control measures described by South Africa are being adhered to.

We take this opportunity to heartily congratulate all our veterinary colleagues and in particular the veterinarians of the DAFF epidemiology section who have worked tirelessly over the past 3 years to regain the free status we had prior to the 2011 outbreak.

Commando worm infestation in the George area

Marna Sinclair and Edwin Dyason

During the month of February SV George was informed of a commando worm infestation involving extensive areas from Hoekwil to Plettenberg Bay. Dr Dyason visited one of the properties and took the photos below.

Commando worms have been identified as one of the predisposing factors to kikuyu poisoning, although the exact mechanisms are not known and the specific cause has not been identified.

Fortunately no animals in the affected areas have shown symptoms of kikuyu poisoning yet. Farmers have started to chemically treat the worm infested pastures and the local vets as well as Disaster Management are aware of the situation. Hopefully we won’t see any symptoms in the cattle, but only time will tell.

Fig 3: An affected pasture  Fig 4: An individual commando worm
The SV George office was contacted by a very distraught dairy farmer in the Calitzdorp area after several of his dairy cattle died. Apparently some died acutely, while others became emaciated, followed by recumbency and death. At that stage, four private veterinarians were already involved in the difficult case and several initial differential diagnoses, including acidosis, prussic acid poisoning and botulism were considered while the animals were treated accordingly. The mystery was solved when a milk processing company tested and found aflatoxin in the milk and the mouldy feed source was subsequently detected.

Unfortunately the mouldy feed went unnoticed for more than a week and 36 cows died in total, while approximately another 14 are affected but are currently still alive. The milk was also rendered unusable and the loss of both the animals and the milk has had huge negative financial implications for the unfortunate farmer.

Aflatoxicosis occurs when toxogenic strains of *Aspergillus flavus* and *Aspergillus parasiticus* produce toxins after being allowed to grow on cereals (including in this case maize). This occurs when said cereals either grow in or are stored in conditions where there is a high moisture content as well as consistently high temperatures above about 21 deg Celcius. While the disease can occur in cattle, as was the case in Calitzdorp, it also manifests in growing poultry, pigs and other ruminants, among other species.


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**The life of an AHT**

Eds note: Every now and then there occur cases of serious broken telephone in the state veterinary services and the following story illustrates this perfectly. While we don’t have any incidence, prevalence, case fatality or control measure data listed below...and not even a map...we always have to consider the unmeasurable social factors which play a role in animal disease surveillance and epidemiology.

We have changed the names of the public involved ...

In November 2013 AHT Esthea Russouw went to farm A were she vaccinated 6 dogs and 3 cats belonging to Mrs Y—this being a standard routine part of her job. The next day Marius (Vrey) received an email from an FSD official from Atlantis to phone Mr X, a member of the public about a potential rabies case. Marius phoned him and was told about a dog, close to Mr X’s small holding, that was put down (euthanased) because of rabies. This was the first Marius had heard of this.

The next day, Marius went to vaccinate 15 dogs on a small holding owned by a friend of Mr X and also vaccinated 3 dogs and 3 cats at Mr X’s small holding. Mr X’s mother showed Marius the SMS that they received from Mr S about the rabies case. "Hi bud. Just a heads up there is a rabies outbreak on Farm A. Mrs Y’s rottie (Rottweiler) has been destroyed. For safety have your animals inoculated - its free.”

Marius went to farm A to find Mrs Y and to hear the symptoms the dog showed and if the dog was buried on the farm: he wanted to exhume it and send the brain to Allerton for testing. Mrs Y then promptly told Marius the ACTUAL story...

THE ACTUAL STORY: When Esthea was on farm A in November to vaccinate dogs and cats for free, Mrs Y SMS’d a friend (Mr S) on the same farm asking if he wants his animals vaccinated because the “vet” is on the farm and vaccination is for free. Mr S didn’t reply to the SMS and Esthea left the farm. Later that day, Mr S replied to the SMS to Mrs Y and wanted his animals vaccinated. Mrs Y SMS’d him back that “the lady is gone”. Mrs Y’s rottweiler’s name is also unfortunately “Lady”. Mr S thought that the “vet” was on the farm to put down Lady because of rabies. He started sending SMS’s to everybody about the rabies outbreak. Later he even SMS’d Mrs Y to sympathise because Lady the Rottweiler was ‘put down’.

In the life of an AHT, this is a story with a bad start but a happy ending
In the follow-up from last month we reported on an imported *Salmonella* case - here in short are the details of the case which were received from the Import Quarantine Station. *Ducklings imported from the United Kingdom tested positive for Salmonella hadar and S. farmsen* during routine post import testing while in quarantine at the Milnerton import quarantine station. Permission was granted for the ducklings to be treated under isolation at the importer’s farm in Kraaifontein. The ducklings were treated with enrofloxacin and follow-up tests were negative for all strains of *Salmonella*.

*Lumpy skin disease* is a clear favourite for disease of the month and there are reported cases coming into the section thick and fast. We had 17 reported cases in February alone and the map on this page clearly shows this. The disease, based on reporting, is occurring in the *Malmesbury* area predominately but we have had reports from other areas and we are quite certain that the distribution of the disease is not so specific. We suspect that there is considerable under-reporting of this vaccine preventable infection. We will try get out a more comprehensive report soon on LSD.

Another arbovirus, *bluetongue*, was reported from the *Laingsburg* and the *Boland* regions. Both outbreaks involved very low numbers of cases.

Eleven of 60 *rams* tested for *B. ovis* tested positive from a farm near Rietbron. The vaccination status of the animals were either unknown or unvaccinated and rams were brought onto the farm from various...
African horse sickness in the province and its impact on exports directly to the EU

The formalisation of equine EU import requirements occurred in Jan 1997 with the publication of the European Commission Decision 97/10/EC which laid out the details regarding temporary admission and imports of registered horses from South Africa into the then Community. It was in this decision where reference was made to specific zones of the Western Cape including the AHS surveillance zone and the AHS free zone. While changes have been made to the requirements over time (97/10/EC was codified and repealed by 2008/698) the impact of African horse sickness on the export of live horses has been extensive. The graphic below shows over time when South Africa were exporting and when exports were suspended with indications of which AHS outbreak was responsible for the suspension. In the months to come we will be involved in workshops to evaluate the way forward in terms of AHS and its control in the country and in preparation for that it was necessary to evaluate how successful and potentially how sustainable adhering to the current import requirements are, and whether steps need to be taken to revise our control and focus. It is also important to understand that many countries follow the lead of the EU in determining import requirements of live horses.

![Graph showing AHS impact on the history and sustainability of direct live equine exports to the EU from Cape Town](image-url)
Other Outbreak Events cont...

sources with inadequate biosecurity. It is interesting to note that while various breeds of rams were tested (Dorper, Merino and some goats - Angora and Boer goat) the only positives came from the Dorpers. Vaccination and slaughter of positive rams was advised.

- A buffalo succumbed to a malignant catarrhal fever infection which was thought to be (but not confirmed) a sheep associated strain. This occurred in the Uniondale district and was detected when a private vet suspected the disease after performing a PM on the five-year-old cow that had died suddenly. Samples were sent for histopathology and were returned as highly suspect for MCF.

- A rabies case occurred in the Moorreesburg area in a bat-eared fox. The animal entered a farmer’s yard showing no signs of fear and the farmer shot and killed the animal. The brain was sent for testing at Allerton and was positive for the rabies on fluorescent antibody testing. There was no known contact with humans or domestic animals. The area’s domestic dog and cat populations had been vaccinated by the local AHT in October 2013 but further follow up was performed and 15 dogs and 14 cats in the immediate vicinity were re-vaccinated. This is the second rabies case of 2014.

- Newcastle disease was diagnosed serologically on a non-commercial poultry farm in the Eendekuil area of the Malmsbury State vet region. Egg production drops were noted on the property and 3 of the 40 susceptible hens showed respiratory symptoms and later died. The farmer buys in hens from a commercial farmer that does not vaccinate his flock, which is why the diagnosis could be made serologically.

- Johnes disease was confirmed using ZN staining of organ samples in a flock of 460 sheep in the Moorreesburg region. Two ewes were showing signs of emaciation and depression - one was a mutton Merino; the other a Dohne Merino. The Dohne was still mobile but showed projectile diarrhoea. There are other emaciated sheep in the flock. Quarantine was instituted on the property.

Fig 7: A Dohne Merino stud ram (www.dohnemerino.org/)