Cough swabs should not be used to isolate non-tuberculous mycobacteria in children with cystic fibrosis

Table 1 Comparison of NTM growth on different respiratory samples in six children with cystic fibrosis

Patient	Age 1st cultured (years)	Gender	Date (month and year)	Sample	NTM growth	Other bacteria
1	3.2	M	01/2010	Cough swab	No growth	P aeruginosa
			03/2010	BAL	M abscessus	
			05/2011	Cough swab	No growth	
			11/2011	Sputum	M abscessus	
2	11.4	F	08/2010	Sputum	M abscessus	MRSA
			10/2010	Cough swab	No growth	
			02/2011	Sputum	M abscessus	
3	10.8	F	02/2010	Cough swab	No growth	P aeruginosa
			02/2010	Sputum	MAI	
			05/2010	Cough swab	No growth	
			09/2010	Sputum	MAI	
4	13.1	F	01/2009	Sputum	M abscessus and M chelonae	S aureus
			04/2009	Cough swab	No growth	
			05/2009	Sputum	M abscessus and M chelonae	
5	14.2	M	11/2010	Sputum	M abscessus	Nil
			04/2011	Cough swab	No growth	
			04/2011	Sputum	M abscessus	
6	11.0	M	02/2010	Sputum	MAI	P aeruginosa and S aureus
			03/2010	Cough swab	No growth	
			05/2010	Sputum	MAI	
			08/2010	Cough swab	No growth	
			10/2010	Sputum	MAI	

BAL, bronchoalveolar lavage; F, female; M, male; M abscessus, Mycobacterium abscessus; MAI, Mycobacterium avium intracellulare; MRSA, methicillin-resistant Staphylococcus aureus; NTM, non-tuberculous mycobacterium; P aeruginosa, Pseudomonas aeruginosa.

Non-tuberculous mycobacterium (NTM) account for 13% of cystic fibrosis (CF)-related respiratory infections and present a major therapeutic challenge.[1] There is increasing evidence to suggest an adverse prognostic significance of NTM, particularly for *Mycobacterium abscessus*. A recent large retrospective study of 1216 patients with CF found that growths of NTM were associated with progressive deterioration in lung function.[2] Therefore, accurate microbiological diagnosis of NTM is important.

In our centre, NTM cultures are collected routinely at annual assessment, on admission for a chest exacerbation, and when assessing patients for a progressive or unexplained respiratory deterioration (http://www.rbht.nhs.uk/childrencf). This is problematic in patients who are unable to produce sputum, particularly the very young in whom only cough swabs are easily and routinely available. We always send bronchoalveolar lavage (BAL) fluid for NTM culture if a child with CF is undergoing a bronchoscopy, but this procedure is not carried out routinely. To our knowledge, there have been no reports on the usefulness of cough swabs for isolating NTM.

This letter reports a retrospective analysis of the NTM culture results of 331 patients in a large paediatric specialist CF centre. Results were examined over a 3-year period (2009–2011 inclusive) to identify all positive NTM results. Only those cases where both cough swabs and sputum or BAL samples were taken within close succession were included.

There were a total of 16 cases in whom NTM was isolated, but in 10 cases, NTM was isolated on BAL or sputum, and cough swabs were not sent. In the six cases with comparable samples, none of the cultured cough swabs yielded NTM, despite positive sputum or BAL cultures, both before and after cough swabs were taken (see table 1). This suggests that cough swabs should not be relied on for diagnosing NTM infection. Therefore, when cultures for NTM are indicated, particularly in patients with progressive disease, alternative specimens, such as BAL or induced sputum, should be sought in non-expectorating children.

Bushra Ahmed,[1] Ian M Balfour-Lynn,[1] Khalid Alshafi[2]

[1]Dept Respiratory Paediatrics, Royal Brompton Hospital, London, UK
[2]Dept of Microbiology, Royal Brompton Hospital, London, UK

Correspondence to Ian M Balfour-Lynn, Department of Paediatrics, Royal Brompton and Harefield NHS Trust, Sydney Street, London SW3 6NP, UK; i.balfourlynn@ic.ac.uk

Contributors IB-L had the original idea for the research and letter. IB-L supervised the audit. Data was collected by KA and BA. The main body of the letter was written by BA and IB-L.

Competing interests None.

Provenance and peer review Not commissioned; externally peer reviewed.

Accepted 25 May 2012

Published Online First 14 July 2012

Arch Dis Child 2012;**97**:854–855.
doi:10.1136/archdischild-2012-302334

REFERENCES

1. **Razvi S,** Ravzi S, Saiman L. Nontuberculous mycobacteria in cystic fibrosis. *Pediatr Infect Dis J* 2007;**26**:263–4.
2. **Esther CR Jr,** Esserman DA, Gilligan P, *et al*. Chronic Mycobacterium abscessus infection and lung function decline in cystic fibrosis. *J Cyst Fibros* 2010;**9**:117–23.

Cough swabs should not be used to isolate non-tuberculous mycobacteria in children with cystic fibrosis

Bushra Ahmed, Ian M Balfour-Lynn and Khalid Alshafi

Arch Dis Child 2012 97: 854-855 originally published online July 14, 2012
doi: 10.1136/archdischild-2012-302334