

# *Leclercia adecarboxylata* in Para-ovarian abscess

Sandeep Thirunavukkarasu, Veena Ramaswamy, Venkatesh Rao

Elbit Medical and Diagnostics Ltd, Bangalore, Karnataka, India

## ABSTRACT

*Leclercia adecarboxylata* is a rarely reported human pathogen, usually affecting immune compromised individuals. In the reported cases of immunocompetent patients infected with this organism, it is seen in the context with polymicrobial infections. Herein, we report the case of a para-ovarian abscess in a patient that grew *L. adecarboxylata* as a pure culture. The limited literature available on this organism is reviewed, and the potential implication of this finding is discussed.

**Key words:** *Leclercia adecarboxylata*, para-ovarian abscess, abscess in pregnancy

## INTRODUCTION

*Leclercia adecarboxylata*, which is a Gram negative bacillus, is a rarely described pathogen. It belongs to the enterobacteriaceae family and has been regarded as a normal gut flora of animals.<sup>[1]</sup> The organism is cosmopolitan, with cases being reported around the world. There are 32 case reports, which have been published with respect to this organism, most of the cases being associated with polymicrobial infections or immunocompromised hosts.<sup>[2]</sup> Herein, we report the first case of para-ovarian abscess that grew *L. adecarboxylata* as a pure culture, in an Indian patient. The limited literature available on this organism is reviewed, and the potential implication of this finding is discussed.

## CASE REPORT

A 32-year-old lady with 8-week period of gestation presented to the outpatient department with low grade pain in the pelvic region for the past one week. She also complained of intermittent low grade fever. Ultra sound scan revealed a small hyper echogenic structure next to the right ovary measuring about 5 cm in diameter. A probable diagnosis of para-ovarian abscess was made and ultrasonography (USG) guided aspiration was suggested. After obtaining informed consent, the procedure was performed and the aspirated material was sent to the microbiology laboratory for culture. The aspirate was inoculated on blood agar and

MacConkey's agar. A smear was prepared for Gram stain. Gram stain showed plenty of pus cells and many Gram negative bacilli. But the culture did not grow any organism on the subsequent day. Due to strong clinical suspicion of anaerobic organism and discrepancy between Gram stain and culture report, a repeat USG guided aspiration was suggested with immediate inoculation of aspirated material into anaerobic culture medium. The radiologist obtained the consent for the procedure, performed the USG guided aspiration and the material was immediately inoculated into thioglycolate medium. This inoculated medium was transported within 30 min to the microbiology lab for incubation. Subculture onto blood agar after the thioglycolate medium turned turbid, yielded pure growth of large grey non-haemolytic colonies. On MacConkey's agar, colonies were pale non-lactose fermenting. The plates, which were incubated anaerobically (AneroGas pak) also yielded similar colonies. The organism was identified as *L. adecarboxylata* (97% probability) using automated identification system — Vitek 2 Compact (bioMerieux). The antibiotic susceptibility testing was done using the automated system in Vitek 2 Compact, which revealed that the isolate was susceptible to all clinically useful antibiotics. No other organisms, aerobic or anaerobic, were isolated. The patient was recalled to find out about co-morbid conditions. None were present. She was administered a full course of ceftriaxone and the abscess resolved completely and this was confirmed by ultra sound scan.

## DISCUSSION

*L. adecarboxylata* is a motile gram negative bacillus, belonging to the family Enterobacteriaceae with similar biochemical

**Address for correspondence:** Dr. Sandeep Thirunavukkarasu,  
E-mail: dr.sandeept@yahoo.co.in

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properties as *Escherichia coli*. Hence it was formerly identified as *Escherichia adedecarboxylata*.<sup>[3]</sup> Though widely distributed in environment and gut flora of animals, it is very difficult to isolate the organism because of its inability to tolerate dessication.

It has been reported as an opportunistic pathogen in immunocompromised host as given in [Table 1].

It has been implicated in polymicrobial infections in immunocompetent hosts, which are listed in [Table 2].

The striking character, evident from these two tables, is that the organism is isolated as a single pathogen from immunocompromised host and along with other organisms in the immunocompetent host. This has led to the proposition that it might be an opportunistic pathogen.

The infection reported in this case is a unique one in that it is believed to be the first report in literature of the

organism being a sole pathogen in para-ovarian abscess in a pregnant lady. In our case, there was no evidence of immunocompromised state. Though pregnancy has been described as a reversible immunocompromised state due to hormonal changes, it may not be sufficient to lower the immunity and predispose for such infections. Hence predisposing factors for infections with *Leclercia* is still to be elucidated.

The importance of transport medium and the early processing of samples need to be stressed. It is seen that on the first attempt, the bacteria was seen on direct Gram stained smear, but could not be isolated in culture. The reason could be due to delay in transport of the specimen. On the second attempt, the aspirate was inoculated into thioglycolate medium, which preserved the bacterium during transit to laboratory. This also impresses the need for coordinated effort from treating physician, microbiologist and the intervention radiologist in diagnosing challenging infections.

**Table 1: References showing isolation of *L. adedecarboxylata* from immunocompromised patients**

Sample type	Immunodeficiency	Reference
Wound swab	Diabetes	Beltran <i>et al.</i> (2004)
Peritoneal fluid	Dialysis	Fattal & Deville (2000)
Peritoneal fluid	Dialysis	Rodriguez <i>et al.</i> (2001)
Urine	Renal transplant	Woo <i>et al.</i> (2001)
Blood	Renal transplant	Greco <i>et al.</i> (2001)
Gall bladder	<i>Candida sepsis</i>	de Baere <i>et al.</i> (2001)
Blood	<i>Candida sepsis</i>	de Baere <i>et al.</i> (2001)
Blood	Leukaemia	Longhurst & West (2001)
Blood	Leukaemia	Mazzariol <i>et al.</i> (2003)
Synovial fluid	Undiagnosed chronic diarrhoea	Perez-Moreno <i>et al.</i> (2003)
Urine	Bladder malignancy	Sawamura <i>et al.</i> (2005)
Catheter	Breast cancer	Shin <i>et al.</i> (2012)
Blood	Lymphoblastic leukaemia	Shah A <i>et al.</i> (2011)

**Table 2: References showing isolation of *L. adedecarboxylata* from polymicrobial infections**

Sample type	Associated organism	Reference
Wound	<i>Staphylococcus epidermidis</i>	Greco <i>et al.</i> (2001)
Wound	<i>Shewanella putrefaciens</i> , <i>Enterobacter cloacae</i> , Group B streptococcus	Greco <i>et al.</i> (2001)
Peritoneal fluid	<i>Acinetobacter iwoffii</i>	Rodriguez <i>et al.</i> (2001)
Blood	<i>Staphylococcus aureus</i>	Longhurst & West (2001)
Urine	<i>Enterococcus faecalis</i>	Sawamura <i>et al.</i> (2005)
Blood	<i>Enterococcus faecalis</i>	de Baere <i>et al.</i> (2001)
Peritonsillar abscess	None	Bali R <i>et al.</i> (2013) <sup>[4]</sup>
Blood	None	Myers K A <i>et al.</i> (2012) <sup>[5]</sup>
Blood	None	Davenport P <i>et al.</i> (2007)

## CONCLUSIONS

*L. adedecarboxylata* may cause monomicrobial infections in pregnancy, which is in a partially immunocompromised state that is reversible. Clinical microbiologists must be alert to identify these organisms and coordinate with treating physicians for timely diagnosis and appropriate therapy for patients.

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