

STRANGLES

Epidemiology and control

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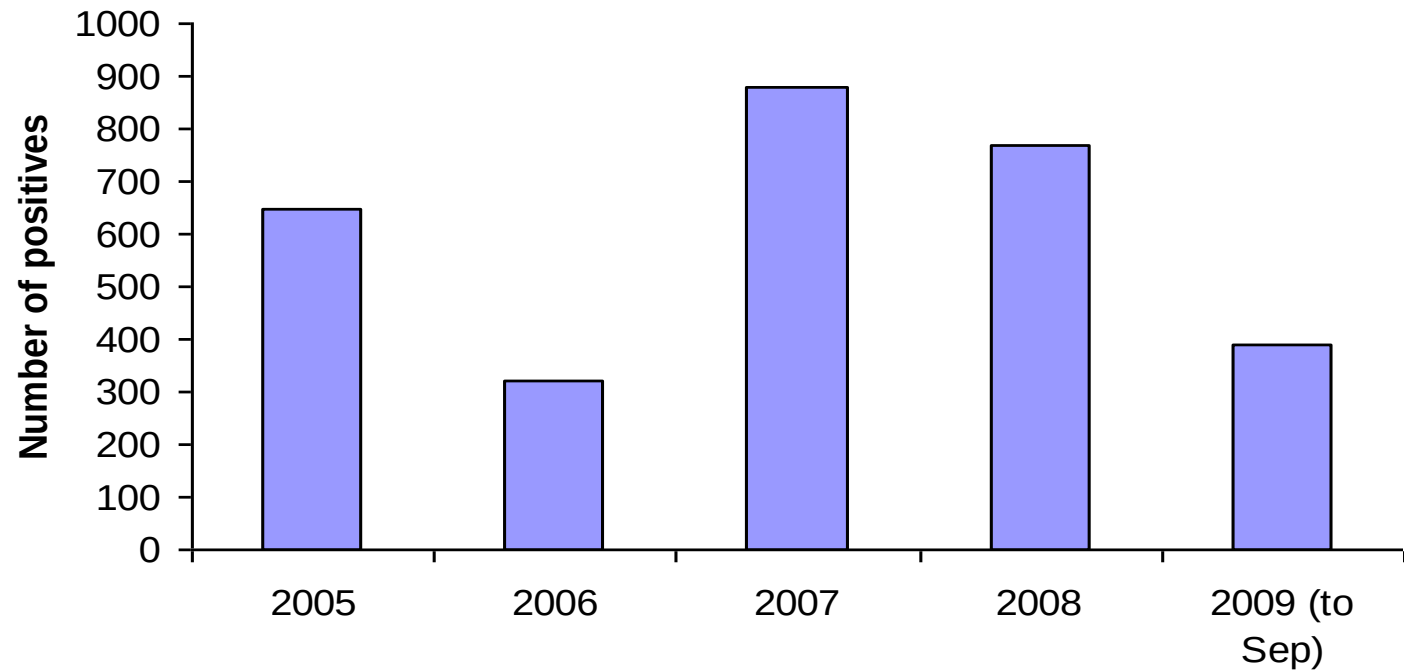


Strangles in horses

- The most important contagious equine disease worldwide
- Infection with the bacterium *Streptococcus equi*
- Respiratory obstruction gives the disease its name
- Infection rates up to 100%
- Case fatality rates up to 10% reported in some outbreaks



Is strangles on the increase?



Respiratory Disease in Africa?

Respiratory disease is important

Ethiopia – 250 horse taxi owners 48% reported respiratory disease

Mid Rift Valley - 79% horse cart owners reported respiratory disease as a major constraint

Andy Stringer - Liverpool



Strangles in Africa?

Little data recorded

Hot dry countries may be less of an issue?

(Big problem in Ethiopia?)

Lesotho – serological evidence suggests 10%

Melissa UpJohn – RVC



Strep equi

Beta haemolytic
streptococci

Gram +ve

Lancefield group C

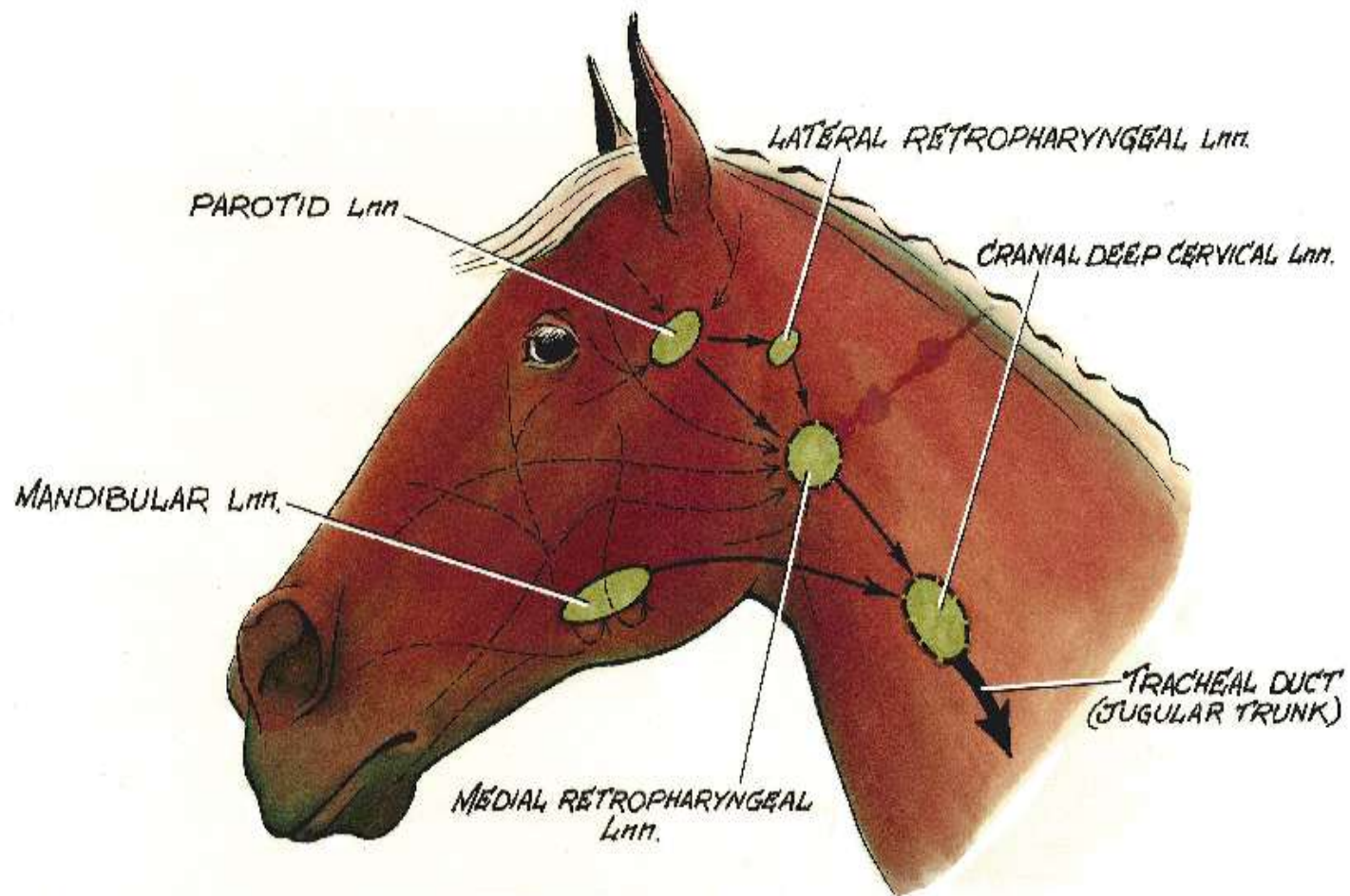
Pyogenic streptococci



Clinical signs of strangles

- Marked 'snotty' nasal discharge
- Fever, loss of appetite & depression
- Lymph node abscessation
 - submandibular, parotid, retropharyngeal
- +/- cough, ocular discharge, conjunctivitis





LYMPH NODES OF PAROTID, MANDIBULAR, AND RETROPHARYNGEAL LYMPHOCENTRES AND CRANIAL PART OF DEEP CERVICAL LYMPHOCENTRE OF HORSE'S HEAD.



Complications of strangles

‘Bastard’ strangles

- Abscessation of lymph nodes & organs beyond the head
- Signs often non-specific
- A cause of ‘strangles’ death



Purpura haemorrhagica

- Immune-mediated disease
- Bleeding and swelling
- Frequently fatal when severe



Transmission of *S. equi*

Spread from obviously sick horses

- Direct & indirect transmission possible
 - Direct horse to horse contact
 - Shared housing, water & feed utensils
 - Tack, equipment, etc
 - Personnel incl. veterinary surgeon
- **Management & hygiene important**



The hidden threat



Spread from outwardly healthy horses

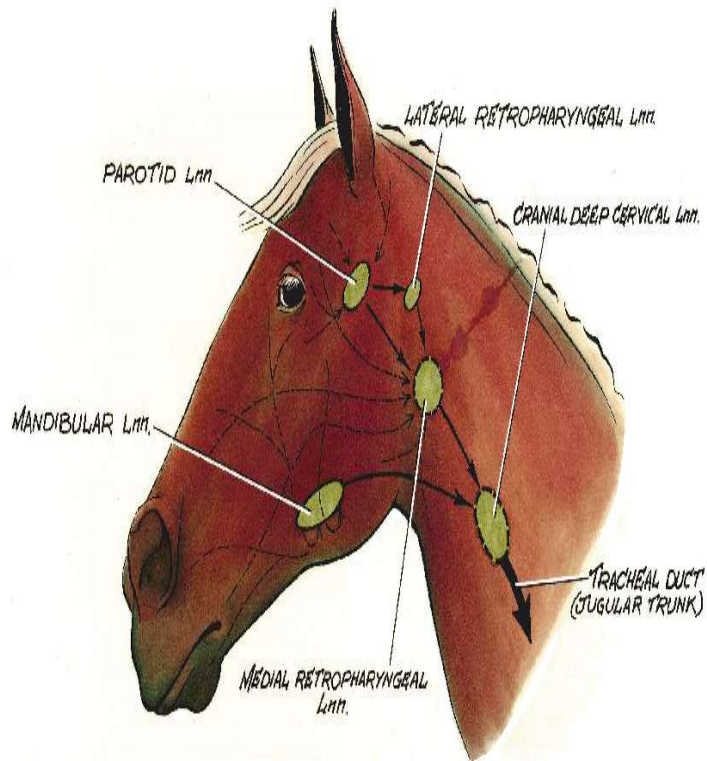
- incubating disease
 - go on to develop clinical signs
- recent convalescents
 - 4-6 weeks after signs have cleared
- long-term, healthy carriers
 - infectious for months or years
 - usually have infected guttural pouch

Captain A.G. Todd: AVC, 1910

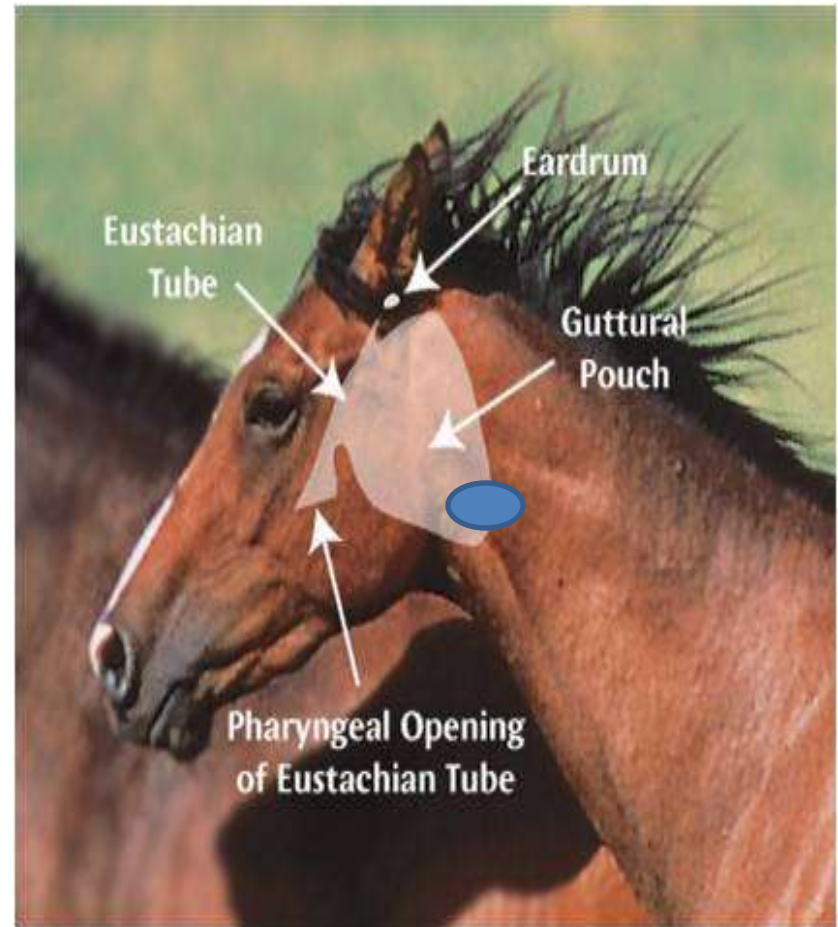
“Strangles occasionally breaks out in stables which have had no recent arrivals & where there has been no contact with infected horses.

An example of this is where remounts have finished their training, are transferred to the squadron stables, & one or two of them will develop the disease.”

Development of the carrier state

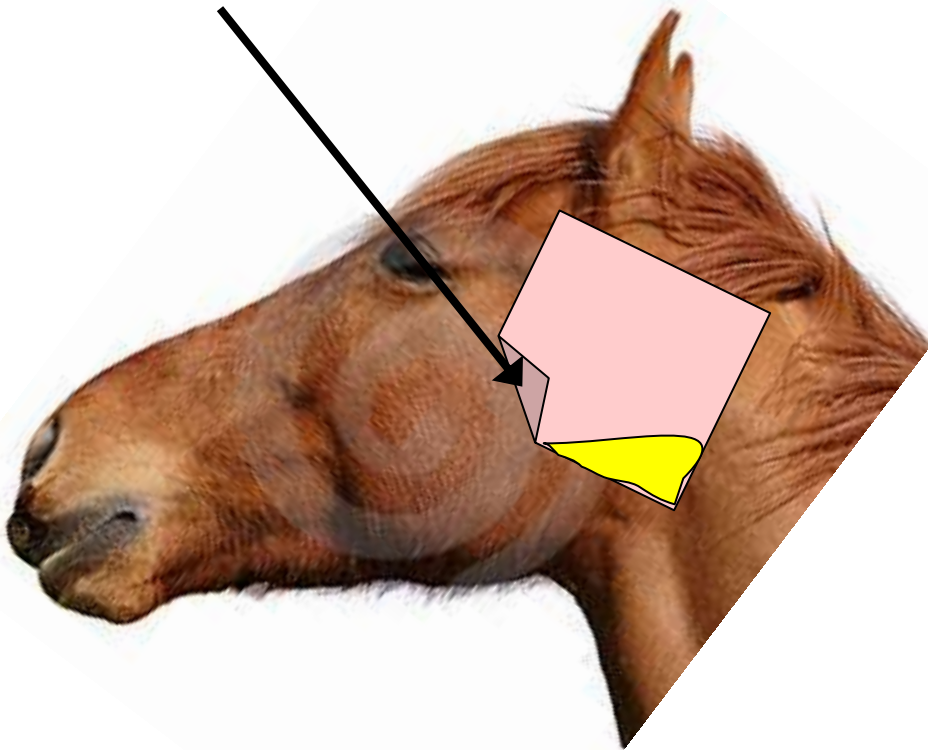


LYMPH NODES OF PAROTID, MANDIBULAR, AND RETROPHARYNGEAL LYMPHOCENTRES AND CRANIAL PART OF DEEP CERVICAL LYMPHOCENTRE OF HORSE'S HEAD.



Guttural pouch drainage

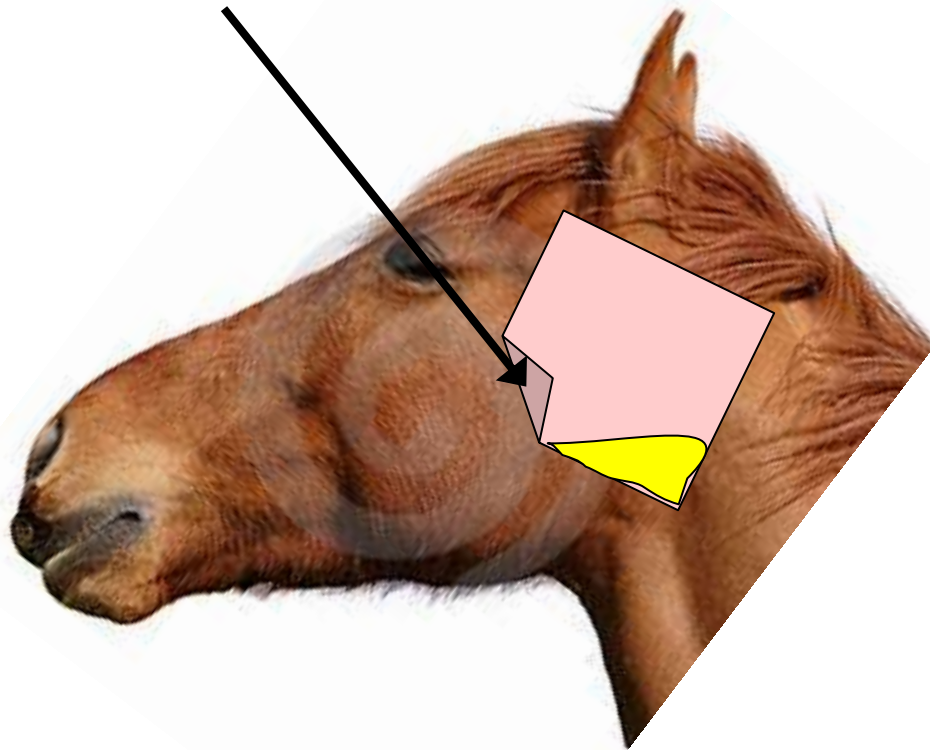
Pharyngeal opening



Head raised

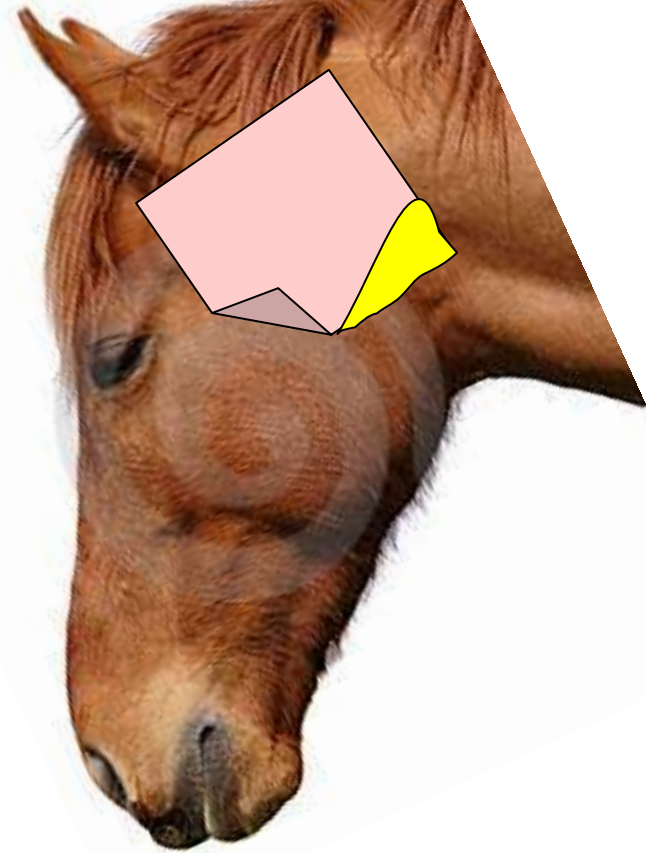
Guttural pouch drainage

Pharyngeal opening



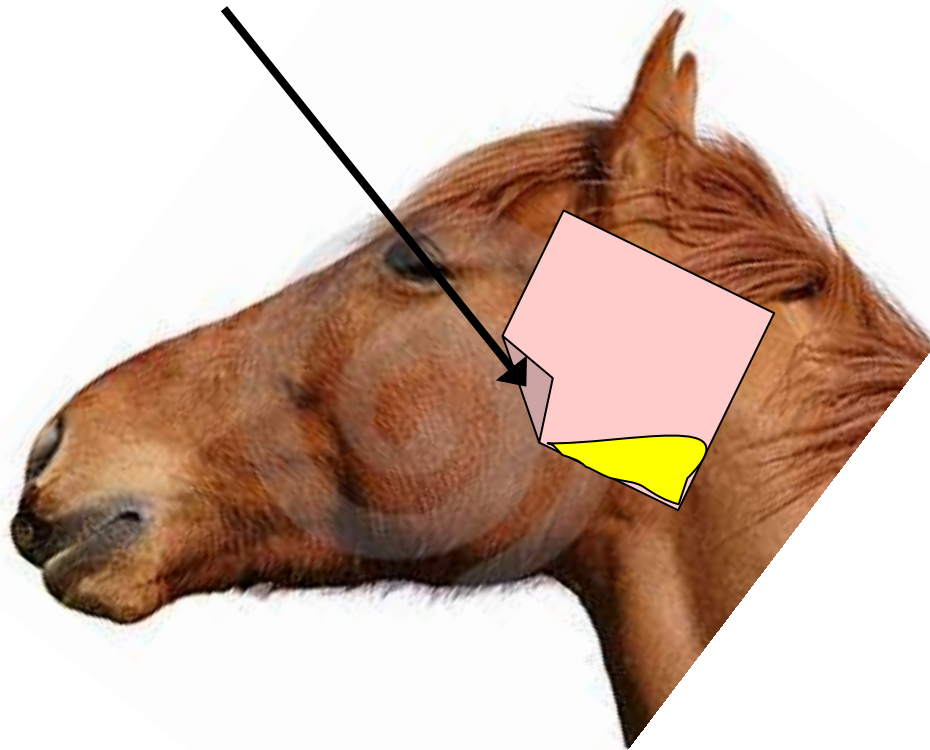
Head raised

Head lowered



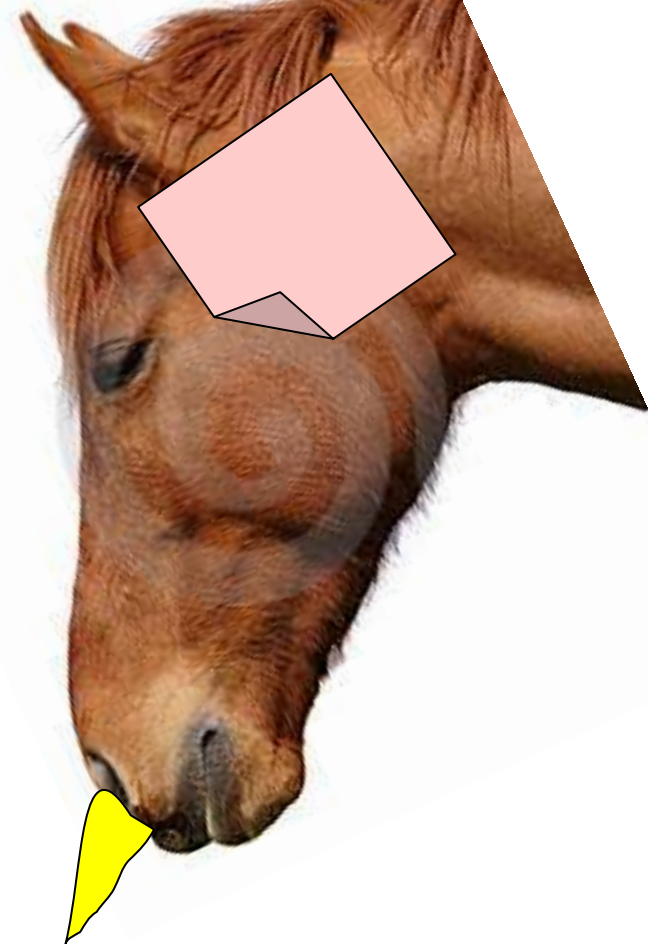
Guttural pouch drainage

Pharyngeal opening



Head raised

Head lowered



Diagnosis

- Clinical signs
- Temperature
- Bacterial culture
- PCR (Animal Health Trust)



Correct use of swabs



Diagnosis of Carriers

3 NP swabs in a two week period

Endoscopy and flushing of the guttural pouches











14.08.2007 16:43





Why do some horses become carriers???



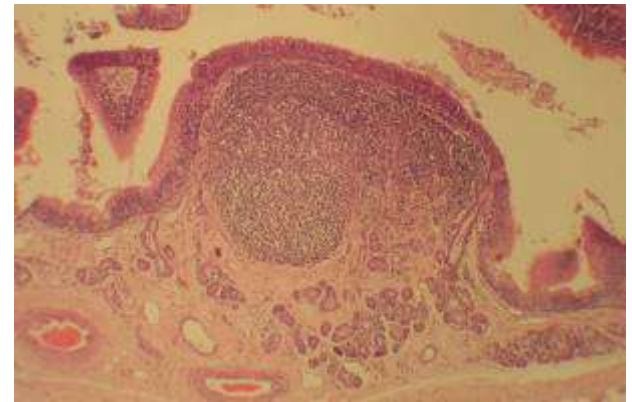
- Immuno-competence of horse
- Genetic component
- Severity of clinical signs
- Prior exposure to *S. equi*
- Inter-current disease / malnutrition
- Use of antibiotics
- Management of horses

Adaptation of *S. equi* in carriers

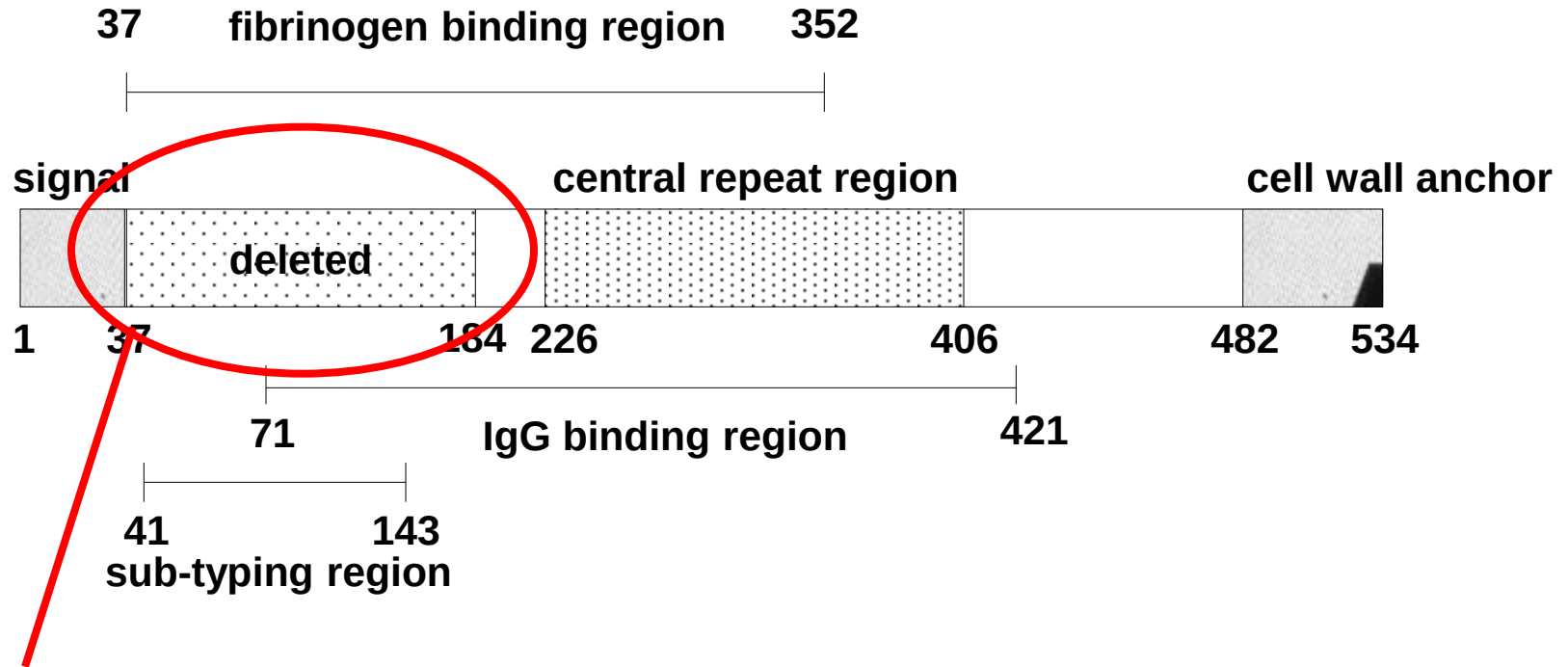


- *S. equi* may persist in the guttural pouch for up to several years

- Sub-clinical inflammation of the guttural pouch epithelium is associated with the presence of chondroids
- May lead to mutations in *S. equi*

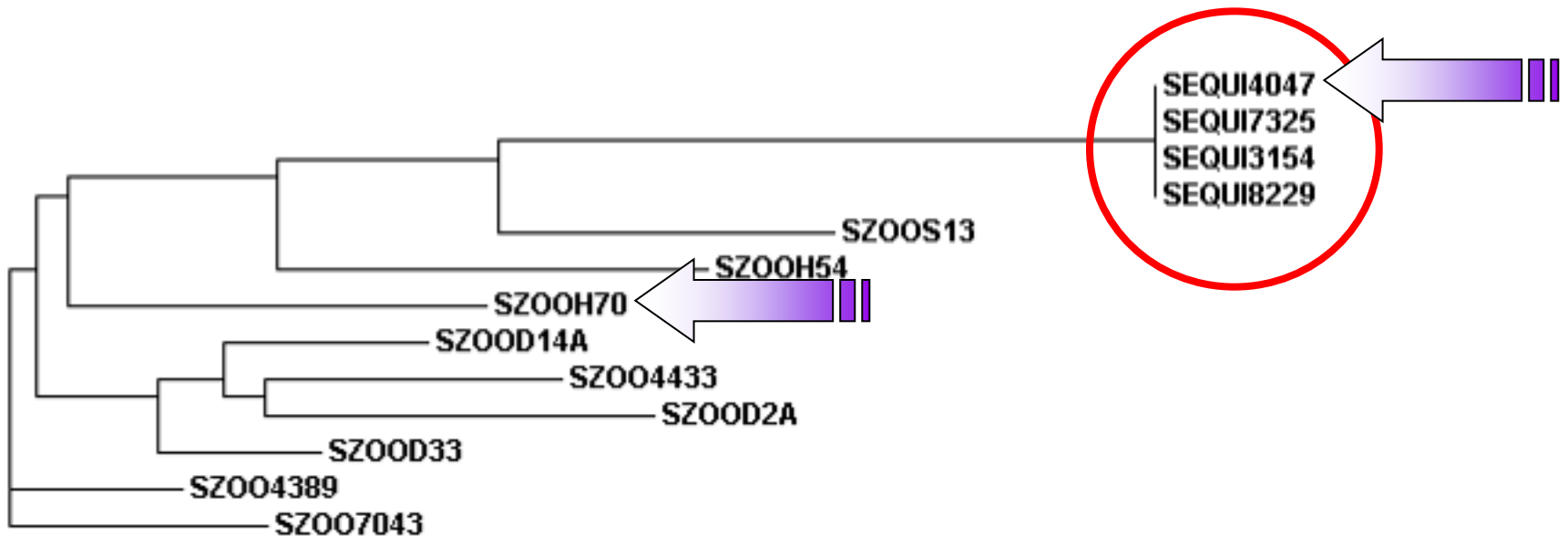


The SeM protein



- Region found to be deleted in 24% of strains causing persistent infections (Chanter et al., 2000)
- Therefore, the SeM gene is **NOT** a good PCR target

- *S. equi* shares over 96% identity with the common equine bacterium *S. zooepidemicus*



Strangles PCR at the AHT

- Targets a gene unique to *S. equi*, which encodes an intracellular enzyme.
- In 2006/2007, of over 700 *S. equi* culture +ve samples all were PCR +ve.
- Can detect *S. equi* in the presence of large numbers of contaminating bacteria.
- Improved sensitivity over culture.

The new 'real-time' strangles PCR

- Exploits the same validated gene target as used in the existing PCR test.
- Improved sensitivity – down to 1 DNA copy.
- Faster sample turnaround.

Serology

(AHT – 2008)

Identifies exposed horses

1)Currently infected

2)Previously infected but now immune

3)Previously infected and still infected (carriers)



Serology

Identifies how far the infection has spread

Identifies potential sources of new infections



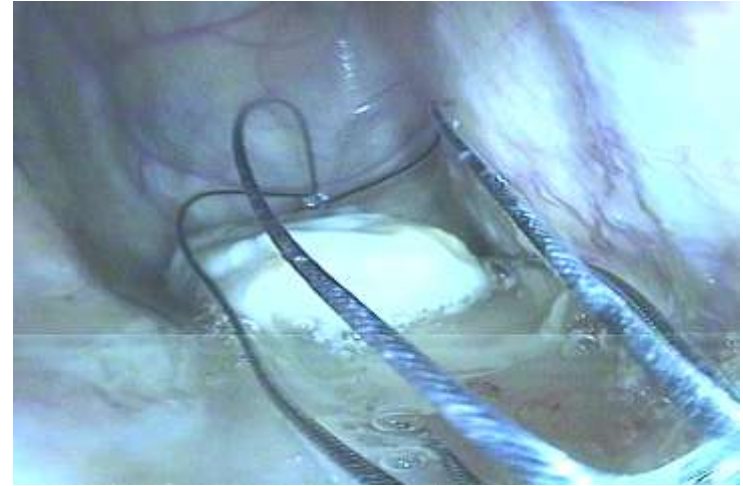
Treatment of strangles

- Adequate rest
- Anti-inflammatories (bute)
- Hot compresses
- Lancing and flushing abscesses
- Fluids / Soft feeds
- Antibiotics



Endoscopy and treatment of carriers

- Physical removal of chondroids.
- Penicillin gel administered into guttural pouches.
- Systemic antibiotics for 2 to 4 weeks.
- Repeat endoscopy and lavage to confirm infection free status



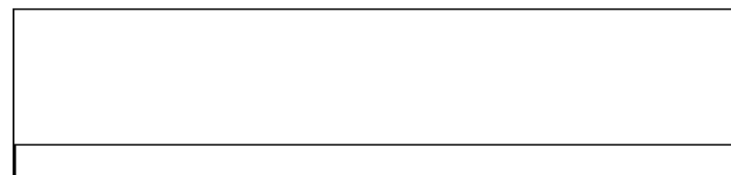
Control of an outbreak



Isolation

- Disinfect or change clothes and footwear
- Dispose of bedding, food, water carefully
- Double bag disposable clothes
- Use approved disinfectant e.g iodine / chlorine based





SCHOOL YARD



ISOLATION



LIVERY YARD

A diagram showing a school layout. At the top is a horizontal rectangle. Below it is a horizontal line with short vertical tick marks at each end. Below that is the text 'SCHOOL YARD'. Below the text is another horizontal line with short vertical tick marks at each end. Below that is a horizontal rectangle containing a red 'X'. To the right of the 'SCHOOL YARD' area is a vertical line. To the right of the vertical line is a horizontal line. Below the horizontal line is a vertical line. Below the vertical line is the text 'ISOLATION'. To the left of the 'SCHOOL YARD' area is a large rectangle. Inside the large rectangle is a smaller rectangle containing the text 'LIVERY YARD'.

SCHOOL YARD

X

ISOLATION

LIVERY YARD

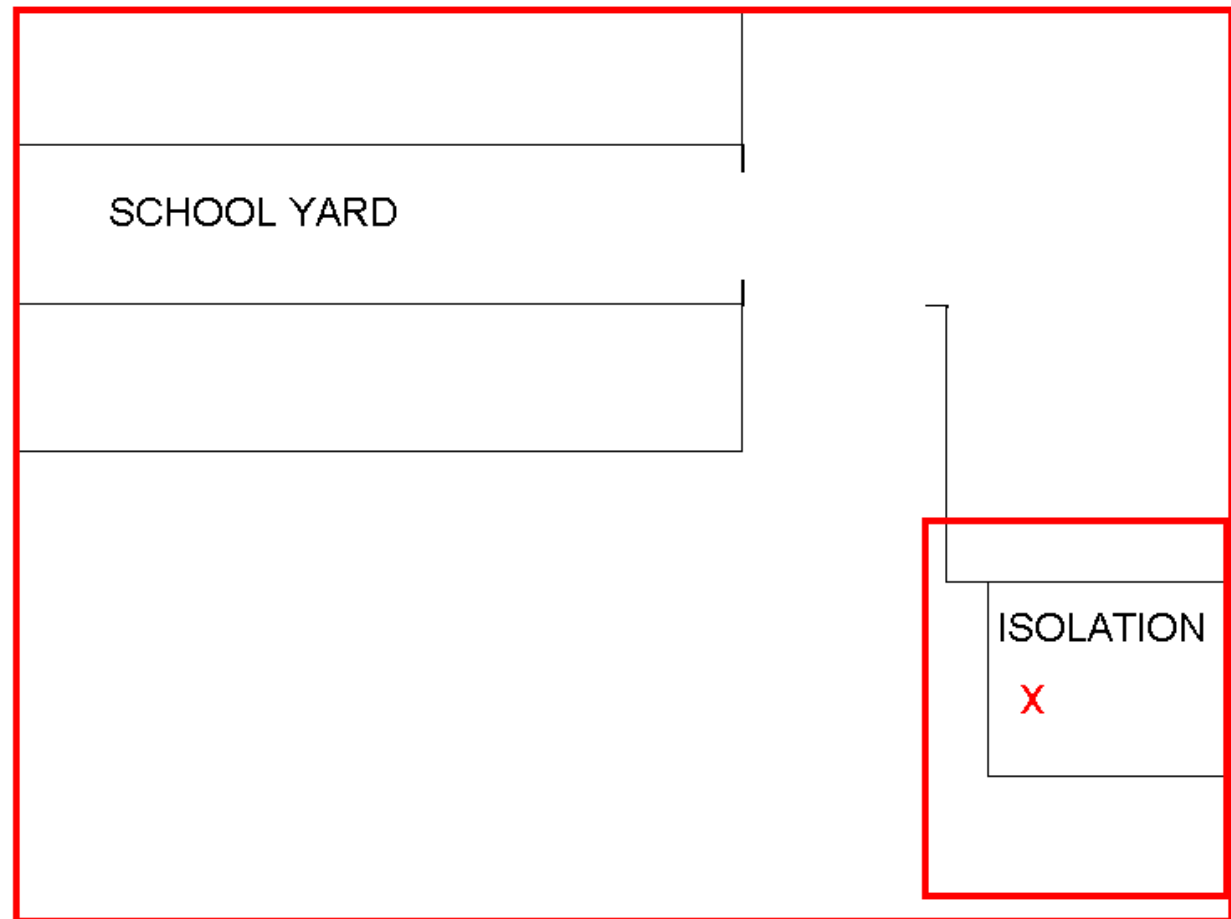
A diagram showing a school layout. On the left is a large rectangle labeled 'LIVERY YARD'. To its right is a horizontal rectangle labeled 'SCHOOL YARD'. Further right is a vertical rectangle labeled 'ISOLATION' with a red 'X' below it. A red rectangle encloses the 'ISOLATION' area and a portion of the 'SCHOOL YARD' to its right. A horizontal line runs across the top of the diagram.

SCHOOL YARD

ISOLATION

X

LIVERY YARD



SCHOOL YARD

ISOLATION

X

LIVERY YARD

Vaccination



Control in Africa

Avoid
unnecessary
contact at
markets
(Animals or
people)

Avoid sharing
tack (head
collars / bits)



Control in Africa

Avoid water
troughs / holes –
use stand pipe and
own bucket if
possible

Isolate new arrivals
(2 to 3 weeks)

Minimise exposure
to young or sick
animals



Acknowledgements

Andrew Waller (Animal
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British Horse Society
(Scotland) **STEPS**

