Rapid identification and antimicrobial susceptibility profiles of *Eggerthella lenta* blood culture isolates in a Swedish tertiary hospital

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Introduction

Eggerthella lenta, initially described as an commensal bacterium of the intestine, is now regarded as potential pathogen causing serious invasive infections associated with high morbidity and mortality (Figure 1).

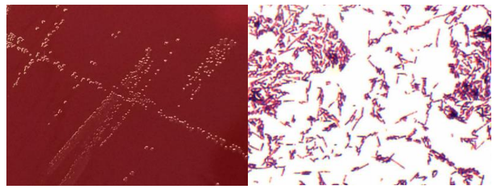


Figure 1. *Eggerthella lenta*, an obligate anaerobe, Gram-positive non-sporulating bacillus.

Aim

- To evaluate diagnostic methods for rapid detection and identification of *E. lenta*
- To establish antimicrobial susceptibility profiles of clinical *E. lenta* isolates

Materials and Methods

- A total of 18 *E. lenta* isolates from blood culture, collected between 2008–2010 at Karolinska University Laboratory
- Species identification by Vitek 2, and MALDI-TOF MS (Bruker and Vitek)
- Antimicrobial sensitivity testing by E-tests following EUCAST guidelines

Results

Species identification

- All isolates were identified as *E. lenta* with 99% probability by the Vitek 2 sysem.
- The Vitek MS system identified all isolates correctly with high confidence scores.
- The Bruker MS system identified 17/18 isolates correctly with high confidence scores.

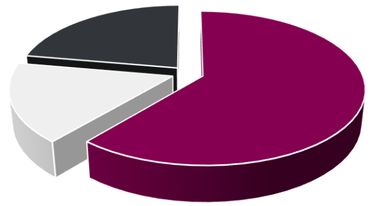
Antimicrobial susceptibility

- Sensitivity of *E. lenta* blood culture isolates was overall good.
- High resistance levels were observed for penicillin and piperacillin-tazobactam (Table 1).

Table 1. Distribution of minimal inhibitory concentrations for 11 antimicrobial agents among 18 *E. lenta* blood culture isolates.

Antimicrobial agents	No. of isolates with MICs [mg/l] [a]													Resistant isolates [%]
	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	
Penicillin G					4	10	3		1						78
Ampicillin				1	5	9	3								0
Amoxi-Clav [b]				1	6	8	3								0
Pip-Tazo [c]									1	2	13	2			83
Cefotaxime														18	–
Imipenem				2	15	1									0
Moxifloxacin					9	1	1		3	2	2				–
Vancomycin						14	4								0
Clindamycin	2	5	8	3											0
Chloramphenicol							1	13	4						0
Metronidazole			1	5	8	3	1								0

[a] Based on EUCAST breakpoints for Gram-positive anaerobic bacteria; MICs indicating susceptible isolates are displayed on a white background, intermediate isolates on a light grey and resistant isolates on a dark grey background. For cefotaxime and moxifloxacin, no breakpoints exist; [b] Amoxicillin-clavulanic acid; [c] Piperacillin-tazobactam.



■ **Abdominal** ■ **Urogenital** ■ **Others**

Figure 2. Underlying diseases in patients with *E. lenta*-positive blood cultures.

Table 2. Time to positivity for mono-microbial blood cultures in relation to antimicrobial therapy.

Time to positivity [hours]	Antimicrobial therapy at the time of sampling
55–63	Cefotaxime
63	Meropenem
67	Piperacillin-tazobactam
73	No antibiotics
77	Trimitoprim-sulfametoxazol
81–84	Metronidazole, cefotaxime
81	Vancomycin, meropenem
90	Meropenem
93	Meropenem
109	Metronidazole, cefotaxime

Clinical characteristics

- Abdominal problems were recorded in 11/18 (61%) patients (Figure 2).
- Time to positivity correlated with *in vitro* sensitivity towards the antimicrobial agent applied at the time of sampling (Table 2).

Conclusion

- Vitek 2 and MALDI-TOF MS are reliable methods for identification of *E. lenta* in clinical samples.
- Penicillin and piperacillin-tazobactam are not suitable for empirical treatment of infections with *E. lenta*.

Reference: Liderot K *et al.* (2015) Anaerobe

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