

**FOCUS ARTICLE: CONTAGIOUS EQUINE METRITIS (CEM) IN NON-THOROUGHBREDS IN MAINLAND EUROPE**

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It is generally agreed that CEM has been eradicated from the Thoroughbred horse worldwide, but is considered to be endemic in other populations in mainland Europe.

In view of this problem, a first international conference on CEM was held in Lelystad (2007). The aim of the conference was to highlight the problems that *Tylorella equigenitalis* can cause to international trade, to discuss new diagnostic methods and the occurrence of *T. asinigenitalis*. The organizers were Peter Heath (VLA, UK) and Hendrik-Jan Roest (CIADC, NL).

According to Ricketts (2007), already 30 years ago it became clear that a carrier state occurred in stallions, teasers and mares and that this was an important mode of transmission. Moreover, lateral spread of infection occurred through veterinary examinations and during teasing of mares. He also pointed out that infected mares often developed an endometritis with a copious vaginal discharge. Nowadays the infection appears to be largely asymptomatic (Ricketts 2007).

All these findings are still valid and important, but today's generations of breeders seemingly are not familiar enough with CEM any more. However, the number of cases, too often only detected in importing countries with a high standard of equine medicine, lets us assume that more carrier mares exist than generally expected.

In Lelystad, both Timoney (2007a) and Devenish (2007) summarized their experience with international trade and technology development in diagnostics. Much of the trade has involved high-priced warmblood stallions and mares. Therefore, Germany was one of the most important trading-partners, both because of the quality and numbers of its stock. According to Boese et al. (2007), German breeding practices rely largely on artificial insemination (AI). For licensing of AI stallions an annual testing for CEM is required, and during the period from 2001-2006, CEM has officially been reported on 6-12 premises per year, with about half of the cases reported on AI stallion studs.

Information on cases in mainland Europe came, among others, from Austria [stallions at the Spanish Riding School (SRS) in Vienna]. Late in 2006, a 3 year-old stallion tested positive in the screen required for export. The following triple screening (PCR and culture method) of all 68 stallions at the SRS revealed 48 (71%) positive results. All Lipizzaner horses at the Federal Stud in Piber were also tested. All 6 stallions used at the stud were negative. While all yearling colts were also negative, 44% of the 50 two-, three- and four-year old colts and stallions and 5 geldings tested positive. *T. equigenitalis* was also detected in 8 non-breeding mares and 2 of the 50 broodmares. Most mares are bred by AI and no clinical signs were observed.

The origin of the infection was not known and *T. equigenitalis* seems to have been endemic in both Vienna and Piber. Transmission appears to have taken place mostly in the stallion groups through direct contact or contamination (Burger and Dobretsberger 2007).

At the International Breeders' Meeting 2008, detailed information was also available from Switzerland, where clinical cases of CEM occurred in 1988 and 1989. In some cases, a connection to imports was evident. Further, in 1994, 1997, 1998 and 1999, routine swabs of three stallions from the Netherlands (1) and Germany (2) and an Accal Tekkenian showed the presence of *T. equigenitalis*. In 2007, a positive swab from a prospective warmblood-stallion from Germany was found on the occasion of a purchase examination. Beside these typical cases of CEM, the original Swiss breed (Freiberger or Franches-Montagnes), was also found to harbour the CEMO. In a routine screening in 2006, a total of six stallions from the Swiss National Stud tested positive by culture and PCR. All six stallions (2 Warmblood and 4 Franches-



Montagnes) were taking part in a research project, and all had tested negative end of July 2005, at the end of the breeding season. In 2006, 2007 and 2008, more male Freibergers tested positive on swabs.

A further limited outbreak was reported in 2008, affecting four non-TB breeding animals on two premises. A Lipizzaner-stallion imported in May 2007 from Hungary had to be examined to be approved for breeding. Other male horses at the same stable were tested too, as it was standard practice at this premises to move horses from box to box while mucking out. A colt and a recently castrated gelding tested positive too. These horses had contact with animals (Pura Raza Espanola) from a neighbouring stable in both the same and an adjoining paddock, among them three entire males, a stallion (9 year-old) and two horses (10 year-old and 5 year-old). The younger horse was also positive.

In 2009, a Poitou-donkey was examined before semen collection and this jack was affected with *T. asinigenitalis* (Meier 2008).

### ***Taylorella asinigenitalis***

At the conference in Holland, Timoney (2007b) also mentioned *T. asinigenitalis*. In late 1997 and early 1998, a previously undescribed bacterium, closely resembling *T. equigenitalis*, was isolated from the semen of a mammoth and the reproductive tract of 2 donkey jacks, a horse stallion and 7 mares, respectively.

Isolations of the bacterium have since been recorded from Sweden and France too. In Sweden, *T. asinigenitalis* has been isolated from the genital tract of a stallion with a natural infection (Baverud and Johansson 2007). This 3 year-old stallion of the Ardennes breed had been imported from the continent and was routinely tested for CEM.

So far, too little is known about the distribution, pathogenesis and clinical impact of *T. asinigenitalis* in equidae. To prevent uncontrolled spread of this germ worldwide, Roest (2007) suggests to handle *T. asinigenitalis* infections equally as *T. equigenitalis* infections.

### **Surveillance**

Summarizing these findings, one gets the impression that CEM can be detected in just about any country and breed in mainland Europe, as long as the horses are examined. This assumption brings us to the delicate subject of surveillance which still poses problems both in human and veterinary medicine. Financial constraints can be a hindrance even in human medicine, as a study from Malani and Laxminarayan (2006) shows. These authors explored the incentives of countries to invest in disease surveillance. They evaluated policy instruments available to encourage countries to detect and report disease outbreaks, including medical assistance to control out-breaks, trade sanctions for non-reporting and assistance in disease surveillance. With respect to WHO policy levers, they found that punitive sanctions may have limited effects against countries that are too poor to suffer any further (Malani and Laxminarayan 2006).

Encouragement for reporting seems to be the best way forward, but to my knowledge, in the equine industry of mainland Europe, almost no financial and even moral support exists. Preventive medicine obviously doesn't earn recognition, probably for the reason that one notices these efforts least when they are carried out best. In the same context, a distinct publication bias may occur. However, the lack of political assistance may also be due to the fact that the popularity of equine sports in public is modest - and seems to get even poorer. Finally, one has to bear in mind that the control of infectious diseases has to embrace the whole population, as such problems develop mainly in less privileged communities.

### **New diagnostic methods**

Both Ricketts (2007) and Timoney (2007) mentioned that CEM has become endemic in the non-Thoroughbred horse population of many mainland European countries due to not implementing screening, treatment and preventive measures.



Nowadays however, PCR tests have been developed internationally and more widespread use of well validated nucleic acid base diagnostic technologies should facilitate detection of the carrier state, especially in the stallion, and mitigate the risk of dissemination of CEM through international trade (Anzai 2007, Boese et al. 2007; Devenish et al. 2007; Ousey et al. (2009); Ricketts 2007; Timoney 2007; Wakeley 2007). All this work is very promising for significant progress in our battle for fighting CEM - if the means are used, of course. These new possibilities let us wonder whether it might be worthwhile to screen semen and breeding stock in mainland Europe.

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