Pathogenesis, diagnosis and treatment of strangles

Though most cases of strangles, caused by *Streptococcus equi equi*, resolve without major complication, some can have severe effects.

Complications seen with *S. equi* infections can be as high as 20 percent (Ford and Lokai, 1980) and can include bastard strangles, purpura haemorrhagica, myositis, muscle infarctions, myocarditis and severe respiratory distress and mortality.

**Shedding**

*S. equi* shedding usually begins two to three days following the onset of pyrexia and can continue for two to three weeks in most animals. This can be longer when there is persistent infection within the guttural pouch or sinus. Following infection, horses can have an extended immunity to the disease, although this can be overcome if the bacterial challenge is very high (Galán and Timoney, 1985).

**Bacterial survival**

A recent study presented at the European College of Equine Internal Medicine Congress in 2017 by A Durham showed that during the summer months, *S. equi* survival appears to be up to seven days in a moist, protected environment, while in the winter, survival in buckets can be as long as 30 days. Thankfully, the bacteria are very sensitive to cleaning and strict biosecurity protocols should reduce the risk of spread.

**Diagnosis**

Routine blood work can be unrewarding as it will generally show a nonspecific inflammatory profile, which can include a neutrophilia, elevated serum amyloid A and decreased systemic iron.

Culture, though widely available and cheap, can have reduced sensitivity and so should not always be relied upon. This can be due to lack of bacteria on the mucosa in acute cases as they have migrated into the tissue, competition with *S. zooepidemicus* as these produce zoocins which kill *S. equi*, or overgrowth by the *S. zooepidemicus* complicating interpretation. Therefore, culture is often indicated alongside the use of polymerase chain reaction (PCR) rather than alone.

PCR detects partial DNA sequences and will generally have a turnaround the same day of submission, giving quick and useful results. Theoretically, the sample can pick up both dead and live bacteria, but in most cases, this is not clinically significant and the cases should be treated as infectious.

Serology, via an enzyme-linked immunoabsorbent assay, is available and can confirm exposure to the bacteria up to six months later.