CONTAGIOUS EQUINE METRITIS (CEM)

OUTBREAK IN SOUTH AFRICA

2011

DIRECTORATE : ANIMAL HEALTH

agriculture,
forestry & fisheries
Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

DISEASE BACKGROUND

1. Contagious Equine Metritis (CEM) is an acute, **highly contagious venereal disease** of equines and zebras.

2. Causative agent: ***Taylorella equigenitalis*** – a gram-negative nonmotile, bacillus or coccobacillus belonging to the family *Pasteurellaceae*, which is often pleomorphic and dumb-bell shaped.

3. CEM is considered to be highly significant due to the **massive economic losses** that can be associated with the disease as result of its **devastating effects on reproductive efficiency**. These losses are related to the mare's inability to become pregnant, fetal loss, and costs related to testing, quarantining and treatment.

TRANSMISSION OF CEM

1. *T. equigenitalis* can be transmitted **during mating or artificial insemination**. Most of the transmission occurs from carrier stallions to mares.

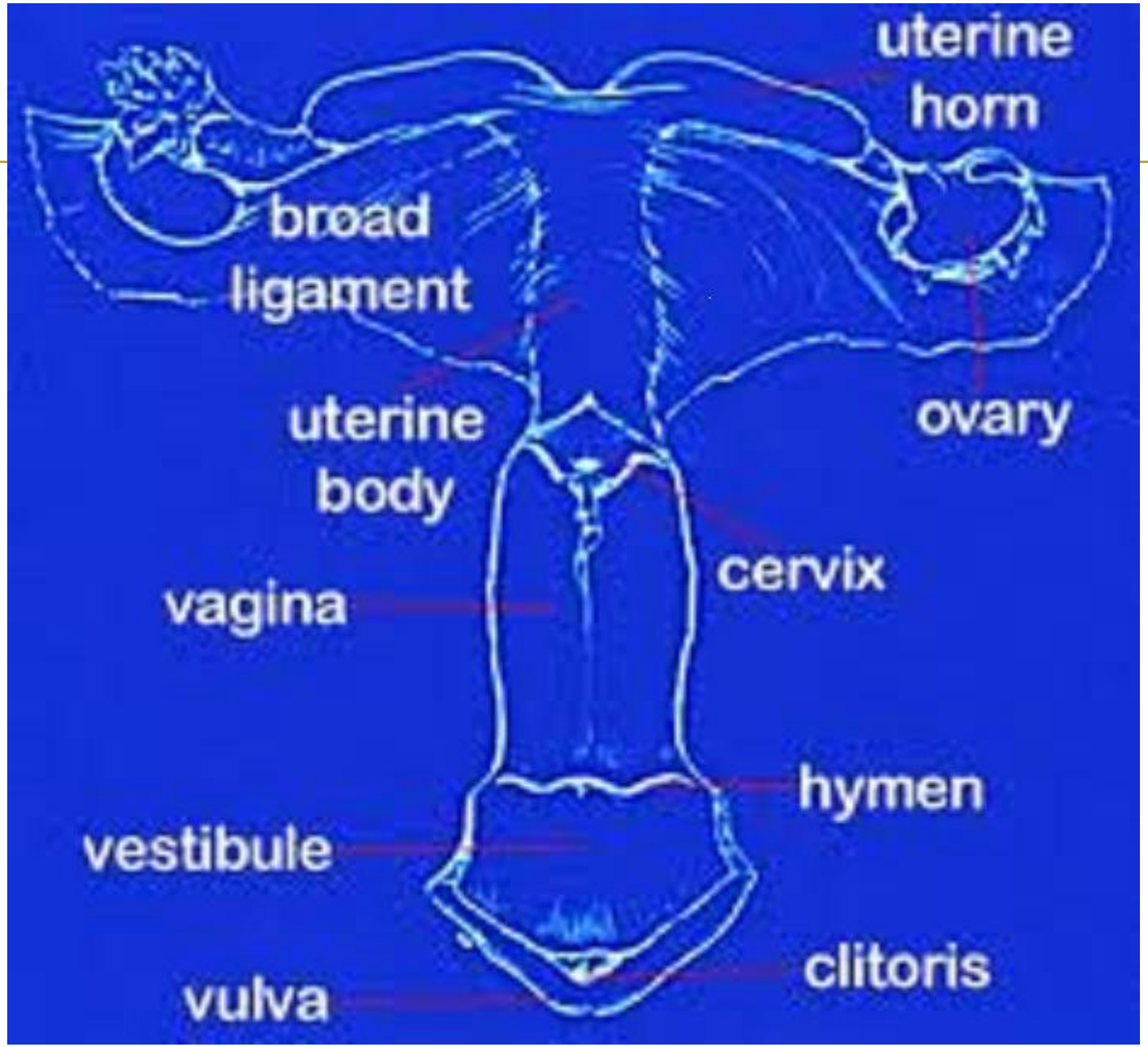
2. In mares the organism is tropic to the clitoral fossa and sinus. Occasionally, the organism will persist in the endometrium. Most mares clear themselves of infection.

3. In stallions, it is tropic to the **urethral fossa, urethral sinus, urethra and penile sheath**.

4. Stallions do not always mount an effective immune response.

5. It is also transmitted indirectly through **fomites** (e.g. breeding phantom, artificial vagina, grooming equipment, hands, speculums, gumboots, overalls, gloves, etc.).

6. Vertical transmission can occur, resulting in infection of foals born to positive mares – this is very rare.



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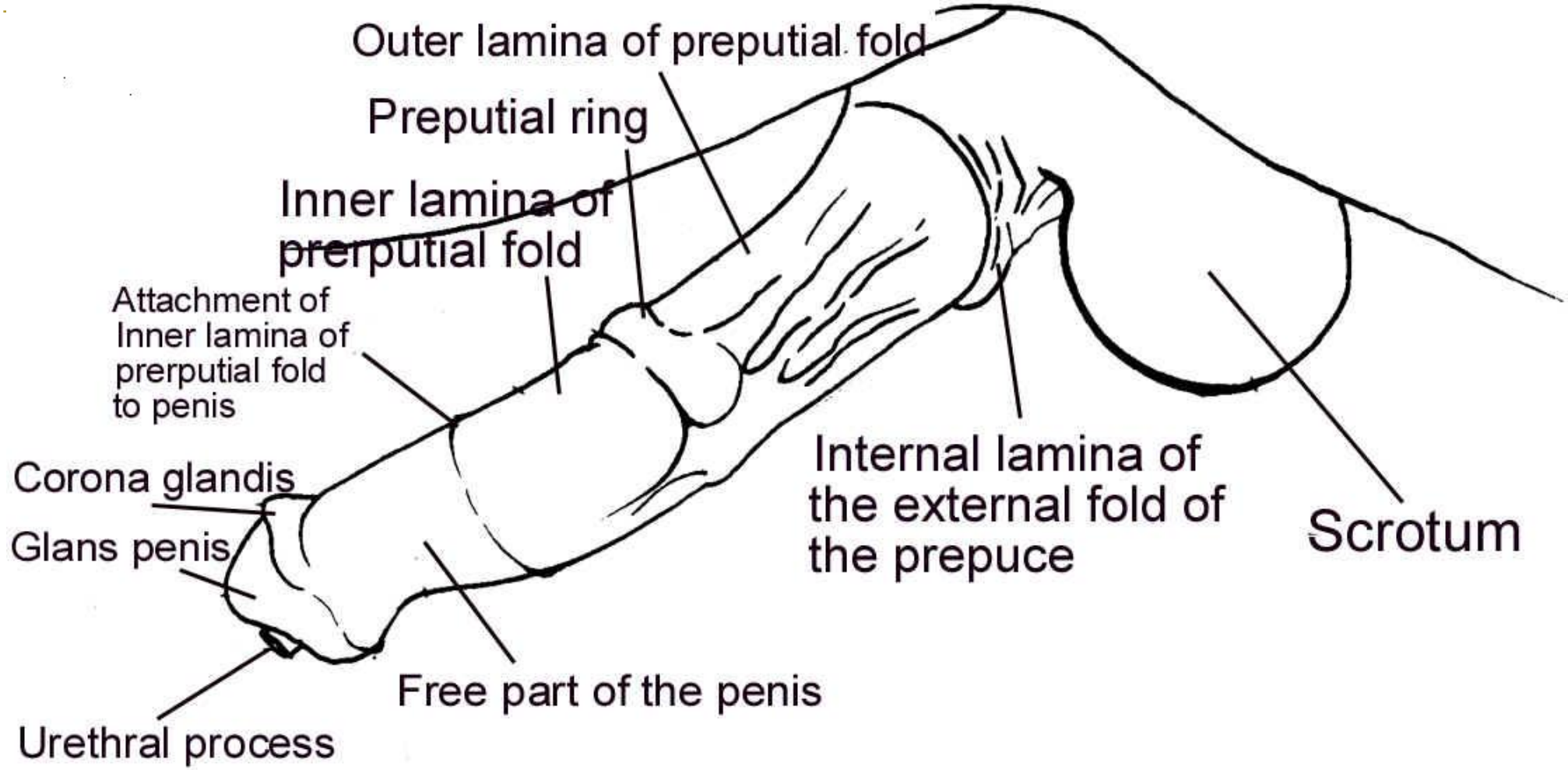

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CLINICAL SIGNS

1. **Detecting infected mares and stallions is a challenge** as most appear clinically normal.

2. Clinical signs are restricted to the reproductive tract and no systemic illness occurs.

3. **Stallions do not show clinical symptoms**.

4. Mares can demonstrate three patterns of infection: acutely infected, chronically affected, or asymptomatic carriers.
   - acute infections present with copious, thick, grey vaginal discharge due to an acute endometrial inflammation;
   - chronic infections have less vaginal discharge and milder uterine inflammation.

CLINICAL SIGNS Cont…

5. In mares *T. equigenitalis* adheres to the cilia of the epithelial cells and proliferates on the endometrium. During this period the mare is unlikely to conceive (unsuccessful fertilization or early embryonic death/ early abortion).

6. Mares will eventually clear the endometrium, leaving no clinical signs of disease. Occasionally, a mare may remain infected (carrier) with the organism lingering in the clitoral region – which may lead to re-infection of the uterus at a later stage.

7. Some immunity does develop as subsequent infections tend to display less severe acute clinical signs.

8. **Fertility of the mares that have cleared the infection is not impaired permanently** and returns to normal by the following breeding season.

DIAGNOSIS

1. **Detecting infected mares and stallions is a challenge,** as most appear clinically normal. **There is no blood (serological) test** that can detect all cases.

2. **Samples taken from the tropic sites of both stallions and mares have to be submitted for PCR and culture** (agent identification tests). The taking of samples is technically challenging.

3. In mares, swabs are taken from the clitoral fossa and sinuses as well as the endometrium/ cervix.

4. In stallions, swabs are taken from the urethral fossa and sinus, the penile sheath (lining of the penis and prepuce) and the urethra.

5. The **detection of carrier stallions** is extremely important to curtail the spread of the infection during an outbreak.

SOUTH AFRICAN CEM DISEASE STATUS IN RELATION TO THE REST OF THE WORLD

1. Since the appearance of Contagious Equine Metritis (CEM-OIE Code B201) in the UK in 1977, the disease has spread to a number of countries (most of Europe, Japan, USA). However, it has **never been reported in South Africa** (or indeed anywhere in Africa) before this current CEM outbreak.

2. Worldwide the incidence of CEM is decreasing due to screening of breeding equines and the treatment of positive animals.

3. The CEM disease outbreak in South Africa was reported to the OIE (World Organization for Animal Health) on 6 May 2011.

ANIMAL DISEASES ACT, No. 35 of 1984

1. CEM is a **controlled animal disease** according to the South African Animal Diseases Act, No. 35 of 1984.

2. In terms of Table 2 of the Animal Diseases Regulations (1986) the following **control measures** for CEM are prescribed:

i. In respect of susceptible animals: "Serving of infected mares or by infected stallions shall be prevented".

ii. In respect of contact animals: "Contact animals shall be isolated and tested under the supervision of or by an officer or authorized person".

iii. In respect of infected animals: "Infected animals shall be isolated, and in the case of -
(a) mares, destroyed under the supervision of or by an officer or authorized person; and

(b) stallions, castrated or destroyed under the supervision of or by an officer or authorized person".

DIRECTOR ANIMAL HEALTH'S DEROGATION

However

1. Scientific information indicates that CEM **can be treated successfully** in both stallions and mares that have become infected with CEM.

2. The Director of Animal Health (DAH) therefore made a **derogation (exemption)** in terms of Regulation 11(2) (b) that is issued to each owner/manager of an infected animal by means of an official order. This order stipulates the treatment measures that should be complied with in full - as defined in the "Procedural Manual for CEM for the Suspect Outbreak Identified April 2011".

3. The DAH, in consultation with experts from the Faculty of Veterinary Science of the University of Pretoria, developed this "Procedural Manual for CEM for the Suspect Outbreak Identified April 2011".

DIRECTOR ANIMAL HEALTH'S DEROGATION Cont..

4. The purpose of the manual is to give **guidelines for the management of suspect or confirmed cases of CEM in terms of quarantine, sample collection, testing and treatment**. The manual was issued on the 18 April 2011 by the DAH to all the Provincial Directors of Veterinary Service – and was distributed to and via the SAVC, SAVA, Equine Breed Societies and other relevant stakeholders.

5. The **treatment procedure remains difficult** and requires a lot of attention to detail. It may have to be repeated in case the first attempt was unsuccessful.

6. The **success of the treatment has to be confirmed** with a rigorous testing protocol that includes samples taken in technically specific ways, as well as test matings.

7. **All treatment and testing procedures** in the case of suspect or confirmed cases of CEM have to be conducted under **official state veterinary supervision**.

DETECTION OF CEM IN SOUTH AFRICA 2011

1. Initially suspected on 4 April 2011

2. Associated with an imported Warmblood stallion, CEM_2011_01_01

3. Confirmed by real time PCR on 3 May 2011 by UK's Animal Health & Veterinary Laboratories Agency (AHVLA)

4. Event reported to OIE on 6 May 2011

AT THE INITIAL SITE OF OUTBREAK

1. Outbreak initially confined to one property.

2. Detected in a mare (CEM_2011_01_02) that was inseminated with semen from the imported Warmblood stallion (CEM_2011_01_01).

3. Other mares had also been inseminated with semen from the imported stallion and other stallions had been involved in breeding activities on the property at the time of the first detected infection.

4. Positive stallion – moved to quarantine facility and treated.

5. “High risk” mares - moved to quarantine facility and treated.

6. Identities of all other mares & stallions that had been resident at or that had visited the initial facility while CEM_2011_01_01 was resident was established. Several “High risk” and “Low risk” in contact animals were also tested.

ADDITIONAL STALLIONS

1. 15 additional stallions that were present at the initial facility at the same time as CEM_2011_01_01 were tested.

2. Stallions collected on the same day as CEM_2011_01_01 were identified as “High risk” (n=10). One stallion died of AHS.

3. Other stallions collected during CEM_2011_01_01’s stay were identified as “Low risk” (n=5).

4. 1 of the “High risk” cases tested positive (CEM_2011_02_03).

5. Another horse from the same yard of origin as CEM_2011_02_03 was also identified as positive (CEM_2011_02_04).

6. Both these horses were South African born & bred (Could not determine if CEM was introduced by imported Warmblood Stallion or if CEM was already present in South Africa) – Stallion Screening Programme Initiated!!!

ADDITIONAL STALLIONS Cont…

7. During subsequent screening, 5 additional stallions were identified as positive:
   - CEM_2011_03_05 (Gauteng);
   - CEM_2011_04_06 (Gauteng);
   - CEM_2011_05_07 (Gauteng);
   - CEM_2011_06_08 (WCP);
   - CEM_2011_07_09 (Gauteng);

8. 2 of these stallions had been present at the original facility during CEM_2011_01_01's stay.

9. The other stallions had visited the property prior to the arrival of CEM_2011_01_01.

10. These data show that CEM was present, but undetected in South Africa prior to the first positive case being identified in May 2011.

SUMMARY OF SCREENING

Data as of 8h30 on Friday 21 October 2011

Samples Received	=	1477
Stallions Tested	=	845
Owners	=	372
Practices	=	96
Breeds	=	32

CEM Clearance Certificates Issued	=	563

Positive Stallions	=	5 (+3)
Positive Mares	=	(+1)
Suspect Cases (Testing Incomplete)	=	12

Pending	=	265

SUMMARY OF SCREENING

Breed	Tested	Negative	Positive
Arabian	212	131	
Thoroughbred	149	130	
Warmblood	138	99	4 (+4)
American Saddlebred	106	72	
Lipizzaner	55	9	
Boerperd	35	20	
Fresian	29	18	
Welsh Pony	21	15	
Appaloosa	15	11	
Percheron	9	8	
Quarter Horse	9	3	
Welsh Cob	8	4	
Nooitgedacht	8	7	
Hackney Pony	8	5	
Cross Breed	5	3	
Lusitano	4	4	

SUMMARY OF SCREENING

Breed	Tested	Negative	Positive
Irish Sport	4	4	
Irish Draught	4	4	
Celle Francais	3	2	
Part Welsh	3	2	
Hanoverian	3	3	
Anglo-Arab	2		
Arab/Welsh	2	1	
Connemara	2		1
Oldenburg	2	1	
Miniature	2	2	
Flemish	2		
Australian Stock Horse	1	1	
Trakehner	1	1	
Andulusian	1	1	
Shire	1	1	
Clydesdale	1	1	

STALLION SCREENING PROGRAMME

1. The **Stallion Screening Programme continues** as per notification of all relevant stake holders on 10 August 2011.

2. In terms of Section 11 of the Animal Diseases Act, the DAH issued an instruction/order to every owner/manager of stallions that **no stallion may be used or allowed to be used for breeding unless an official CEM clearance certificate has been issued**.

3. The **Instruction/Order letter and accompanying "Procedure Manual – Screening of Stallions for CEM"** were signed on 5 August 2011 and **came into force on 31 August 2011**.

4. All stallions must be **screened twice with negative results on PCR** testing prior to being used for breeding.

5. The screening tests must be **repeated annually between 1 July and 31 September**.

STALLION SCREENING PROGRAMME Cont…

The Stallion Screening Programme is intended to:

a) Determine the **prevalence** of CEM (in stallions) in South Africa.

b) Prevent the disease from becoming endemic (by **eliminating the main route of transmission**).

c) Pave the way for **eradication** of the disease from South Africa.

PRELIMINARY RESULTS - WAY FORWARD

1. The **results** from the Stallion Screening Programme so far are **very encouraging**.
   a) The number of positive cases is lower than expected.
   b) The results indicate that the disease may not be very widespread.
   c) Most of the cases seem to be directly or indirectly linked.

2. Thus, with the help and assistance of all horse breeders, **it will probably be possible to eradicate the disease and again declare South Africa free of CEM**.

3. The Department of Agriculture, Forestry and Fisheries and all the Directorates of Veterinary Services in South Africa are very **grateful for the co-operation** of all horse breeders and veterinarians, as well as the laboratories involved in the diagnostic testing (ARC-OVI and Faculty of Veterinary Science, Equine Research Centre).

4. We also express our sincere gratitude to the Faculty of Veterinary Science, University of Pretoria, for their active and ongoing assistance with the control and documentation of the outbreak – especially Prof. Alan Guthrie, Prof. Martin Schulman and Dr. Kate May.

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