A measles outbreak in the Whitsundays, Queensland: the shape of things to come?

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Abstract

This report describes a small outbreak of measles that occurred in the Whitsunday region, north Queensland, in July to August 2002. With one exception, all the cases were deliberately unvaccinated because their parents were conscientious objectors to vaccination. It is suggested that this pattern of measles outbreaks, with most cases being not preventable because of conscientious objection, will become increasingly recognised in the future. Commun Dis Intell 2002;26:589–591.

Keywords: measles, disease outbreak, surveillance, vaccination

Introduction

Epidemiological and virological studies provide compelling evidence that measles is no longer endemic in Australia, and that indigenous transmission ceased several years ago.1,2 As a consequence recent outbreaks of measles in Australia have several common characteristics: they are usually initiated by an imported case, they mainly involve young adults, and they can be of moderate size.3,4

A recent outbreak of measles in north Queensland, although initiated by an imported case, had otherwise different features which may become more characteristic in measles outbreaks in the future.

Methods

Measles cases were defined according to national guidelines.5 Responses to cases, especially in health-care and child-care settings, were as described in the national guidelines.5

Measles virus RNA was detected in clinical samples by reverse-transcriptase polymerase chain reaction (PCR),2 and genotyping was undertaken by comparison of the nucleotide sequence to reference strains.6

Results

The index case

In late July 2002 the Tropical Public Health Unit was notified by a general practitioner at Airlie Beach in the Whitsunday region, (approximately 140 km by road north of Mackay, north Queensland), of a 4.5-year-old child with a very typical measles presentation. The child, a local resident, was unvaccinated, as her parents were conscientious objectors to immunisation. There were no siblings. Measles RNA was detected by PCR on both a throat swab and urine taken on the first day of the rash.

The child went to a gym class, visited the local shopping complex and attended (full-time) the local preschool for 2 days, all whilst infectious. She had contact with approximately 20 children aged 6–14 years at the gym, and approximately 40 other children at the preschool.

The imported case

During the index case’s exposure period a family of four was staying in the child’s household. The family was from Europe and had apparently spent a week in Thailand before arriving in north Queensland.
There was a 16-year-old female in the family; she became unwell 3 days after arriving in the Whitsunday region. She undertook several popular tourist activities locally whilst unwell, and went on several local shopping trips as well. She eventually saw a general practitioner 5 days after her onset, and because she felt worse presented to a hospital emergency department a day later. Although fever, conjunctivitis and a ‘generalised dense, florid maculopapular rash’ were documented in the hospital notes, measles was not considered in the diagnosis. No diagnostic tests were performed.

The family travelled by bus to Cairns 9 days after the onset of illness in the 16-year-old, then on to New Zealand by air. They were not able to be located for interview.

**Other outbreak cases**

A total of seven locally acquired cases, in two generations of transmission involving four families, were recognised (Figure). The 16-year-old visitor also apparently infected a 19-year-old female working in the local shopping complex, and a 14-year-old male from New South Wales visiting the Whitsundays where he too went shopping. Measles RNA was detected by PCR on samples taken from the 19-year-old, and serum from the 14-year-old was measles IgM positive. Neither teenager had been vaccinated as their respective parents were also conscientious objectors to vaccination.

The 4.5-year-old child infected an unvaccinated 11-month-old child who went to the same supermarket at the same time as the younger child. Although this case was not able to be laboratory confirmed as the mother declined venipuncture, he was classified as an epidemiologically linked case.°

The 19-year-old infected her 17-year-old sibling, despite the latter having received the appropriate volume (10 mL) of immunoglobulin intramuscularly on day six following exposure.5 This sibling’s illness was also confirmed by PCR. The 14-year-old visitor infected his two siblings upon returning to New South Wales; measles RNA was detected in both siblings.

**Genotyping**

The infecting measles virus was identified as belonging to genotype D5. Sequencing showed that there was 100 per cent sequence homology in the viruses from the five PCR positive cases.

**Discussion**

Measles is now a rare disease in Australia,1 indeed, the index was the first confirmed case in north Queensland since October 2000. This rarity has paradoxically created a problem for surveillance, and therefore control, in that many doctors are now not recognising the disease. Not only do younger doctors have little experience with the disease,7 but also (as happened with the imported case) some older doctors no longer recognise the clinical manifestations of the disease.

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**Figure. Schema of measles outbreak in the Whitsundays, Queensland, 2002**
Conscientious objection ‘began with the first vaccinations, has not ceased, and probably never will’. However, the prevalence of conscientious objection to vaccination could increase with time. However, there is no ready ‘solution’ to this ‘problem’, and certainly calls for compulsory vaccination would be inappropriate. Nevertheless, it is appropriate to ensure that children of parents who do not conscientiously object to vaccination are able to be vaccinated in as convenient and efficient a manner as possible so as to achieve the highest possible levels of vaccine coverage.

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References


Refining the public health response to primary meningococcal conjunctivitis

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Abstract

Primary meningococcal conjunctivitis (PMC) is accepted as an uncommon condition. This report describes two recent cases of PMC in newborn infants in a hospital nursery. In both cases the organisms identified were non-groupable strains of *N. meningitidis*, considered to be of low pathogenic potential. Both infants received systemic therapy and recovered without sequelae. The Guidelines for the early clinical and public health management of meningococcal disease in Australia recommend the notification of PMC to public health authorities and chemoprophylaxis of contacts. However, our 2 cases suggest that the guidelines should allow for an assessment of risk in determining the public health response. This assessment should include the severity of the conjunctivitis and the serogroup of the *N. meningitidis* isolate. Commun Dis Intell 2002;26:592–595.

Keywords: meningococcal conjunctivitis; Neiserria meningiditis

Introduction

Primary meningococcal conjunctivitis (PMC) is accepted as an uncommon condition, although the true incidence is unknown as most patients presenting with acute conjunctivitis receive antibiotic treatment empirically and recover without the collection of conjunctival exudate for culture. A review of 1,030 children with acute bacterial conjunctivitis, presenting to a hospital emergency department in Spain, found pure and abundant growths of *N. meningitidis* in conjunctival exudate in only 21 children (2% of cases).1 A similar incidence of 2 per cent has been reported in a British paediatric accident and emergency department.2 Another series, however, suggests a lower figure, identifying *N. meningitidis* in only one case from 126 children presenting to an outpatient department, with acute conjunctivitis.3 Amongst 63 reported cases of PMC where serogrouping was performed (adult and paediatric cases) Barquet *et al* report that 34.9 per cent belonged to serogroup A, 44.4 per cent to serogroup B, 14.3 per cent to serogroup C, and 6.4 per cent were not groupable. In Australia however, serogroup A disease is rare, so the ability to generalise the results of this international review to our population must be questioned.


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