

# LEUCONOSTOC LACTIS: AN OPPORTUNISTIC PATHOGEN

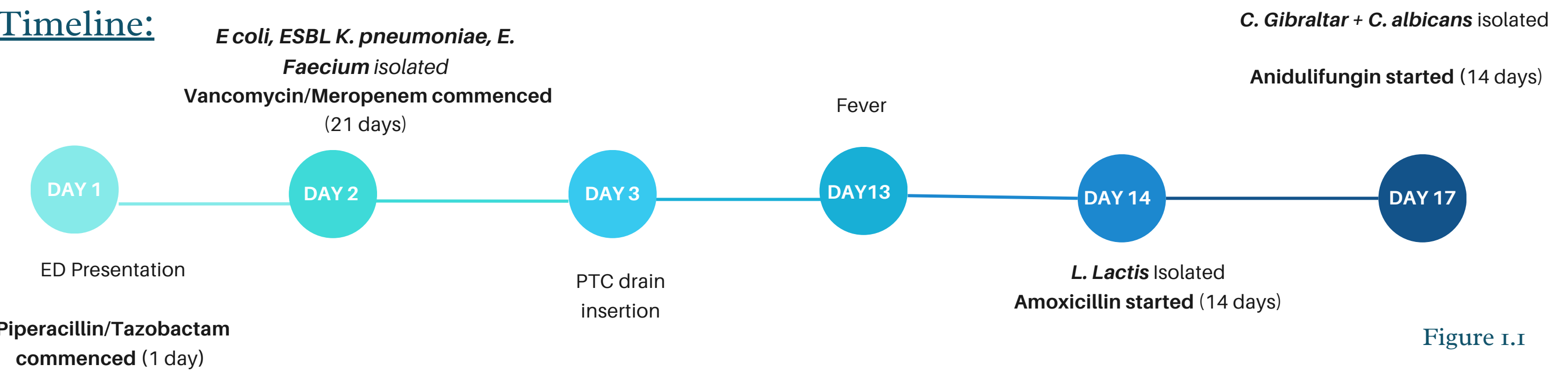
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## Introduction:

*Leuconostoc lactis* is a catalase-negative Gram-positive coccus (GPC) that is often found in foods, particularly in fermented dairy products (1). In the past, *L. lactis* was not thought to be pathogenic to humans, but occasional cases of infections caused by this organism such as ventriculitis, osteomyelitis , and bloodstream infection (2) have been reported in recent years. These cases have been associated with immunosuppression, prolonged hospitalization, presence of a central venous catheter, need for total parenteral nutrition, disruption of bowel mucosa, and long-term antibiotic treatment especially with vancomycin. (3) This is a case of *L. lactis* bacteremia in a 60 year old man from Australia in the context of a polymicrobial bacteraemia, advanced pancreatic cancer, hyperbilirubinaemia and a complicated biliary stent.

## Timeline:



## Case Report:

The patient presented to the Emergency department with sepsis and isolation of *Escherichia coli*, *Extended-Spectrum Beta-Lactamase-producing Klebsiella pneumoniae* and *Enterococcus faecium*. This sepsis was attributable to cholangitis with imaging supportive of blocked biliary stents. Due to the advanced stage of his cancer and the complexity of his biliary disease, the decision was made that he was not suitable for biliary stent exchange, which would have provided source control, and would have to be managed with antibiotics alone. The patient was initially managed on IV vancomycin and meropenem. A drain was inserted through percutaneous transhepatic cholangiography on day 3 of his admission, and significant improvement in his clinical status and inflammatory markers followed.

On day 13 of his admission repeat cultures were taken following a temperature spike. Two separate sets of blood Cultures demonstrated growth of *Leuconostoc lactis*. IV Amoxicillin was started due to the organism's intrinsic resistance to Vancomycin, and raised MIC to meropenem.

Following commencement of amoxicillin of which he completed a 14 day course, repeat clearance cultures were negative on days 2 and 3 of treatment.

Clearance cultures taken on day 4 of treatment with amoxicillin grew a fluconazole resistant *candida gibraltaris* and a fluconazole sensitive *candida albicans*, which were treated with 14 days of anidulafungin. There was no relapse of infective symptoms following cessation of antimicrobial therapy. The patient died due to progression of his malignancy on the same admission.

## Discussion:

There were several challenges in the management of this case, including our inability to acquire source control, the lack of evidence on the treatment of *Leuconostoc lactis*, and the evolving polymicrobial bacteremia that developed as a consequence of selection pressure applied by broad spectrum antibiotic use. Bacteremia due to *L. lactis*. remains an uncommon clinical entity. The exact mode of transmission to humans and the pathogenesis of remain poorly defined, with reporting on the identification and treatment of *L. Lactis*. being lacking, largely due to its infrequent occurrence. In this case our patient was predisposed to leuconostoc lactis infection as he was immunosuppressed due to his cancer and ongoing treatment, had an in dwelling catheter in the form of a PICC line, and had advanced biliary disease due to his metastatic pancreatic cancer. Although the detailed route of entry is not clear, opportunistic pathogenic. bacteria may enter the bloodstream via the lymphatic system when the digestive flora or tract is dysfunctional (4). An additional speculative mode of transmission is bacterial translocation due known to occur due to increased intestinal permeability, due to his liver disease (5), though this is debatable as he did not have cirrhosis. This patient was accustomed to having yogurt and cheese, which may have contained this organism.

This case demonstrates *Leuconostoc lactis* as a pathogen in an immunocompromised patient with biliary disease and advanced malignancy. In this case the infection. was successfully treated with amoxicillin. This case also highlights the challenges in managing a bacteraemia without definitive source control, and the risk of selection pressure applied by broad spectrum antibiotic use in the context of a polymicrobial infection.

## References:

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