

Characterization of *Neisseria meningitidis* cases in lower respiratory tract infections of oncologic and lung disease patients

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Background

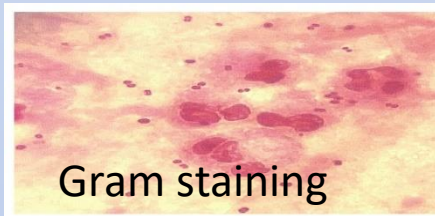
Neisseria meningitidis, a Gram-negative diplococcus, is an uncommon cause of pneumonia and lower respiratory tract infection (LRTI). Only 344 cases were reported worldwide during the last hundred years (1). Diagnosing *N. meningitidis* in sputum cultures may be falsely positive due to asymptomatic carriage in the upper respiratory tract in 10% of healthy population. Here we report five cases of *N. meningitidis* in oncologic patients and four cases in lung disease patients diagnosed in our laboratory during the last six years.

Methods

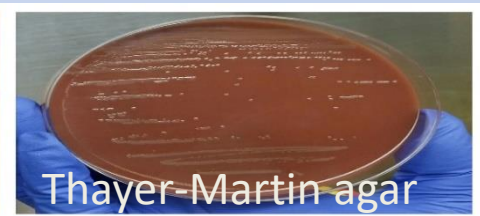
Diagnosis of *N. meningitidis* was performed from sputum samples after passing microscopic criteria. In the Gram staining it appeared similar to *Moraxella* spp. Samples were inoculated on Chocolate, TSBA/MacConkey, CNA and Sabouraud agars. After 24h incubation at 37°C in 5% CO₂. *N. meningitidis* was suspected when a morphologic growth similar to *H. influenzae* of $\geq 10^3 - 10^4$ CFU/ml was observed in comparison to normal microbiota and was finally identified by MALDI- TOF method.

Results

From 2016 till 2021 five cases of *N. meningitidis* in oncologic patients and four cases in lung disease patients were diagnosed in our laboratory in sputum samples. The age of patients ranged from 30 till 94 years with a variety of cancer types and lung diseases. Serogroups identified were B and C. Data is summarized in table 1. All isolates were sensitive to Ciprofloxacin, Ceftriaxone and Rifampicin and intermediate to Penicillin.



Gram staining



Thayer-Martin agar

date of isolation	sex	age (years)	type of illness	serogroup
12/05/2021	male	73	lung cancer	
05/07/2020	male	87	bronchiectasis	
23/10/2019	male	68	COPD	
07/08/2019	male	35	tuberculosis	
02/04/2019	female	73	breast cancer	C
30/01/2019	male	30	thymoma	
17/01/2018	male	61	lung & pharynx cancer & COPD	
21/03/2016	female	92	COPD	
16/02/2016	female	94	myeloma	B

Table 1

conclusion

Pneumonia and LRTI due to *N. meningitidis* is infrequently seen and the exact incidence remains unknown and is estimated to be 5% - 15% in patients with invasive meningococcal disease. Serogroups Y, W-135 and B are predominant (2). It is important to recognize such cases and treatment is critical. We highlight these cases that should not be ignored and not treated as commensal growth(3).