

Diagnosis of pertussis “ the cough of 100 days”

Clinical (this is the method of diagnosis in PNG)-

- CHILD- characteristic chronic paroxysmal cough with inspiratory whoop, post-tussive vomiting, apnoeas in young infant, subconjunctival haemorrhage and other complications
- Fulminant pneumonia may occur in a child < 6mths
- OLDER- may just have chronic cough

Microbiology-

- Polymerase chain reaction (PCR) test of a nasopharyngeal swab or throat swab specimen. PCR is an important diagnostic technique to read about. For an animation that shows you how it works , see <http://www.maxanim.com/genetics/PCR/PCR.htm> .
- Culture used to be done on special medium; slow growing bacterium. Culture far less sensitive than PCR.
- Serology not very useful

A FATAL CASE IN NEWCASTLE-

- 10 week infant
- 4 days: runny nose, fever, lethargy, mild cough
- respiratory failure, extensive CXR changes
- death in hospital

Child was thought to be infected by an infectious grandparent.

Questions for your reading:

- What is the differential diagnosis of chronic cough in an infant or an adult?
- What is the vaccination schedule for children in PNG and when do children receive pertussis immunisation?
- How effective is pertussis vaccination? How quickly does it wear off as a child grows older?
- Read about conjugate pneumococcal vaccination and its impact (below). Planning is occurring to implement childhood vaccination in PNG.
- What is the difference between a conjugate vaccine and a polysaccharide vaccine in terms of the immune response and protection provided?

Further reading

1. <http://www.cdc.gov/pertussis/clinical/disease-specifics.html> Centers for Disease control
2. Pneumococcal vaccination with conjugate vaccine- have a look at these reference abstracts :
 - Impact in the USA <http://www.ncbi.nlm.nih.gov/pubmed/21264063>
 - Cost-effectiveness <http://www.ncbi.nlm.nih.gov/pubmed/20815900>
3. Pertussis outbreak paper from PNG P N G Med J. 1977 Jun;20(2):66-70. Childhood pertussis and pneumonia admissions in the highlands of Papua New Guinea. Eastman AM.

Abstract

During a pertussis epidemic, the majority of children admitted with respiratory disease were under one year old and had pneumonia, with or without pertussis syndrome; heart failure was common. A greater proportion of those with 'pneumonia alone' were slightly older, were malnourished, were admitted earlier and recovered slightly faster than those who had 'pertussis with pneumonia'. Differential white cell count was of little help in diagnosis and chest X-ray findings seldom altered management. Eight percent of the pertussis and 3 percent of the pneumonia groups died: all had pneumonia and additional complications, and 71 percent of those who died were under one year of age. Results suggest that two or more infections of triple antigen may protect some children from an attack of pertussis so severe that hospital care would be needed.