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Facultad de Ciencias Químicas
Laboratorio de Microbiología General

Morganella morganii

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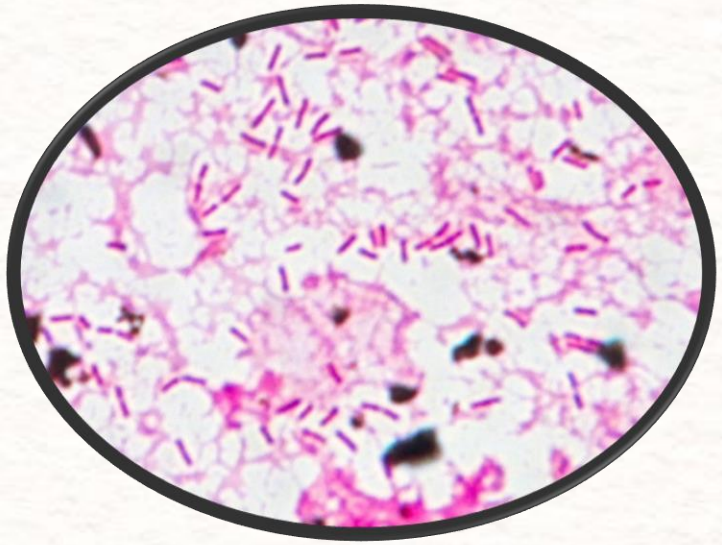
Grupo: 9:00-10:00

Morganella morganii

- Gram-negative microorganism belonging to the family Enterobacteriaceae, isolated in 1906.
- Bacteria present in fecal flora, although they can also be found in soil and in sewage.
- Causing as other Enterobacteriaceae of urinary infection and, to a lesser extent, other infections in the gynecological sphere or surgical wound, often in the form of outbreaks of nosocomial infection.



Early neonatal sepsis caused by vertical transmission of *Morganella morganii* in a term pregnancy

Morganella morganii has been associated with neonatal infections, severe early onset, pneumonia and sepsis, with a history of premature delivery.

- Primigesta of 15 years of age, with gestation of 60 weeks.
- Vaginal birth, of newborn of 3,400 g male, with very bad smell, without description of meconium in said childbirth.
- Laboratory tests can help diagnose neonatal sepsis and identify the cause of the infection. Blood tests may include:
  - ✓Hemoculture
  - ✓C-reactive protein
  - ✓White blood cell count (CGB)

The infant was admitted to the ICU, with intubation, presenting:

- ✓ Optimal gestational age.
- ✓ Severe perinatal asphyxia.
- ✓ Probable connatal infection.
- ✓ Commitment of the CNS.
- ✓ Ischemic hypoxic encephalopathy.
- ✓ Need for ventilatory and vasoactive drug support.

At 24 hours of life the blood cultures taken at birth were positive for *Morganella morganii*, changing the antibiotic scheme:

AMS → CTX

The neonate died at 17 days of age. Revealing the autopsy:

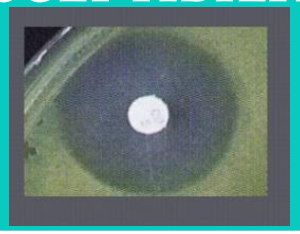
- ✓ Morphological signs of septic shock.

The mother evolved:

- ✓ Feverish
- ✓ No clinical signs of infection.
- ✓ Culture of positive lochia for *M.morganii*, sample taken on the first day of puerperium.

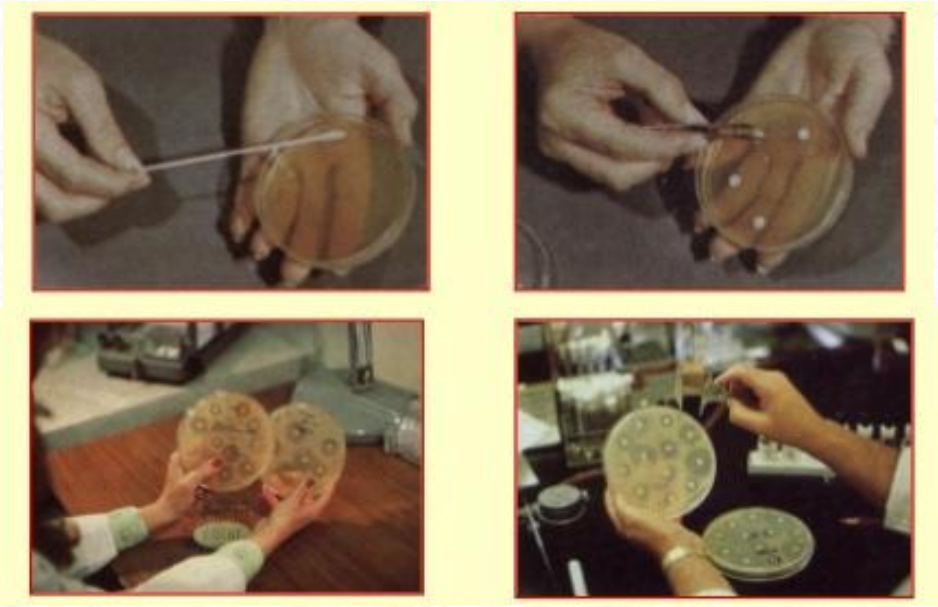
AMS: Ampicillin/Sulbactam CTX: Cefotaxime

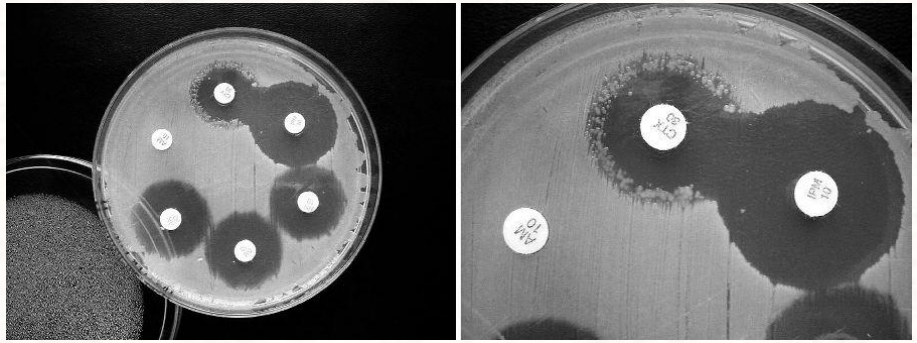
The antibiogram of this strain showed:

SUSCEPTIBILITY 	*RESISTANCE* 
SXT: Trimethoprim/sulfamethoxazole (1.25/ 23.75 µg) RESISTENTE < o = (mm) 10 INTERMEDIO (mm) 11-15 SENSIBLE > o = (mm) 16	**AM: Ampicillin (10 µg)** R: 13 mm I: 14-16 mm S: 17 mm
GM: Gentamicin (10 µg) R: 12 mm I: 13-14 mm S: 15 mm	**CF: Cefalotin (30 µg)** R: 14 mm I: 15-17 mm S: 18 mm
AN: Amikacin (30 µg) R: 14 mm I: 15-16 mm S: 17 mm	**AMS: Ampicillin/Sulbactam (10/10 µg)** R: 11 mm I: 12-14 mm S: 15 mm
CIP: Ciprofloxacin (5 µg) R: 15 mm I: 16-20 mm S: 21 mm	
CTX: Cefotaxime (30 µg) R: 22 mm I: 23-25 mm S: 26 mm	

Regulated and controlled, according to the reports of the OMS and CLSI.

- There are different laboratory techniques that can be used to evaluate the resistance of bacteria to different antimicrobial agents.
- Among these techniques, the disc diffusion susceptibility test (Kirby-Bauer technique) is the most common, it´s based on obtaining halos of inhibition that correlate with MIC

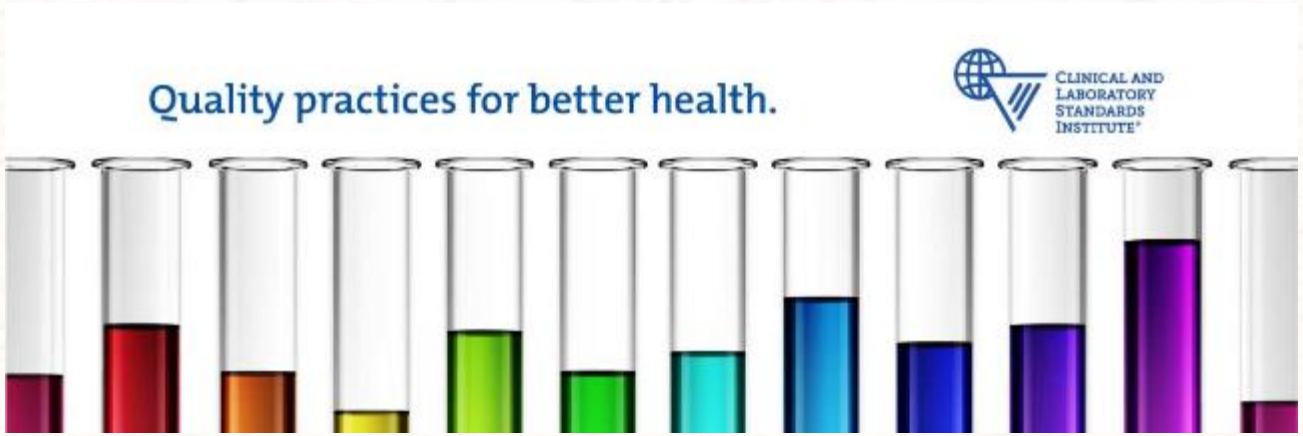




- ✓ Do not use more than 5 discs per plate.
- ✓ Separate at a minimum distance of 2.4 cm. And away from the edge of the plate to more than 1 cm.
- ✓ Mueller Hinton agar should be used, provides good lot-to-lot reproducibility.
- ✓ The height of the agar layer should be approximately 4 mm.

- In order to obtain reliable and uniform results, the techniques used, the means and the procedures used must be standardized.

- Today, the Clinical Laboratory Standards Institute (CLSI) is responsible for updating and modifying the original Kirby-Bauer procedure through a global consensus process.



- The use of standardized culture media and the control of conditions during the test are essential requirements in the microbiological testing of antibiotics in order to achieve satisfactory results.

- The choice of the appropriate medium is an important factor to ensure reproducibility in the analyzes performed.

- In the clinical field, the antimicrobial susceptibility study constitutes a fundamental tool for the surveillance of resistance to antibiotics in different microorganisms.

Bibliography

- "Manual de Pruebas de Susceptibilidad Antimicrobiana", S.J. Cavalieri ... [et al.] , American Society for Microbiology; University of Washington, editora Coordinadora, pág 155, 2005.

- PRONADISA, Micro and Molecular Biology. «Pruebas para susceptibilidad de bacterias a antibióticos (PSA)"

Extraído de:

✓ http://www.condalab.com/pdf/Antibiotic_Susceptability_Test_esp_new.pdf

- Laboratorios Brizuela S.A. "Monodiscos."

Extraído de:

✓ http://www.brizuela-lab.com.ar/monodiscos%20para%20antibiogramas.htm

- http://clsi.org/wp-content/uploads/sites/14/2013/07/CLSI-2015-Catalog.pdf