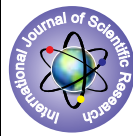


Arcanobacterium Haemolyticum Induced Pyothorax in Swine



Veterinary Science

KEYWORDS : *Arcanobacterium haemolyticum*, lung abscess, biochemical tests, histopathology

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ABSTRACT

The present paper deals with isolation and identification of Arcanobacterium haemolyticum from lung abscess of Large White Yorkshire female pig carcass which was showing symptoms of respiratory difficulty. Identification of the organism was done based on the colony morphology, Gram staining, biochemical tests. Histopathological examination of lung was also performed. After confirmation the organism was subjected to antibiotic sensitivity test.

Introduction

Arcanobacterium haemolyticum, a slowly growing Gram-positive bacillus, has been reported as an infrequent cause of peritonsillar abscess, pharyngitis, and tonsillitis in children and young adults. The organism has been isolated from patients with chronic skin ulcers, soft tissue infections, deep tissue abscesses, meningitis, pneumonia, endocarditis and bacteraemia. It was first described by MacClean et al. in 1946 from US servicemen and peoples of the South Pacific suffering from sore throat (MacClean et al., 1946). There are some reports suggesting the involvement of animals as one of the risk factors (Parija et al., 2005). Man is thought to be main reservoir host. *Arcanobacterium* infection of animals is very rare. In the present study, isolation and identification of *Arcanobacterium haemolyticum* from lung abscess in a large white Yorkshire female pig carcass is discussed.

CASE HISTORY AND PM LESIONS

Large white Yorkshire female pig was brought to Department of Veterinary Microbiology for postmortem examination. The animal was reported to show respiratory difficulty for a few days before and died. Postmortem was conducted and samples were collected for microbiological and histopathological examination.

Materials and methods

The pus collected from lungs was inoculated into Brain heart infusion (BHI) agar and 5% bovine blood agar and MacConkey agar. Plates were incubated for 48 hours at 37°C in a candle jar. Identification of the organism was done based on colony morphology, staining characters and biochemical tests. The susceptibility of the organism was tested *in vitro* by diffusion method. Lung sample was isolated for histopathological examination.

Results and Discussion

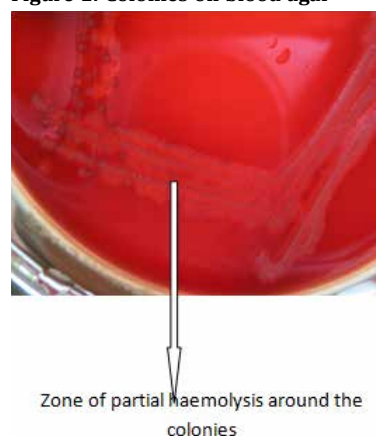
Arcanobacterium haemolyticum is a Gram-positive bacilli with Chinese letters arrangement. Growth is enhanced in blood and by carbon dioxide. It is a catalase-negative, aerobic, beta-haemolytic, nonmotile rod that may be misidentified as *Streptococcus* species, *Corynebacterium* species, or *Arcanobacterium pyogenes*. Microscopic morphology differentiates *A. haemolyticum* from *Streptococcus* species; beta-haemolysis and absence of catalase from *Corynebacterium* species; and failure to hydrolyse gelatin from *A. pyogenes* (Constantiniu et al., 2001).

Minute, translucent, non-pigmented colonies with a small zone of clear hemolysis was observed on 5% bovine blood agar after 48 hours of incubation. BHI agar revealed pale pinpoint colonies at same time point. There was no growth on MacConkey agar. The organism was found to be non motile and non acid fast. Microscopic observation of the Gram stained smear of the organism revealed pleomorphic Gram positive coryneform bacteria. Catalase, Voges-Proskauer, nitrate reduction, gelatin hydrolysis and urease tests were negative.

On post mortem examination the lung revealed multiple abscesses of size varying from 5cm to 15cm diameter. Abscesses were distributed in left diaphragmatic, right apical and diaphragmatic lobes. The caseous material in the abscess of right apical lobe was extending to the tracheal lumen. Liver was pale brown in colour. Histological examination revealed heavy mononuclear infiltration in the lungs. Abscess capsular area is also infiltrated by mononuclear cells.

Based on the hemolytic pattern, staining character, catalase reaction, other biochemical tests and histological examination, the isolate was identified as *Arcanobacterium haemolyticum* (Constantiniu et al., 2001, Hassan et al., 2009). The isolate was found to be sensitive to Ampicillin, erythromycin, ceftriaxone, gentamicin, and enrofloxacin.

Figure 1: Colonies on blood agar



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