

Case Report

Critical Pertussis in a Young Infant Requiring Mechanical Ventilation

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Pertussis may likely be misdiagnosed in its initial or catarrhal phase as a common respiratory infection. The earlier diagnosis of pertussis really depends on the capability of the medical professional especially in the first line public health services. The lack of awareness in diagnosis of severe pertussis as one of the causes of severe respiratory problems may likely misdiagnose pertussis as respiratory failure or even septic shock. In fact, pertussis may manifest as a critical pertussis which can be fatal due to the respiratory failure that require pediatric intensive care unit using mechanical ventilation. We reported a confirmed pertussis case of a 7-week-old female infant referred to our tertiary hospital with gasping leading to respiratory failure and septic shock requiring mechanical ventilation, aggressive fluid therapy, and antibiotics. Pertussis was diagnosed late during the course of illness when the patient was hospitalized. Improvement was noted after administering macrolide which gave a good response. *Bordetella pertussis* isolation from Bordet-Gengou media culture yielded positive result.

1. Introduction

Pertussis can affect infant, children, and adolescence, but mostly children younger than 10 years [1]. In 2004, 35 percent cases occurred in the 10–14 year age group and only 18 percent cases in infants which reported an increase in infants group in 2005 [2].

Manifestation in infants is usually catastrophic. Severe pertussis leads to critical pertussis may manifest fatal for infants under three months of life because the symptoms may present themselves as other causes of illness such as sepsis, very severe pneumonia, and encephalopathy, which may result in respiratory and cardiovascular disturbances [3].

In reality, infection due to *Bordetella pertussis* (*B. pertussis*) can mimic other respiratory pathogens infection such as *respiratory syncytial virus* (RSV), adenovirus, rhinovirus, parainfluenza virus, *Mycoplasma pneumonia*, and *Chlamydia pneumonia*, so it is nearly impossible to distinguish them without microbiological confirmation [4]. This happens due to the nonspecific symptoms in early catarrhal phase and/or doctor's unawareness of pertussis diagnosis. It was reported

that all pertussis cases that were diagnosed in Hasan Sadikin General Hospital during 2008–2010 were first diagnosed as severe bacterial pneumonia [5]. A child with severe probable pertussis may require care in the intensive care unit when apnea, very severe pneumonia, or respiratory failure along with circulation disturbance occurs. In the United States, the morbidity caused by pertussis in the pediatric intensive care unit was reported in about 1.5–8% [6]. The severity of pertussis, and the rapidity of its progression in young infants are affected by a number of factors such as the presence of transplacentally acquired maternal antibodies to *B. pertussis*, the infectious dose of bacteria that the infant receives, coinfection with respiratory viruses and perhaps genetic factors related to the pathogen or the infant, the source of pertussis which is usually is a household contact (most often the mother), and immunization status [7]. A confirmed pertussis diagnosis is so difficult which leads World Health Organization (WHO) and Center of Disease Control and Prevention (CDC) to define pertussis cases as probable and confirmed [8, 9]. Lower result of Bordet-Gengou media for *B. pertussis* isolation was reported with