

Leclercia adecarboxylata* 1*A Case of *Leclercia adecarboxylata* Isolated from Dialysate in a Patient with Continuous Ambulatory Peritoneal Dialysis**

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A 60-year-old male with continuous ambulatory peritoneal dialysis was admitted because of abdominal discomfort and turbid dialysate. He had a history of chronic renal failure due to diabetic nephropathy. His WBC count of peripheral blood was 8,500/mm³ (neutrophil 92%), and that of dialysate was 1,400/mm³ (polymorphonuclear leukocyte 69%, lymphocyte 31%). Pure growth of *Leclercia adecarboxylata* was isolated from dialysate. The *L. adecarboxylata* isolate was susceptible to ampicillin, ampicillin/sulbactam, cephalothin, cefoperazone, cefoxitin, cefotaxime, ceftazidime, aztreonam, imipenem, gentamicin, tobramycin, amikacin, tetracycline, trimethoprim- sulfamethoxazole and ciprofloxacin. Cephalothin & amikacin were added into dialysate, and his clinical symptoms and turbidity of dialysate were resolved. *L. adecarboxylata* has been rarely isolated from clinical specimens. To our knowledge, this is the first report of *L. adecarboxylata* isolated from clinical specimen in Korea. On review of the world literature, we found only 7 cases of *L. adecarboxylata* infections. This microorganism has been isolated from lower extremity wounds and sputum as part of a mixed flora in 3 cases and 1 case, respectively, but it was the only microorganism isolated from cultures of blood in 3 cases. These 3 patients with bacteremia due to *L. adecarboxylata* had severe underlying diseases, and clinical symptoms were developed after invasive procedures. All of the *L. adecarboxylata* isolates from clinical specimens were susceptible to antimicrobial agents tested, and the responses to antibiotic therapy were excellent. It is difficult to identify this organism because its biochemical reactions are similar to those of *Escherichia coli*, therefore careful identification is required. And additional studies are necessary to determine the pathogenic potential and route of infection of this organism.

Key words : *Leclercia adecarboxylata*, Continuous ambulatory peritoneal dialysis

Leclercia adecarboxylata peritrichous flagella [1].
 , 1962 Leclerc[2]
Escherichia
 1986 Tamura [3]
 가 [1].
 , ,
 , 7 가 [4-6],
 (continuous ambulatory peritoneal dialysis, CAPD)
L. adecarboxylata
 .
 60 ,
 1997 12 CAPD
 , 1
 . 36.5 C, 78 / ,
 130/80 mmHg .
 가 8,500/mm³ (92%) ,
 가 1,400/mm³ (69%,
 31%).
 : 100 mL 3,000 rpm
 MacConkey
 (Difco) 37 C .
 , MacConkey
 . (KS 987223)
 [7]. Triple sugar iron (, / , /
 가 , /H₂S ,), motility indole ornithine
 (+/+/+) Simmons' citrate (-) *E. coli*
 , lysine decarboxylase (*E. coli*
 90%) 가
 . Vitek GNI card
 (bioMerieux, Hazelwood, Mo., U.S.A.) , *L. adecarboxylata*
 (ID. No.:3311753360).
 Table 1 [8]. NCCLS
 [9] ampicillin, ampicillin/ sulbactam,
 cephalothin, cefoperazone, ceftazidime,
 aztreonam, imipenem, gentamicin, tobramycin, amikacin,
 tetracycline, trimethoprim-sulfamethoxazole ciprofloxacin
 (BBL) ,

: Cephalothin 500 mg, amikacin 50 mg
 2 L 4 ,
 3
 . 7
 , .
L. adecarboxylata
 , 1986 Tamura
 가 7 가 [4-6].
 3 , 1 , 3
 .
 , 3
 .
 ,
 (congenital gastroschisis)
 , ,
 (total parenteral nutrition)
 (Table 2).
*L. adecarboxylata*가
 .
 CAPD
 CAPD
 ,
 가
L. adecarboxylata 가
 , *E. coli*
 [6].
L. adecarboxylata triple sugar iron
 (, / , /가 , /H₂S ,),
 motility indole ornithine (+/+/+) Simmons' citrate
 (-) *E. coli* , lysine decarboxylase
 90% *E. coli* [8].
E. coli lysine decarboxylase
 malonate , adonitol, D-sorbitol,
 cellobiose, D-arabitol 가
 kit
 (Table 1).
L. adecarboxylata
 [4-6].
 ,
 , 2
 . 가
 .

Table 1. Biochemical characteristics of *L. adecarboxylata* isolated from peritoneal dialysate

	% Positive		KS 987223
	<i>E. coli</i>	<i>L. adecarboxylata</i>	
Indole production	98	100	+
Methyl red	99	100	+
Voges-Proskauer	0	0	-
Citrate (Simmons)	1	0	-
H ₂ S (TSI)	1	0	-
Urea hydrolysis	1	48	-
Phenylalanine deaminase	0	0	-
Lysine decarboxylase	90	0	-
Arginine dihydrolase	17	0	-
Ornithine decarboxylase	65	0	-
Motility(36)	95	79	+
Gas formation from D-glucose	95	97	+
Acid formation from D-glucose	100	100	+
Esculin hydrolysis	35	100	+
DNase at 25	0	0	-
Nitrate → Nitrite	100	100	+
Oxidase, Kovacs	0	0	-
ONPG	95	100	+
Yellow pigment formation	0	37	+
Malonate utilization	0	93	+
Fermentation			
Lactose	95	93	+
Sucrose	50	66	+
Mannitol	98	100	+
Salicin	40	100	+
Adonitol	5	93	+
Inositol	1	0	-
Solbitol	94	0	-
Arabinose	99	100	+
Raffinose	50	66	+
Rhamnose	80	100	+
Maltose	95	100	+
Melibiose	75	100	+
Mannose	98	100	+

Abbreviation: ONPG. O-nitrophenyl-β-D-galactopyranoside.

. *L. adecarboxylata*

,
(Table 2).

Table 2. *L. adecarboxylata* isolated from clinical specimens

No. case	Age	Sex	Underlying diseases	Isolated from	Mixed flora	Antibiotics used	Progress	References
1	43	F	Rt. calf injury	Pus	Yes*	Ciprofloxacin	Resolved	6
2	35	F	Rt. foot, crushing injury	Pus	Yes [†]	Cefazolin ceftazidime ticarcillin/clavulanic acid	Resolved	6
3	23	M	Lt. toe, punctured by nail	Pus	Yes [‡]	Ciprofloxacin	Resolved	6
4	35	F	Acute nonlymphocytic leukemia	Blood	No	Ceftazidime	Died	6
5	54	M	Pneumonia	Sputum	Yes [§]	Aztreonam ciprofloxacin	Resolved	6
6	45	M	Alcoholic liver cirrhosis	Blood	No	Not mentioned	Died	4
7	8/12	M	Congenital gastroschisis	Blood	No	Ceftazidime gentamicin	Resolved	5
8	60	M	Chronic renal failure	PDF	No	Cephalothin amikacin	Resolved	This case

**Staphylococcus aureus*.[†] *Enterobacter cloacae*, *Citrobacter freundii*, *Enterococcus* spp., *Klebsiella pneumonia*, *Stenotrophomonas maltophilia*, *Corynebacterium*, *Acremonium*, *Penicillium*, *Mucor*, *Geotrichum* spp.[‡] *Acinetobacter calcoaceticus*, *E. agglomerans*.[§] *E. coli*, *K. oxytoca*, *Haemophilus influenzae*.

Abbreviation: PDF, peritoneal dialysate.

CAPD 60 L.

adecarboxylata

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L. adecarboxylata

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E. coli

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