

**NHS**

**North Bristol  
NHS Trust**

**BSAC Regional OPAT  
Workshop Bristol  
21/09/23**

*(Lacticaseibacillus)*  
***Lactobacillus rhamnosus***  
**endocarditis**

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# Overview

A rare case of *Lactocaseibacillus rhamnosus* endocarditis with therapy completed using piperacillin-tazobactam delivered at home using elastomeric infusion devices.

# The patient

89 years old male presented to hospital 05/05/2022

## Background

Polymyalgia rheumatica, benign prostatic hypertrophy, duodenal polyps, osteoarthritis, dementia, **previous *Citrobacter koseri* mitral valve endocarditis September 2019**, mitral regurgitation

Reported allergies to **penicillins** and **co-trimoxazole**.

## Presenting complaint

2 week history of gradual decline, decreased mobility, increased confusion and urinary incontinence.

Few months history of weight loss with decreased oral intake and night sweats.

|  |                         |   |
|--|-------------------------|---|
| <b>A+B</b><br>Respirations<br>Breaths/min  | ≥25                     |   |
|  | 21-24                   |   |
|  | 18-20                   |   |
|  | 15-17                   | ● |
|  | 12-14                   |   |
|  | 9-11                    |   |
| ≤8   |                         |   |
| <b>A+B</b><br>SpO <sub>2</sub> Scale 1<br>Oxygen saturation (%)  | ≥96                     | ● |
|  | 94-95                   |   |
|  | 92-93                   |   |
|  | ≤91                     |   |
| SpO <sub>2</sub> Scale 2!<br>Oxygen saturation (%)<br>Use Scale 2 if target range is 88-92%, eg in hypercapnic respiratory failure | ≥97 on O <sub>2</sub>   |   |
|  | 95-96 on O <sub>2</sub> |   |
|  | 93-94 on O <sub>2</sub> |   |
|  | ≥93 on air              |   |
|  | 88-92                   |   |
|  | 86-87                   |   |
|  | 84-85                   |   |
| ≤83%   |                         |   |
| Air or oxygen?   | A=Air                   | A |
|  | O <sub>2</sub> L/min    |   |
|  | O <sub>2</sub> %        |   |
|  | Device                  |   |

|   |         |   |
|---|---------|---|
| <b>C</b><br>Blood pressure<br>mmHg<br>Score uses systolic BP only | ≥220    |   |
|   | 201-219 |   |
|   | 181-200 |   |
|   | 161-180 |   |
|   | 141-160 |   |
|   | 121-140 | ● |
|   | 111-120 |   |
|   | 101-110 |   |
|   | 91-100  |   |
|   | 81-90   |   |
|   | 71-80   |   |
|   | 61-70   |   |
|   | 51-60   |   |
| ≤50   |         |   |
| <b>C</b><br>Pulse<br>Beats/min                                    | ≥131    |   |
|   | 121-130 |   |
|   | 111-120 |   |
|   | 101-110 |   |
|   | 91-100  |   |
|   | 81-90   | ● |
|   | 71-80   |   |
|   | 61-70   |   |
|   | 51-60   |   |
|   | 41-50   |   |
|   | 31-40   |   |
|   | ≤30     |   |

|  |            |   |
|--|------------|---|
| <b>D</b><br>Consciousness<br>Score for NEWS<br>onset of confusion<br>(no score if chronic) | Alert      | ● |
|  | Confusion  |   |
|  | V          |   |
|  | P          |   |
|  | U          |   |
| <b>E</b><br>Temperature<br>°C  | ≥39.1°     |   |
|  | 38.1-39.0° |   |
|  | 37.1-38.0° |   |
|  | 36.1-37.0° |   |
|  | ≤35.0°     | ● |
| <b>NEWS TOTAL</b>  |            | 1 |

# Initial Assessment

## At admission

Early Warning Score (EWS) = 1.

Chest clear, pan-systolic murmur noted, abdomen soft, non-tender. No rashes, splinter haemorrhages, or spinal tenderness.

Lactate 0.

## Initial impression

1. Relapse of polymyalgia rheumatica.
2. Increased care needs with high risk of falls.

## Initial treatment

Steroid dose increased.

Plan for "Pathway 1" discharge for re-ablement

| FULL BLOOD COUNT                  |   |       |                                 |
|-----------------------------------|---|-------|---------------------------------|
| White Cell Count                  | * | 12.25 | 10 <sup>9</sup> /L 4.0 - 11.0   |
| RBC                               | * | 4.27  | 10 <sup>12</sup> /L 4.50 - 6.00 |
| Haemoglobin                       | * | 103   | g/L 130 - 170                   |
| Haematocrit                       | * | 0.335 | L/L 0.40 - 0.52                 |
| MCV                               | * | 78.5  | fL 83 - 100                     |
| MCH                               | * | 24.1  | pg 27.0 - 32.0                  |
| MCHC                              | * | 307   | g/L 310 - 350                   |
| Platelets                         |   | 266   | 10 <sup>9</sup> /L 150 - 400    |
| RDW                               | * | 16.8  | 11.5 - 15.5                     |
| Neutrophils                       | * | 9.51  | 10 <sup>9</sup> /L 1.5 - 8.0    |
| Lymphocytes                       |   | 2.13  | 10 <sup>9</sup> /L 1.0 - 4.0    |
| Monocytes                         |   | 0.58  | 10 <sup>9</sup> /L 0.2 - 1.0    |
| Eosinophils                       |   | 0.01  | 10 <sup>9</sup> /L 0.0 - 0.5    |
| Basophils                         |   | 0.02  | 10 <sup>9</sup> /L 0.0 - 0.2    |
| Neutrophil/Lymphocyte Ratio       |   | 4.46  |                                 |
| C-REACTIVE PROTEIN                |   |       |                                 |
| CRP                               | * | 36    | mg/L <6.0                       |
| UREA,CREAT + ELECTROLYTES         |   |       |                                 |
| Sodium                            |   | 133   | mmol/L 133 - 146                |
| Potassium                         |   | 4.1   | mmol/L 3.5 - 5.3                |
| Urea                              | * | 9.3   | mmol/L 2.5 - 7.8                |
| Creatinine                        |   | 77    | umol/L 59 - 104                 |
| eGFR/1.73m <sup>2</sup> (CKD-EPI) |   | 76    | mL/min                          |
| eGFR comment                      |   |       |                                 |

# Progress

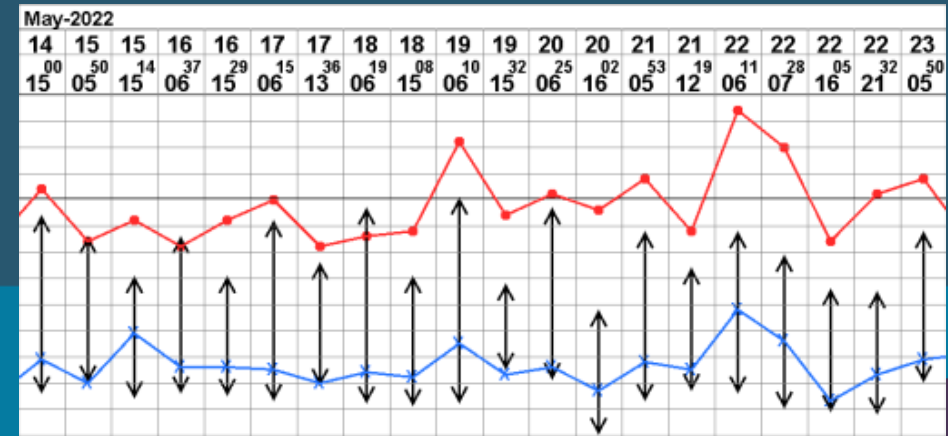
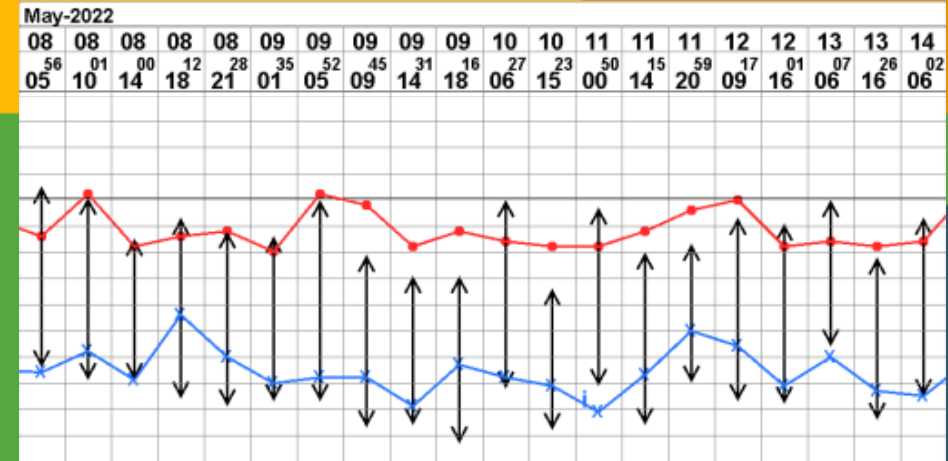
Remained "Medically fit for discharge" awaiting re-ablement placement.

**19/05/22**

Febrile episode. Felt to be clinically well on review with no action taken. Remained classified as "medically fit"

**22/05/23**

Ongoing fevers. Blood cultures taken. Presumed HAP. Started on intravenous levofloxacin due to allergy history.



# 24/05/23

Blood cultures  
flag positive

- Peripheral blood cultures taken 22/05/23 flag positive after 37 hours incubation
- Gram positive bacilli seen from both aerobic and anaerobic bottles.

Organism  
identification

- Organism identification by Matrix Assisted Laser Desorption-Ionisation Time-of-Flight (MALDI-ToF)
- Identified as *Lactobacillus (Lacticaseibacillus) rhamnosus*

Action

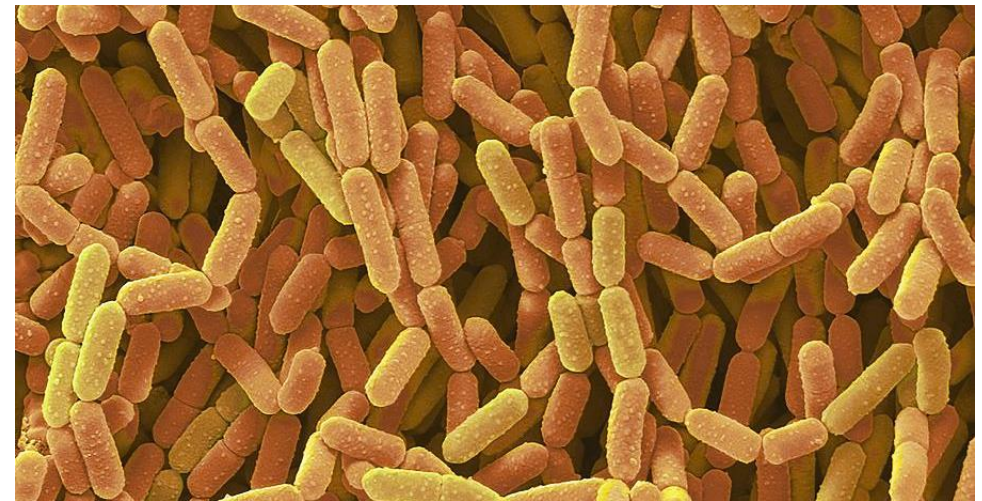
- Microbiology staff contact clinical team to discuss.
- Significance uncertain at this stage. Repeat blood cultures advised.

# *Lactobacillus rhamnosus*

A short Gram-positive facultatively anaerobic rod-shaped bacterium.

Part of the flora of a healthy human gut.

Sometimes used in dairy products such as fermented milk



# Further findings

**27/05/23**

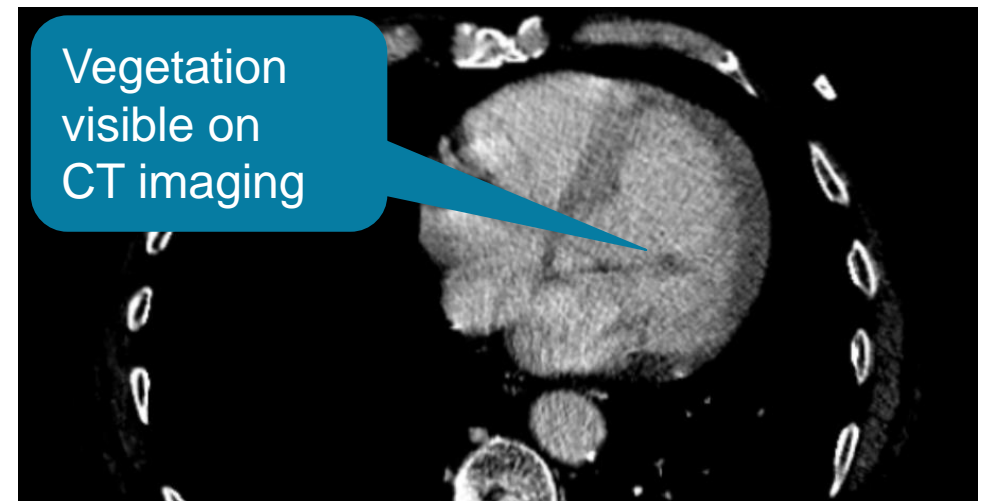
Repeat blood cultures taken 24/05/22 positive with *L. rhamnosus*

**01/06/23**

Trans-thoracic echocardiogram confirms large vegetation on mitral valve, increased in size from previous imaging.

**03/06/23**

CT abdomen performed to exclude a gastrointestinal source demonstrates a likely large vegetation arising from the mitral valve, in addition to possible small hepatic abscess and splenic embolus.





# History

## Presented to hospital

5<sup>th</sup> May 2022

2 weeks gradual decline.  
Several months of weight loss and night sweats.

## Started treatment for HAP

Levofloxacin 250mg BD

## Positive blood cultures

22<sup>nd</sup> May 2022  
24<sup>th</sup> May 2022

*L. rhamnosus* isolated from two blood culture sets.

## Starts treatment for Lactobacillus Endocarditis

27<sup>th</sup> May 2022

Starts treatment with IV clindamycin 600mg QDS

## Addition of IV levofloxacin

6<sup>th</sup> June 2022

IV levofloxacin 500mg BD added to regime following MDT discussion

# History

## Penicillin allergy de-labelling (1)

10<sup>th</sup> June

Skin prick and intra-dermal testing negative.

## Penicillin allergy de-labelling (2)

13<sup>th</sup> June

Successful oral penicillin challenge.

## Modified treatment

13<sup>th</sup> June

Switches to IV amoxicillin 2g 4 hourly + clindamycin 600mg QDS

## Discharge to NHS@Home/OPAT team

11<sup>th</sup> July

Switched to IV Piperacillin-tazobactam 18g/24 hours elastomeric device with plan to give a total 12 weeks treatment (until 17<sup>th</sup> August)

## Treatment stopped

18<sup>th</sup> July

Antibiotics stop after patient develops worsening neutropenia thought to be beta-lactam related.

# Antibiotic timeline

|                         | 22/05/22 | 25/05/22 | 27/05/22     | 06/06/22    | 13/06/22       | 11/07/22        | 18/07/22                   | Total days  |
|-------------------------|----------|----------|--------------|-------------|----------------|-----------------|----------------------------|-------------|
| Levofloxacin            | 500mg OD | 250mg BD |              | 500mg BD IV |                |                 |                            | 5 (HAP) + 7 |
| Clindamycin             |          |          | 600mg TDS IV |             |                |                 |                            | 46          |
| Amoxicillin             |          |          |              |             | 2g 4 hourly IV |                 |                            | 28          |
| Piperacillin-tazobactam |          |          |              |             |                | 18g/24 hours IV | Stopped due to neutropenia | 7           |

## Notes:

- Patient received a total of 7 weeks + 3 days treatment for endocarditis
- Clindamycin 600mg TDS was prescribed despite QDS dosing being recommended. This was continued throughout the patients treatment.
- It had been recommended that clindamycin was continued orally following discharge, however this was not prescribed on the TTO.



# Outcome

Remains stable post completion of therapy

No further hospital admissions since discharge

Repeat TTE 24/02/23 showed reduction in size of the vegetation, though associated “torrential” mitral regurgitation.

Seen in cardiology outpatients for heart failure management with annual follow up planned.

While OGD and colonoscopy were requested while the patient was in hospital, these were cancelled after review by the endoscopy team, as it was not felt to be suitable given his frailty and dementia.

# Conclusion

A complex case of endocarditis.  
OPAT delivery of piperacillin-tazobactam via elastomeric infusion devices  
facilitated early discharge.

**Questions?**

