Isolation of Multiple Drug Resistant Enterobacter Agglomerans and Pseudomonas Aeruginosa from Swamp Buffaloes with Conjunctivitis in Nagaland

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Abstract
Conjunctivitis (Pink eye) is often infectious and caused by either bacterial or viral infections. From two cases of conjunctivitis in swamp buffaloes in Nagaland, multiple drug resistant, MDR (ampicillin, gentamicin, nitrofurantoin and cephalixin resistant) Enterobacter agglomerans and Pseudomonas aeruginosa were isolated. Treatment with tetracycline eye drop resulted in cure within three days. Isolation of MDR strains from swamp buffaloes never exposed earlier to antimicrobials is of significance in understanding spread of MDR strains.

Keywords: Swamp buffalo, Conjunctivitis, MDR, Enterobacter agglomerans, Pseudomonas aeruginosa

During veterinary health campaign in Nagaland in 2011-2012 for Mithun and swamp buffaloes, in one of the camp at Maulbum village of Medziphema subdivision of Dimapur District, two cases of acute bilateral conjunctivitis in adult swamp buffaloes were observed with tears running and sticky purulent exudates sticking on eye lids. Swabs were collected from affected eyes and brought to laboratory for bacteriological examination through routine culture technique to find out the causal organism (Singh, 2009; Quinn et al., 1994) and drug sensitivity through disk diffusion method (CLSI, 2006) for effective treatment. However, considering no known exposure of animals earlier to antimicrobials tetracycline eye drop was instilled on the spot in buffalo eyes and also given to the owner of the buffaloes with instruction to instill the same medicine three to four times daily. The buffaloes got complete cure within three days.

In laboratory examination, both Enterobacter agglomerans and Pseudomonas aeruginosa were isolated from both of the eyes of a buffalo while from other buffalo only Pseudomonas aeruginosa were isolated. Both type of the bacteria from both of the buffaloes were sensitive to tetracycline, ciprofloxacin and amoxicillin-sulbactam but were resistant to ampicillin, gentamicin, nitrofurantoin and cephalixin. However, Pseudomonas aeruginosa isolated with Enterobacter agglomerans from one buffalo was sensitive for amikacin but resistant to chloramphenicol. On the other hand all other isolates of Enterobacter agglomerans and Pseudomonas aeruginosa were resistant to amikacin but sensitive to chloramphenicol.

Isolation of bacteria from healthy as well as infected eyes is common from human and animals including cattle and buffaloes (Tantivanich et al., 1988; Ali et al., 2011). Several bacteria could be isolated from conjunctiva of healthy swamp buffaloes (Staphylococcus aureus, Bacillus cereus, Streptococcus spp. and Corynebacterium spp.) but isolation of gram negative bacteria from healthy eyes of swamp buffaloes is rare (Tantivanich et al., 1988). In cattle also about 75% conjunctiva were found infested with gram positive bacteria similar to those isolated from swamp buffaloes, besides, isolation of gram negative bacteria (Moraxella bovis, Escherichia coli, Pseudomonas spp., Klebsiella spp., Proteus spp.) could be isolated from 24.7% conjunctiva (Ali et al., 2011). Although Enterobacter agglomer-
ans and Pseudomonas aeruginosa are among the common causes of conjunctivitis in human beings (Bottone and Schneierson, 1972; Ben-Tovim et al., 1974; Sowka et al., 2001) they have not been reported to cause conjunctivitis in swamp buffaloes.

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References