

Occurrence of methicillin-resistant staphylococci in Veterinary Teaching Hospital, University of Peradeniya

MTA Manathunga¹, HRN Jinadasa¹, DRA Dissanayake²

Introduction and Objectives: Veterinary hospitals are a possible source of methicillin-resistant *Staphylococcus aureus* (MRSA) and methicillin-resistant *Staphylococcus pseudintermedius* (MRSP) transmission. The present study was designed to assess the occurrence of methicillin-resistant staphylococci (MRS) on specific contact surfaces at the Veterinary Teaching Hospital (VTH), University of Peradeniya. Antibiotic resistance profiles of MRS isolates against several other antibiotics was also assessed.

Methods: Twenty-six swabs were collected to represent 11 different operational sites of VTH including the outpatient department [(OPD), n=5], cat examination room (n=2), continuous monitoring unit [(CMU) n=3], vaccination area (n=2), infectious area (n=2), intensive care unit [(ICU) n=3], surgical theatres (n=2), surgical preparation (n=2), post-surgical recovery (n=2), laboratory (n=1) and pharmacy (n=2). Swabs were enriched in 1% tryptone broth with 60g/L NaCl at 37 °C for 24 hours and cultured on mannitol salt agar at 37 °C for 24 hours aerobically. Three *Staphylococcus* isolates per sample were identified by Gram stain, catalase, oxidase, tube coagulase and Voges-Proskauer tests. Oxacillin salt agar method and cefoxitin and other disc diffusion tests were performed according to CLSI guidelines to detect resistance against methicillin and other selected antibiotics. Isolates that were resistant to three or more structurally unrelated antibiotics were considered as multidrug-resistant.

Results: Overall, 78 *Staphylococcus* isolates were recovered. Among those, 17 (21.8%) were identified as MRS. One isolate each of MRSA and MRSP (2.6%, 2/78) was detected. Methicillin-resistant coagulase-negative *Staphylococcus* (MRCoNS) isolation rate was 19.2% (15/78). Most of the MRS (5/17) were isolated from the OPD, followed by similar occurrence (4/17) in vaccination and surgical preparation/recovery areas. Three isolates were from the pharmacy while the remaining isolate was from CMU. The MRSA and MRSP isolates were from the OPD and vaccination areas respectively. No MRS was isolated from the intensive care unit, surgical theatres, laboratory, or cat examination room. The AMR profile of the MRS isolates showed 47% (8/17), 29.4% (5/17), 17.6% (3/17) and 11.7% (2/17) resistance to ciprofloxacin, tetracycline, chloramphenicol, and gentamicin respectively while 47% (8/17) of the isolates, including the MRSA isolate were multidrug-resistant. All MRS isolates were sensitive to trimethoprim/sulfamethoxazole.


Conclusion: MRSA and MRSP levels detected at VTH were relatively low. However, high levels of methicillin resistance among MRCoNS is a concern.

Keywords: MRS, MRSP, MRCoPS, MRCoNS, *Staphylococcus aureus*, Veterinary Teaching Hospital, Antibiotic resistance

¹ Department of Veterinary Pathobiology, Faculty of Veterinary Medicine, University of Peradeniya, Sri Lanka

² Department of Veterinary Clinical Sciences, Faculty of Veterinary Medicine, University of Peradeniya, Sri Lanka

Address for correspondence: Dr. HRN Jinadasa. Telephone: +94777389013 Email: rjinasada@vet.pdn.ac.lk

 <https://orcid.org/0000-0001-8538-782X>