

## Infection

# Suspected nontuberculous mycobacterial (NTM) lung disease

## Clinical information and laboratory results

A male patient in his seventies with a known history of cancer was hospitalised due to continuous chest pain and transient fever. The patient underwent drainage for secondary pneumothorax. The pleural fluid sample, which presented in an orange colour, was analysed according to the clinical question of whether or not the cause was 'infection'.

The pleural effusion sample was analysed in the XR-Series Body Fluid (BF) mode and showed the following results:

**Table 1** Cell count and differential

Diagnostic parameters		Research parameters	
WBC-BF	246/ $\mu$ L	HF-BF	1/ $\mu$ L
TC-BF	247/ $\mu$ L	NE-BF#	35/ $\mu$ L
MN#	211/ $\mu$ L	NE-BF%	14.2%
MN%	85.8%	LY-BF#	182/ $\mu$ L
PMN#	35/ $\mu$ L	LY-BF%	74%
PMN%	14.2%	MO-BF#	29/ $\mu$ L
RBC-BF	2000/ $\mu$ L	MO-BF%	11.8%
		EO-BF#	0/ $\mu$ L
		EO-BF%	0%

The WDF scattergram in BF mode showed two MN clusters (shown in green): one (lower left) representing lymphocytes and the other (upper right) monocytes. Using cytospin microscopy, numerous lymphocytes (79%) with reactive morphology including dark blue cytoplasm and plasma cell features were identified.

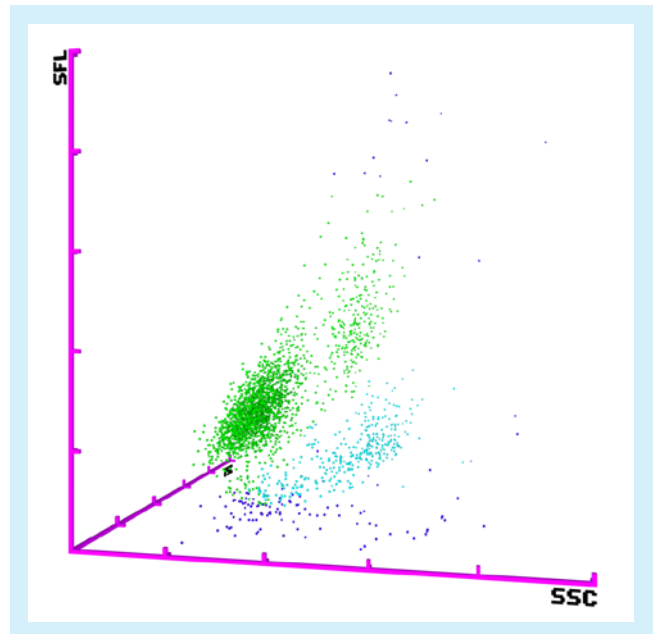
## Result interpretation

While pleuritis is not a common complication in pulmonary NTM, a retrospective study by Park *et al.* [1] found proven NTM pleuritis in 1.4% of confirmed pulmonary NTM cases. Pleural effusions were tested for differential cell counts and pathogens. The screening approach for patients with isolated NTM from sputum included patients with pleural effusion and NTM in their study. A typical finding for the presence of intracellular bacteria is a predominance of lymphocytes in the pleural fluid of NTM pleuritis [1].

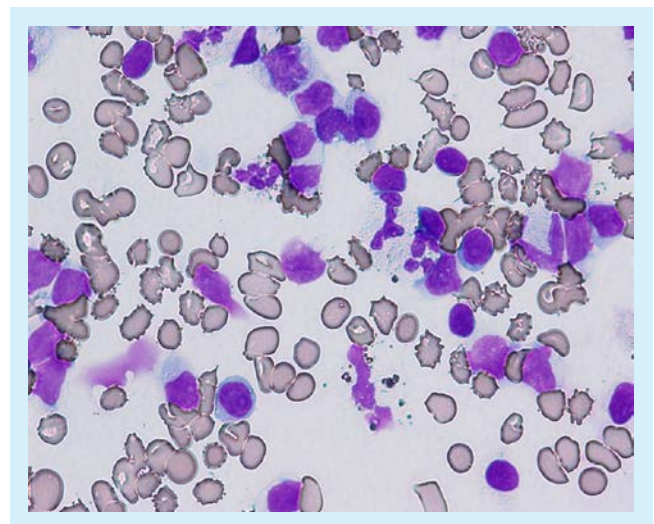
In this patient, mycobacteriosis was suspected due to the high proportion of lymphocytes in the sample. A tuberculosis-specific ELISPOT test was negative, which is why nontuberculous mycobacterial infection was suspected. In fact, the MAC-PCR test was performed twice, but both results were negative. The cytopathology test was also negative. Based on the laboratory diagnostic test results, the clinician's initial suspicion of nontuberculous mycobacterial (NTM) lung disease could not be confirmed.

**Table 2** Clinical chemistry tests

Clinical chemistry	
Lactate dehydrogenase (LD)	127 U/L
Total protein (TP)	2.2 g/dL
Albumin (ALB)	1.3 g/dL
Glucose (GLU)	83 mg/dL



**Fig. 1** WDF scattergram in BF mode showing two MN clusters.



**Fig. 2** On the Cytospin slide, numerous lymphocytes are observed. Various types of reactive lymphocytes with basophilic cytoplasm and plasma cell features are seen. Additional clinical chemistry and pathogen-specific tests were performed.

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Clinical Case Report Body Fluid Edition.

## References

- [1] Park S *et al.* (2017): Clinical characteristics and treatment outcomes of pleural effusions in patients with nontuberculous mycobacterial disease. *Respir Med.* 133:36-41.