



Autonomous University of San Luis Potosí

Faculty of Chemical Sciences

General microbiology laboratory

Diarrhea outbreak associated with *Shigella sonnei* due to water pollution, San José, Costa Rica, 2001

Student: Ruiz Jiménez Olga Alicia

Teacher: Juana Tovar Oviedo

Group: 10:00-11:00

- Objective: to determine the presence of *Shigella* spp in the cases of diarrhea treated in one of the clinics located in the area of the outbreak.



Fecal specimens from 49 patients with diarrhea who went to the Alajuelita clinic were analyzed from July 17 to 31, 2001.

Shigella sonnei

Shigella is a bacterial genus belonging to the family Enterobacteriaceae, composed of bacteria of bacillary form, not sporulated, immobile, but animated of pendular movement in situ.



SHIGELLOSIS

- Is an acute invasive intestinal infection caused by bacteria belonging to the genus *Shigella*.

- Produce un cuadro gastrointestinal caracterizado por diarrea, fiebre, náusea y calambres estomacales



Forms of contagion



Eat contaminated food



Flies can procreate in infected feces and then contaminate food



When drinking or bathing in contaminated water.



Shigella enteritis outbreaks are associated with countries with poor sanitary conditions and overcrowded living conditions.

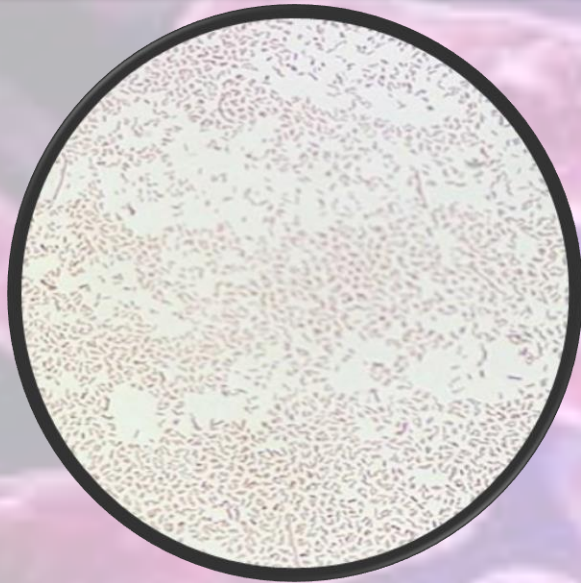
Diagnostic

METHODOLOGY

- Isolation of the Shigella bacteria from a deposition sample.
- Perform gram stain
- Biochemical testing
- Conducting sensitivity tests



Results



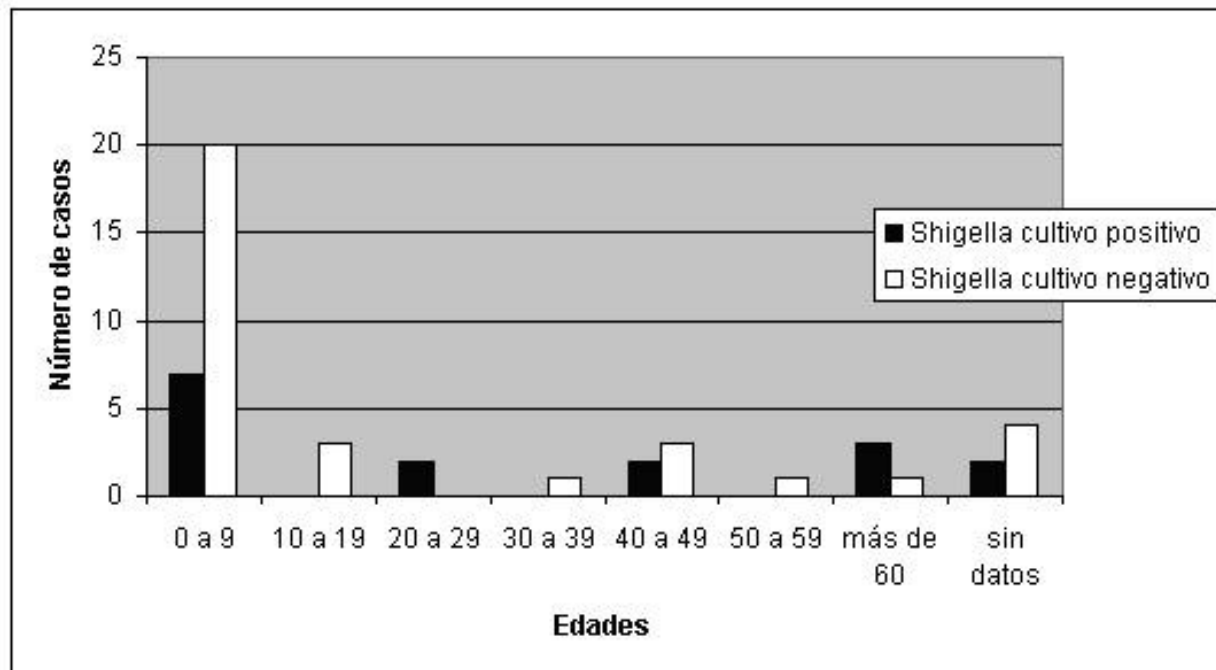
BIOCHEMICAL TESTING

Indol	(-)
Rojo de metilo	(+)
Voges Proskauer	(-)
Citrato de Simmons	(-)
Ácido sulfhídrico	(-)
Urea	(-)
Movilidad	(-)
Gelatina	(-)
Lisina descarboxilasa	(-)
Ornitidina descarboxilasa	(+)
Fenilalanina desaminasa	(-)
Lactosa	(-)
Glucosa (sin gas)	(+)

- Sixteen isolates of *Shigella* spp were obtained (34.7%), 15 corresponded to *Shigella sonnei* and only one to *Shigella flexneri*.

- The most affected age groups were children younger than 10 years and people over 60 years.

Figura 1: Distribución por edades de 49 pacientes atendidos por diarrea en la Clínica de Alajuelita durante el brote asociado a contaminación del acueducto metropolitano, San José, Costa Rica.



ANTIBIOTIC	DIAMETER (CLSI)	DIAMETER	SENSITIVITY
Amikacin	≥17	22 mm	Susceptible
Ampicillin/sulbactam	≥15	14 mm	Intermediate
Cefuroxime	≥18	32 mm	Susceptible
Imipenem	≥16	33 mm	Susceptible

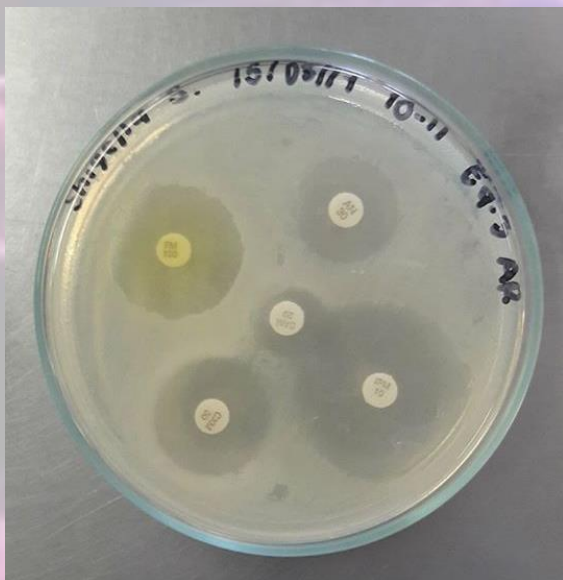
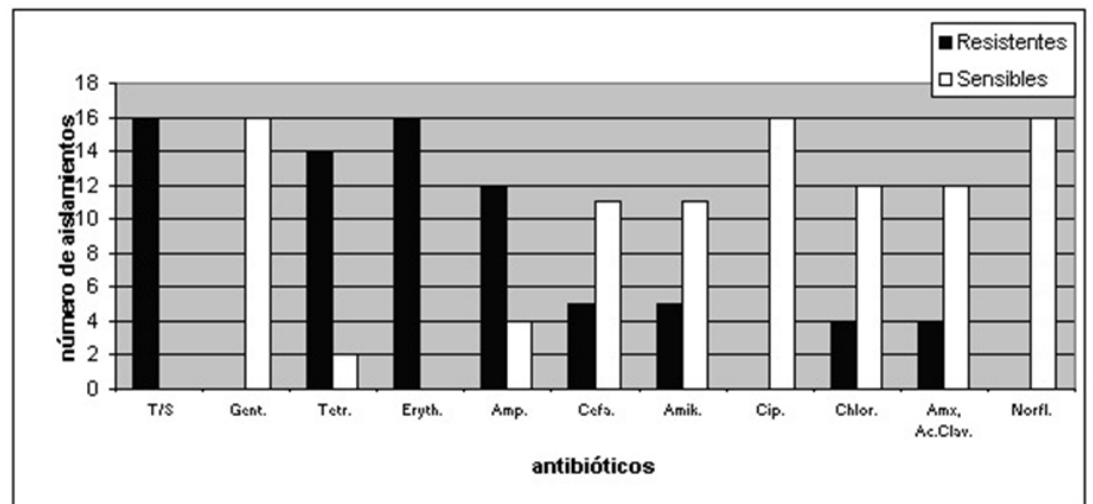


Figura 2: Patrón de sensibilidad a 11 antibióticos de los 16 aislamientos de *Shigella spp* en pacientes con diarrea atendidos en la Clínica de Alajuelita durante el brote asociado a contaminación del acueducto metropolitano, San José, Costa Rica.



Bibliography

- Retrieved on March 16, 2017 from:
http://coli.usal.es/web/demo_fundacua/demo1/shigella.html
- Retrieved on March 16, 2017 from:
<http://www.who.int/topics/cholera/publications/shigellosis/es/>
- Retrieved on March 16, 2017 from:
<http://salud.discapnet.es/Castellano/Salud/Enfermedades/EnfermedadesEndemicas/Paginas/Shigelosis.aspx>
- Retrieved on March 16, 2017 from:
http://www.scielo.sa.cr/scielo.php?pid=S0253-29482004000100002&script=sci_arttext