

Letter to the Editor

Increased risk of chronic suppurative lung disease after measles or pertussis in non-vaccinated children**Abstract**

We retrospectively analysed 23 children originating from Campania – Southern Italy – with recurrent pneumonia and chest high-resolution computed tomography (HRCT) proven bronchiectasis. In six patients (26%) who had not undergone measles or pertussis vaccination, recurrent pneumonia started after an episode of lower respiratory tract infection complicating pertussis ($n=2$) or measles ($n=4$), contracted at a mean age of 3.6 years. Thirty-three percent (2/6) and 67% (4/6) of the patients had bilateral or monolobar disease, respectively, while in two subjects (33%) bronchiectasis were found in all lobes. These findings indicate an increased risk of developing bronchiectasis after measles or pertussis. © 2006 Elsevier Ltd. All rights reserved.

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To the Editor

We read with interest the paper by Ciofi degli Atti et al. on the assessment of measles incidence and complications during the 2002 outbreak in Campania, Southern Italy [1]. Their findings prompted us to report the results of a retrospective analysis made on 23 children originating from Campania with chest high-resolution computed tomography (HRCT) proven bronchiectasis. All patients were referred to our Department over 6 years (1994–2000) because of persistent or recurrent cough. All met criteria for recurrent pneumonia, defined as at least 2 pneumonia episodes in 1 year or more than 3 at any time [2], and underwent HRCT as a part of their routine follow-up at a mean age of 9.7 ± 1.9 years. In six patients (26%) who had not undergone measles or pertussis vaccination, recurrent pneumonia started after an episode of lower respiratory tract infection complicating pertussis ($n=2$) or measles ($n=4$), contracted at a mean age of 3.6 years. Sweat test and cystic fibrosis gene mutation analysis, nasal brushing for ciliary structure, serum immunoglobulins *plus* IgG subclass determination, and purified protein derivative for tuberculosis were normal or negative. Thirty-three percent (2/6) and 67% (4/6) of the patients had bilateral or monolobar disease, respectively, while in two subjects (33%) bronchiectasis were found in all lobes. Sputum cultures at HRCT detected no organisms in 2 cases (33%). *Pseudomonas aeruginosa* was most frequently detected (33%). One boy unresponsive to medical treatment underwent middle lobe resection, and

one girl with bilateral bronchiectasis developed progressive respiratory failure and was eventually referred to a Lung Transplantation Service.

Bronchiectasis may develop as late sequelae of pneumonia [3], but it is still unclear why some patients develop permanent damage leading to bronchiectasis, while some others do not.

Pneumonia can occur as a complication in 5 and 2–27% of pertussis and measles, respectively [4,5]. Measles virus likely renders children more susceptible to other viruses that may cause bronchiectasis and functional impairment [6]. Bronchiectasis has been reported to complicate also pertussis [7].

In Italy, historically low vaccine coverage rates for measles and pertussis resulted in high incidence rates of both diseases [8]. The Campania large 2002 measles epidemic was attributed to inadequate vaccination coverage since in 2001 estimated coverage for the Campania 1998 birth cohort was 65% [9]. Fifty-three percent of hospitalized cases developed complications, and 28% of these had pneumonia.

In our opinion, the epidemic of measles and of its related respiratory complications in a developed country, combined with the finding that bronchiectasis can occur as a complication of recurrent pneumonia, reinforce the conclusion drawn by Ciofi degli Atti et al. that the primary measure to prevent outbreaks should be very high population immunity, as also recently suggested in communities with high population density and household crowding [10].

Substantial questions to Health Authorities should also include:

1. Are pediatricians actually aware of the risk of the development of even severe chronic suppurative lung disease after measles or pertussis?
2. In a cost-effective analysis, should the expenses from non-medical interventions for chronic suppurative lung disease such as thoracic surgery or even heart–lung transplantation be balanced against the economic burden of vaccination campaigns against measles and pertussis?
3. Must we expect the 2002 Campania outbreak to be followed by chronic respiratory symptoms over next years?

References

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Silvia Montella

Sara De Stefano

Francesco Sperli

Federico Barbarano

Francesca Santamaria*

Department of Pediatrics, Federico II University,

Via Pansini 5, 80131 Naples, Italy

* Corresponding author. Tel.: +39 081 7463495;

fax: +39 081 5451278.

E-mail address: santamar@unina.it

(F. Santamaria)

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