Vets ignore MRSA warning at peril

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The first international conference on MRSA in animals, in Liverpool, where speakers warned vets not to be complacent, was effective in improving or resolving the infections.

Staphylococcal infections are a major problem in pets, and one of the most common reasons for pets to be treated in veterinary practice is for staphylococcal infection. It is usually Staphylococcus intermedius, but S aureus does cause a substantial number of infections. Through experience, we know these infections are far more difficult to treat.

We do hear from practices that tell us they’ve suddenly had outbreaks in surgical cases, and they need advice. But clearly we need to broaden our ideas and consider this as a much wider problem than just a problem in veterinary practice.

Prof Lloyd first recognised MRSA as a problem in the RCVS in 1997, after a number of cases emerged over a period of weeks.

He said: “It made us realise that MRSA could be responsible for animal infections in veterinary practice.”

“The first case belonged to a hospital surgeon who refused to be sampled, but we suspect that was the source of the organism. The second was a veterinary surgeon who allowed himself to be sampled and was shown to be a nasal carrier of MRSA. We identified one orthopaedic case that was probably infected by him – he didn’t wear a mask – and subsequently we identified one more case, though there were probably others.”

Worldwide picture

A picture emerged that was confirmed by other reports from all over the world, one where surgery, wounds and skin disease played an important part in transmission of MRSA. In the good news, said Prof Lloyd, was that in most cases, oral antibiotic treatment was effective in improving or resolving the infections.

Late in 2002, Prof Lloyd saw more cases, of a chronic chin acne and the other a recurrent acute dermatitis problem. Both were unresponsive to anti-microbial treatment. It was a clue to the involvement of MRSA. He showed the audience a picture of a Staffordshire bull terrier with its terribly infected chin.

“The owner, who worked as manager of the food facilities at a local hospital, is a ‘prone young old daughter’, he said. ‘She’d been hugging the dog, which had had green pus oozing off its face. It had MRSA and pseudomonas infections. I asked the owner to go and to swab, but she never did. It just goes to show how people misconceive the health risks.”

So far, evidence shows that the route of infection is from owners and veterinary staff to animals. There is also evidence of transfer between animals and people – Scott Wesse presented evidence from her practice in Canada, where in-contact veterinary staff were infected by a foal. It’s not clear whether infection is passing between animals.

Human link

What is apparent is the link between human MRSA and MRSA cases in animals. The pre-dominant strain at the RVC was epidemic MRSA-15 (EMRSA-15). Along with EMRSA-16, these two strains were responsible for more than 90 per cent of hospital infections.

MRSA in companion animals, surprisingly, was first described by Matthew Oyo in Nigeria, in 1972.

“After that we heard nothing until 1988, when there was a report of colonisation in a cat, which was used as the ward cat in a hospital geriatric ward,” said Prof Lloyd. “They discovered that the recurrent MRSA they were experiencing seemed to be carried by the cat, and when they got rid of the cat the problem ceased. It was the first real evidence that animals could acquire MRSA and transfer it to people who are suffering if health.”

“Subsequently, we had a report from Cetus and colleagues in 1994 – again from the UK – they were healthcare workers who had a dog and it was linked to recurrent infections in some of their patients. The dog was shown to be a carrier. This has become a trend in evidence showing transfer between animal- and people-made.”

Animal infections increased at the RVC in 2002 and 2004, and in 2003 IDEXX Laboratories identified 92 clinical specimens of MRSA from across the UK.

“This showed us that it wasn’t just a local problem, it was some- thing that was affecting the country as a whole,” said Prof Lloyd. “We also see that it goes on throughout the world – North America, Europe, the Far East and Asia.”

“We’ve reached the point that we worried about when we first started investigating. It’s not just dogs and cats either. It’s horses, rabbits, seals and birds – wherever we look, we seem to be finding MRSA spread.”

Dermatological MRSA

Prof Lloyd’s first case of dermatological MRSA was from a dog with folliculitis caused byMRSA with folliculitis over much of its body. He treated the folliculitis and isolated 5 intermedius which was resolved with cephalexin. When the owner returned in two weeks, all of the lesions had gone except for one small area on the tip.

“I don’t know why I sampled it. Perhaps I’m a bizarre microbiologist,” he said. “It was MRSA. Our lab reported it as 5 intermedius that was resistant to cephalexin and just about everything else. I asked them to check it because it was so unlikely. I’m afraid this is an indicator of what’s happening in many laboratories, because labs think that if it comes from a dog and it’s a coagulase positive Staphylo- cococcus, it must be 5 intermedius. There are time and financial penalties in re-checking, but it’s a problem we have to face.”

“We do clearly have a restric- tion of antimicrobial treatment options in small animal practice,” he said. “We have organisms that are resistant to a wide range of antibiotics and other anti-microbi- als. The good news is that MRSA isolates in the US and Europe are commonly susceptible to oxytetracycline and potentiated oxytetracycline.So systemic treatment is possible. We can also use fusidic acid and mupi- rocin for de-colonisation.”

Long-term studies in large animal groups are now needed to assess treatment.

Ideally, veterinary surgeons should sample every animal for colonisation, said Prof Lloyd, but practices don’t operate under ideal conditions. If practices do receive animals with recurrent infection or have lab results sug- gesting 5 intermedius, which is resistant to antibiotics, then the alarm bells should start ringing.

The RVC hospital is about to be rebuilt to make infection con- trol easier, but a regime where animals are sampled before they are admitted, if there is evidence of recurrent or non-responsive infection, has proven its worth.

“Vets have heard of MRSA, but most don’t know a lot about it,” he concluded. “They need to realise that this is not just a prob- lem with dogs. There are now serious zoonotic implications.”

Hygiene is an overriding con- cern, he added, where Prof Lloyd felt that complacency had crept in.

“We tend to think that if we spray disinfectants, we will remove these organisms. We need to get back to the idea of actually cleaning surfaces. This is some- thing that’s coming through in human medicine and we need to adopt it in veterinary medicine.”

Risk information

The veterinary profession cannot begin to control MRSA without information on the risk factors, he stated. It needs, not only to investigate the extent of colonisa- tion and carry in animals and veterinary practice, but also in the community where poten- tially more virulent strains of community acquired MRSA have been discovered.

“We need to find out whether distinct pet animal clones are arising and being exchanged, not just within the practice but also in the community – at pet shows for instance.”

“Some of these MRSA isolates will survive more in the environ- ment than methicillin-susceptible strains, and they carry genes that promote resistance to the sort of antimicrobials we use in dis- infection,” for veterinary staff just beginning to gather informa- tion on the risks and implications in practice, he recommended the BSAVA guidelines (available on their website at www.bsava. com/resources/mrsa).

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