

Clinical manifestations of *Mycoplasma hominis* infection

~How should we treat this infection? ~

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Background

Mycoplasma hominis colonize genitourinary tract. It can cause genital infection in women and extragenital infection in both women and men. Although culture is the gold standard to find this pathogen, it is difficult. And another diagnostic method such as polymerase chain reaction is not usually available in most hospital. So the clinical presentation of *M. hominis* infection is not well known.

We investigated clinical isolates of *M. hominis* in a tertiary care hospital. We also investigated whether it caused infectious disease or not. And we investigated the treatment of this infection and outcome.

Method

- We performed a retrospective analysis of clinical isolates of *M. hominis* at a tertiary care hospital in Japan from January 2013 to December 2015.
- Cases were identified via microbiology laboratory reports, and relevant clinical data were collected from the electronic medical record.
- All the isolated *M. hominis* were confirmed by sequencing of the 16S rRNA genes according to the previous report 1).
- We investigated source of clinical specimen, treatment of the patient and outcome.
- Sensitivity test was done by E-test.

[PCR primer]

Forward : 5'-CAATGGCTAATGCCGGATACGC-3'

Reverse : 5'-GGTACCGTCAGTCTGCAAT-3'

【Blood culture】

- BacT/ALERT 3D (Sysmex)
- FA Plus culture bottle / FN Plus culture bottle (Sysmex)

【Growth medium】

- Sheep blood agar (BD)
- Chocolate agar (Eiken)
- Brucella Agar with H & K (Gokuto)

【Culture】

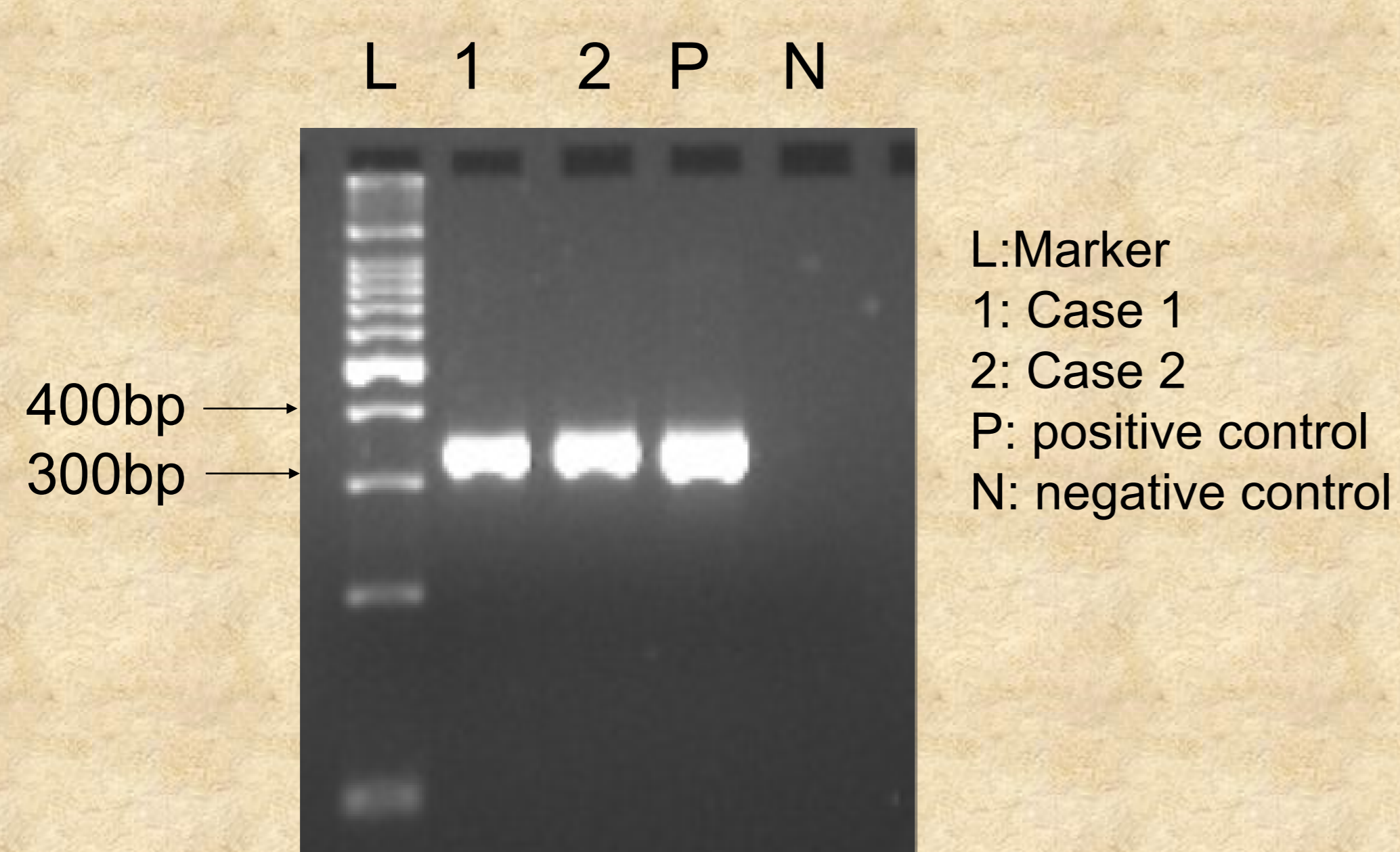
- Aerobic culture : 35°C
- CO₂ culture : 35°C、7% CO₂
- Anaerobic culture : 35°C anaerobic

【Gram stain】

- neo-B&M wako (Wako industry)

Result of PCR

PCR assay of case 1 and 2



Result

	age/sex	underlying disease	culture	identification	antibiotics	
					antibiotics before PCR result	additional intervention
Case 1	28F	Caecilian section	Blood culture (after 6days)	PCR	P/T	MINO
			Uterine content	PCR		
Case 2	69F	Cervical cancer	Blood culture (after 3days)	PCR	A/S	MINO
			Abscess	PCR		
Case 3	29F	Caecilian section	Uterine content	PCR	A/S	MINO
Case 4	35F	Ovarian cancer	Abdominal abscess	PCR	A/S	Drainage only
Case 5	27F	Caecilian section	Uterine content	PCR	MEPM	CLDM
Case 6	22F	Caecilian section	Abdominal abscess	PCR	A/S	CLDM

Abbreviation
 P/T: piperacillin/ tazobactam, A/S: ampicillin/ sulbactam, MINO: minocycline, MEPM: meropenem
 CLDM: clindamycin

- Case 1: Patient had been treated with ampicillin/ sulbactam. After culture results physician changed antibiotics to minocycline and performed surgical drainage. Patient resolved completely.
- Case 2: Patient had been febrile after surgery. Surgical drainage was performed. And physician changed antibiotics to minocycline.
- Case 3: *M. hominis* was isolated from uterine content. Patient resolved after changing antibiotics to minocycline.
- Case 4: Patient resolved after repeated drainage of abscess. Gram stain and culture of abscess revealed negative including anaerobic culture.
- Case 5: Patient had been treated with meropenem. After PCR assay result physician changed antibiotics from meropenem to clindamycin. Patient became afebrile and resolved completely.
- Case 6: Patient had been treated by ampicillin/ sulbactam. Patient became afebrile after changing antibiotics to clindamycin.

Discussion

- All the patient had been febrile before effective drainage or effective antibiotics. So *M. hominis* was considered at least one causative organisms. Although case 4 was treated only surgical drainage with ineffective antibiotics, patient resolved completely. It might means that the virulence of *M. hominis* may be lower than another pathogen such as *Staphylococcus aureus*, *Klebsiella pneumonia* or *Escherichia coli*.
- All cases were diagnosed in OB/GY department. Since our laboratory does not usually perform PCR assay for *M. hominis*, OB/GY physician might suspect its infection and ordered PCR. We can not conclude that only OB/GY surgery is the cause of true *M. hominis* infection.
- Further study should be necessary to estimate the clinical characteristics of *M. hominis* infection.

References

- Kojima A, Takahashi T, Kijima M, Ogikubo Y, Nishimura M, Nishimura S, et al. Detection of Mycoplasma in avian live virus vaccines by polymerase chain reaction. *Biologicals*. 1997; 25(4):365–71.

Conflict of Interest

- Conflict of interests are none
- Part of this study was presented at annual conference of 2016 Japanese Association for Infectious Disease at Sendai.

Clinical features and treatment outcome of *Listeria monocytogenes* bacteremia and severe infection in tertiary care hospital

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Background

Listeria monocytogenes cause invasive in several immunocompromised host. *L. monocytogenes* is resistant for some of the empiric antibiotics such as cephalosporins. To know the clinical manifestation of listeriosis is essential for the choice of appropriate antibiotics. Although meropenem are also recommended by several guidelines, recent study suggests the association between the use of meropenem and 30-day mortality. Here we conducted a retrospective observational study to investigate the clinical features and treatment outcome of listeriosis in Japanese tertiary care hospital.

Method

- We performed a retrospective analysis of clinical isolates of *L. monocytogenes* from sterile specimen at Kobe university hospital in Japan from April 2008 and March 2019.
- Cases were identified via microbiology laboratory reports, and relevant clinical data were collected from the electronic medical record.
- All the isolated *L. monocytogenes* were identified by automated bacterial identification systems (MicroScan WalkAway 40 system).
- We investigated source of clinical specimen, treatment of the patient and outcome.
- Antimicrobial susceptibility was performed according to the recommendations of the CLSI.
- 30-day mortality was defined as the all-cause mortality rate within 30 days after the positive culture taken.

Patients' characteristics

	Total cases	Death within 30 days
Number of cases	17	1 [†]
Median age	72 (19-84)	74
Male	8	0
Female	9	1
Maternal	1	0
Fetal loss	0	0
Risk factor of listeriosis		
Glucocorticoid	7	1
TNF alfa inhibitor	2 ^{††}	0
Cytotoxic drug	1	0
Tyrosine kinase inhibitor	1 [§]	0
Other immunosuppressive drug	2 ^{††}	0
Autoimmune disease	5	1 ^{&}
Hematological malignancy	3	0
Solid tumor	5	1
Consumption of raw dairy products	1	0
HIV infection	0	0

† : Patient wanted only best supportive care for advanced bladder cancer.
†† :All cases were also given glucocorticoid.
§: Pazopanib
&: MCTD

Symptom, treatment and outcome

	All patients	Maternal	Neuroinfection	Mycotic aneurysm
Number of cases	17	1	2	2
Charlson Comorbidity Index	4 [†] (2-9)	0	4 and 6	2 and 5
Flu-like symptom				
Fever	14	1	2	0
Fatigue	1	0	0	1
Muscle pain	0	0	0	0
GI symptom				
Nausea	0	0	0	0
Vomiting	0	0	0	0
Diarrhea	2	0	0	0
Abdominal pain	0	0	0	0
CNS symptom				
Headache	0	0	0	0
Confusion	2	0	2	0
Loss of consciousness	0	0	0	0
Others				
None	2	0	0	2
Vital sign				
Systemic BP<90mmHg	1		0	0
Body temperature				
>=38.0 °C	11 (38.3-40.0)	1 (38.3)	2 (39.0 and 39.5)	0
>=37.0 °C	16	0	0	0
<37.0 °C	2 (36.4-36.9)	0	0	2 (36.0 and 36.4)
Laboratory findings				
Mean WBC (/mm ³)	8,682 (1600 –21,200)	5900	3,900 and 8,400	5,900 and 9,100
Mean CRP (mg/dL)	8.64 (0.32-23.13)	0.38	0.53 and 18.9	1.66 and 5.41
Treatment				
Ampicillin	3	1		
Ampicillin plus gentamicin	5		1	
Meropenem ⇒Ampicillin	1 ^{††}			
Meropenem ⇒Ampicillin plus gentamicin	2		1	
Ampicillin ⇒Ampicillin plus gentamicin	1			
Piperacillin/ tazobactam ⇒Cotrimoxazole	1			
Piperacillin/ tazobactam ⇒Ampicillin	1			
Vancomycin ⇒Ampicillin ⇒Cotrimoxazole	1			1
Garenoxacin	1			
Ampicillin/ sulbactam	1			1
Surgical therapy	2			2

†: Mean Charlson Comorbidity Index
††: Patient died within 30 days.

Discussion

- The survival rate was higher than reported elsewhere.
- Only 2 neuroinfection were included in this study group. And there is no case given adjunctive dexamethasone. These factor may contribute for lower mortality.
- Another hypothesis is that virulence of *L. monocytogenes* might be different between Japan and European country.
- Further prospective observational cohort study in South East Asia may be feasible to assess these difference.
- One case was successfully treated with 3 days garenoxacinm, which reveals invitro activity against *L. monocytogenes*. Some quinolones may contribute for another choice of listeriosis treatment.

References

- Antibiotic treatment for invasive nonpregnancy-associated listeriosis and mortality: a retrospective cohort study. Dickstein Y et.al, Eur J Clin Microbiol Infect Dis. 2019 Aug 10
- Clinical features and prognostic factors of listeriosis: the MONALISA national prospective cohort study. Charlier C et.al, Lancet Infect Dis. 2017 May;17(5):510-519

Conflict of Interest

- Conflict of interests are none