

UNIVERSIDAD AUTÓNOMA DE SAN LUIS POTOSÍ
FACULTAD DE CIENCIAS QUÍMICAS
LABORATORIO DE MICROBIOLOGÍA GENERAL

CASE RELATED TO *Proteus vulgaris*

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Group: 9:00 – 10:00

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OBJECTIVE

By means of a clinical case, the importance of testing different clinical methods such as biochemical and antibiotic susceptibility tests representing a clinical case with the bacterium of interest is understood.

Clinical case and introduction

- Dead body of a 44 years old male patient, presenting death by Ludwig's Angina engages the floor of the mouth, under the tongue. It often occurs after an infection of the roots of the teeth (such as dental abscess) or a lesion in the mouth.

External Findings of the Autopsy

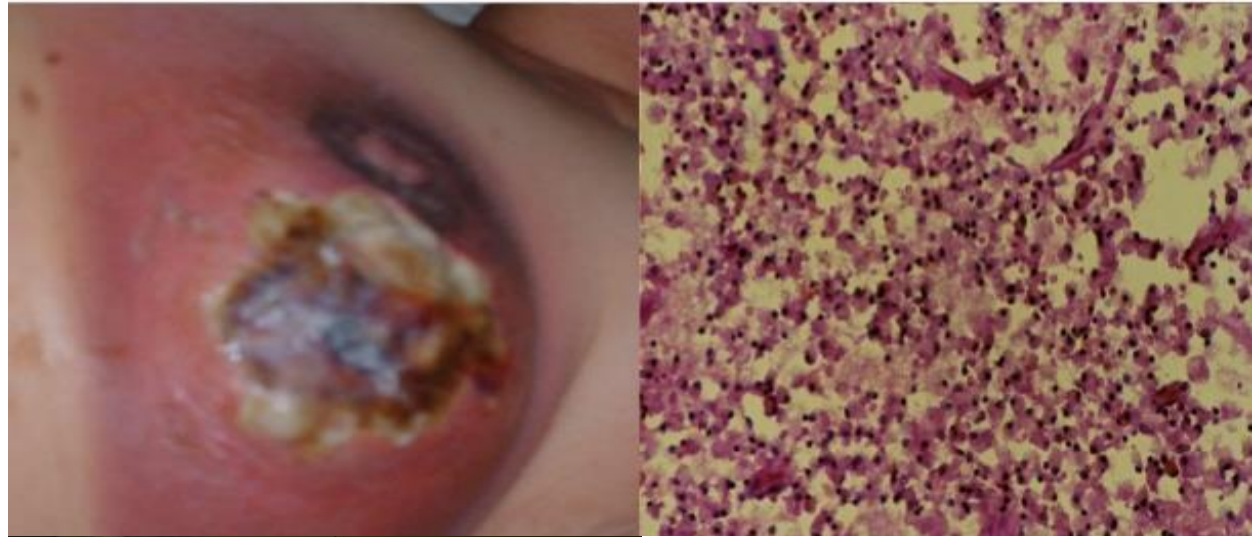
The test revealed

- Jaundice
- Cyanosis of the lips
- Nail beds and oral mucosa
- Greenish-yellowish areas and edema in right hemithorax, base of neck and left hemithorax
- He had a recent surgical incision on his right cheek
- Ancient scars on the chest
- Left arm, anterior axillary line, venipuncture stigmas in the lower third of the right arm, hyperkeratosis of the back of the hands, ringworm in the buttocks and arms in the right knee.



Findings at the internal autopsy

- Liquefying necrosis
- It affects the subcutaneous cellular tissue, masticatory muscles and right temporal muscle, submaxillary and sublingual space, dissects the parapharyngeal space, the aponeurotic planes of the neck muscles, the pectoral muscles, the superior mediastinum
- Pleural, pericardial and diaphragmatic cavities with fibrino-purulent pericarditis
- Bilateral empyema, fibrinopurulent pleuritis
- Septicemia to *Proteus vulgaris* and septic shock
- Mild atherosclerosis, hepatomegaly, and splenomegaly



Bazo normal



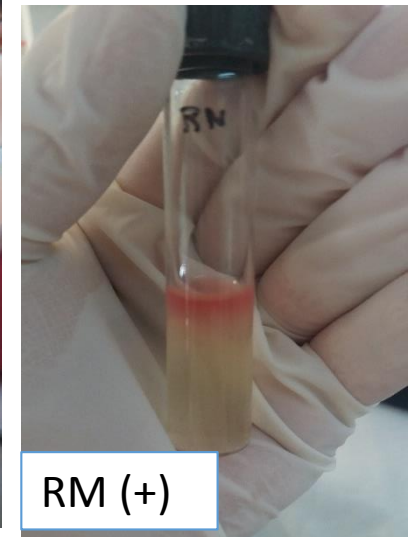
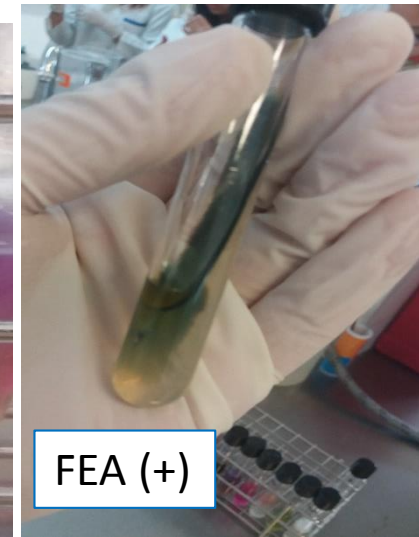
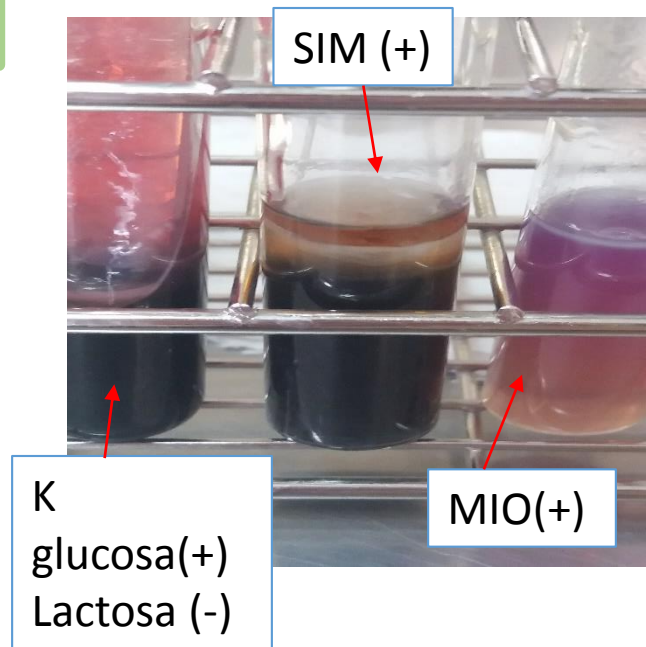
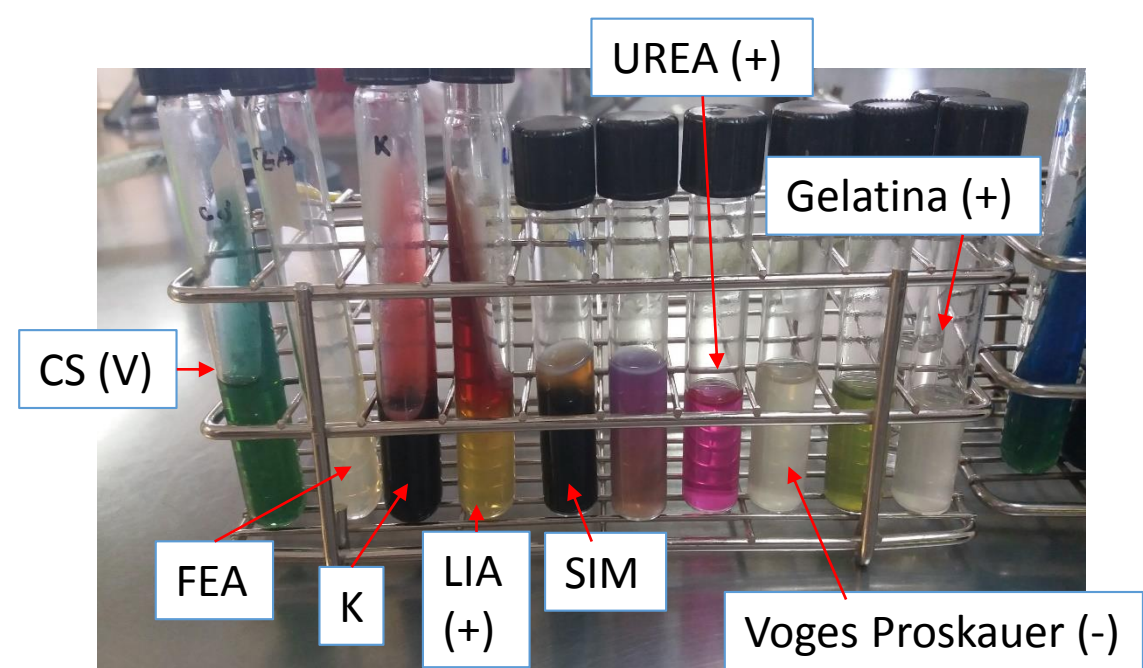
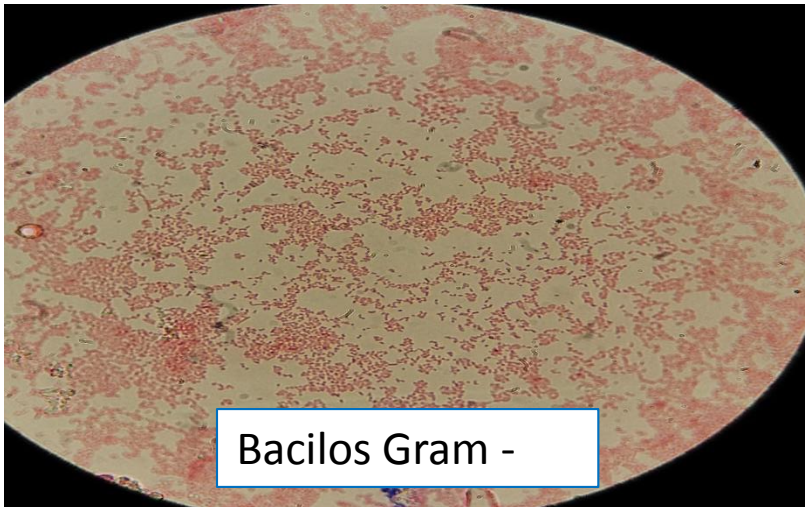
Esplenomegalia

Auxiliary Studies

Aerobic and anaerobic cultures were performed from the cheek and abdomen, where *Proteus vulgaris* was found.

Biochemical tests

Sulfuric acid (+)

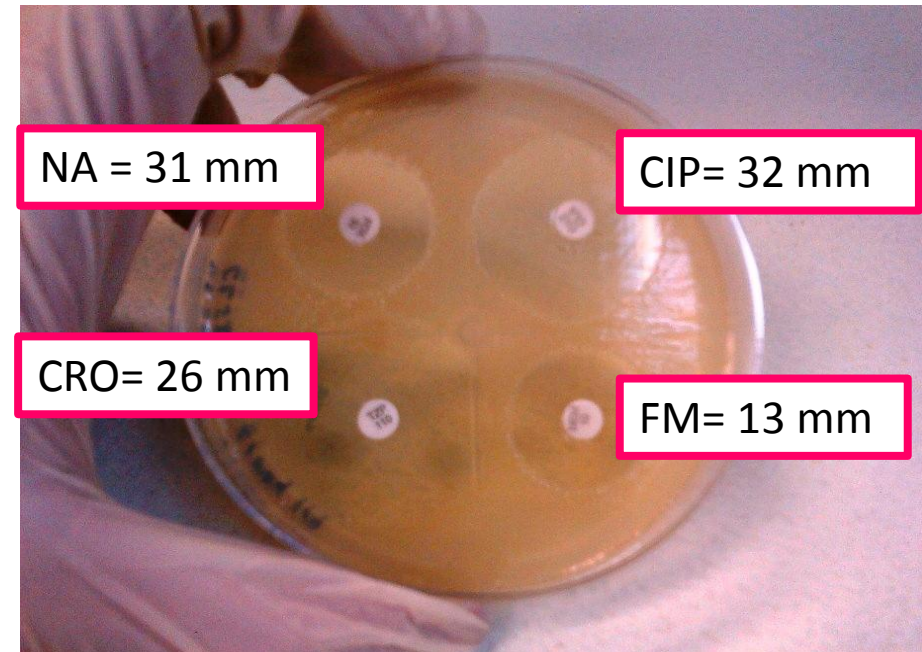


Proteus vulgaris is a Gram-negative bacillus, facultative anaerobic.

Causes urinary tract infections, wounds, and hepatic abscesses.

- ***P. vulgaris*** is generally susceptible to ciprofloxacin, ceftazidime, sulbactam, piperacil and unasyn, among other antibiotics.

It is easy to isolate ***P. vulgaris*** in individuals living in long-term care homes, hospitals and in patients with chronic diseases or with a compromised immune system.



The Antimicrobial Susceptibility test was performed by the Kirby-Bauer technique or by plaque diffusion.

- Standardized by Mc Farland test obtaining an optical density of 0.095
- At the end were placed sensidiscos:

NA: [nalidixic acid](#) (sensitive)

CIP: [ciprofloxacin](#) (sensitive)

FM: [nitrofurantoin](#) (intermediate susceptibility)

CRO: [ceftriaxone](#) (sensitive)

Ludwig's Angina is usually present in patients with poor dental hygiene.

- Clinical presentation includes dental pain, bilateral swelling, dysphagia, cervical involvement, tongue swelling and elevation, mouth floor pain, throat pain, and restricted mobility.

It was found that in 60-70% of cases the infection came from a lower molar, while 10% believed that it was caused by purulent tonsillitis and on a smaller scale by sialoadenitis, erysipelas or infected neoplasia, as well as by producing a double fracture of the jaw



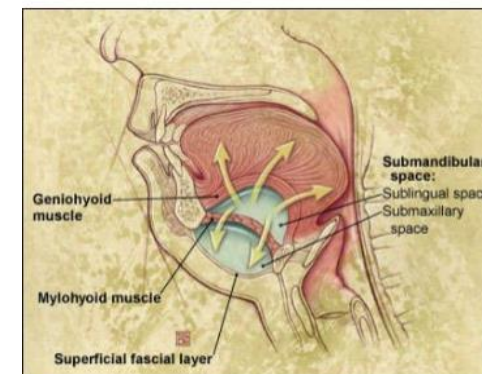
They recommend the association of penicillin with antibiotics of the **macrolide** group by:

- Its ability to reach the bone tissue, which is where the infection usually comes from, and its effectiveness against most of the anaerobic oral flora.

Given the rapidity of its evolution, the established clinical picture was generally observed, making it difficult to determine where it was started.

Drainage should only be performed when there is a clinically detectable discharge, and exceptionally when no response is obtained with medical treatment, when anaerobes are suspected (fetid odor, tissue gas, black exudate coloration) or melaninogenic bacteroids.

Macrolides: inhibit protein synthesis by binding to the 50S ribosomal subunit, inhibiting the translocation of the aminoacyl tRNA. It also has effects on the level of the peptidyl transferase.



- The etiological agents of this condition are *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Bacteroides* genus, *Fusobacterium nucleatum*, *Enterobacter aerogenes*.
- In this case it was *Proteus vulgaris*. The cause of death was Ludwig's angina with septicemia by *Proteus vulgaris* and septic shock.

CONCLUSION

Ludwig's Angina is a rapidly progressive and potentially life-threatening disease that can occur as a cause of sudden death.

To effectively treat it, adequate compression of the pathophysiology of the disease and the anatomy of the surrounding neck and tissues must be taken.

You may have some complications in:

- Blockage of the airways, Generalized infection (sepsis), Septic shock

It can be cured with proper protection of the respiratory tract and the use of suitable antibiotics

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- <http://www.infecto.edu.uy/terapeutica/atbfa/macro/macrolidos.htm>