Al-Mustaqbal University College
Dept. Medical Lab. Techniques
Diagnostic Microbiology 20/2021
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Lecture-20, *Brucella*….. Malta fever

Brucell is a genus of Gram-negative bacteria, named after David Bruce (1855–1931). They are nonencapsulated, nonmotile, facultatively intracellular, cause of brucellosis, which is a zoonosis transmitted by ingesting contaminated food (such as unpasteurized milk products), direct contact with an infected animal, or inhalation of aerosols. Transmission from human to human, for example through sexual intercourse or from mother to child, is rare.

The many names of brucellosis include:

- Malta fever.
- Undulant fever.
- Mediterranean fever.
- Rock fever.
- Gastric fever.
- Contagious abortion.

Symptoms include acute undulating fever, headache, night sweats, and anorexia. Later complications may include arthritis, spondylitis, neurobrucellosis, liver abscess formation, and endocarditis, the latter potentially fatal.

Diagnosis: *Brucella* can be isolated from a blood culture or from bone marrow on Castaneda medium after an incubation of up to six weeks, as they are slow-growing. On Gram stain, they appear as dense clumps of Gram-negative coccobacilli. In recent years, PCR method is used.

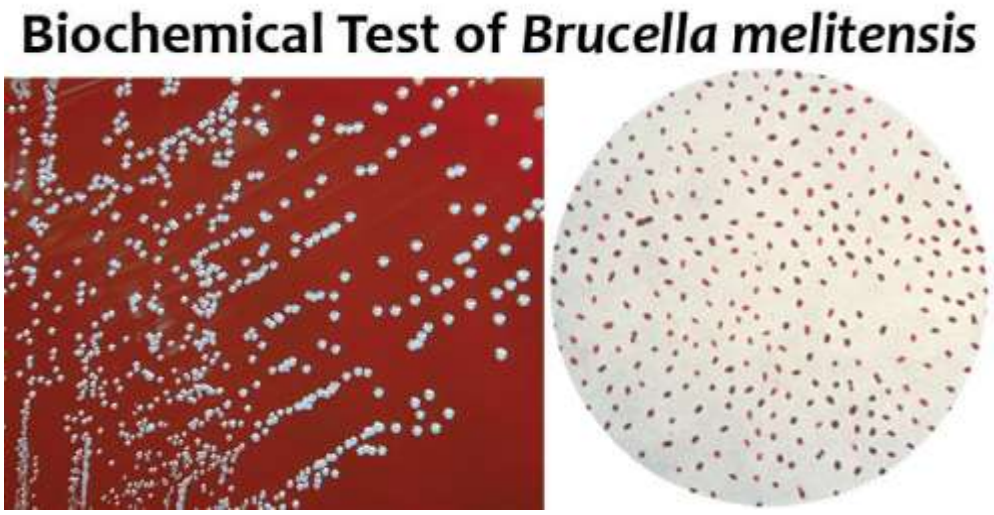
Differentiating *Brucella* from *Salmonella* is based on urease test, since it is positive for *Brucella* and negative for *Salmonella*.

Oxidase and catalase tests are positive for most *Brucella*.

Serum agglutination with a titer > 1:160 supports the diagnosis of brucellosis. ELISA is the second-most common serologic method. The sensitivity of the ELISA is 100%. The prognosis for brucellosis before the use of antibiotics had a mortality of 2%, mainly due to endocarditis, and morbidity was high, especially with *B. melitensis*.

Test		*B. melitensis*	*B. abortus*	*B. suis*	*B. neotomae*	*B. ovis*	*B. canis*
Need to CO_2		-	+	-	-	+	-
production of H_2S		-	+	+	+	-	-
Growth on basic fushin 0.002%		+	+	-	-	+	-
Growth on thionin 0.004%		-	-	+	-	+	+
Growth on thionin 0.002%		+	-	+	+	+	+
Destroy with Tb phage		-	+	-	-	-	-

Species	Host
B. melitensis	goats and sheep
B. abortus	cattle
B. canis	dogs
B. suis	pigs
B. ovis	sheep
B. neotomae	desert woodrat



Basic Characteristics	Properties (*B. melitensis*)
Capsule	Negative (-ve)
Catalase	Positive(+ve)
Flagella	Negative (-ve)
Gelatin Hydrolysis	Negative (-ve)
Gram Staining	Gram Negative (-ve)
H2S	Negative (-ve)
Hemolysis	Negative (-ve)
Indole	Negative (-ve)
Litmus Milk	Negative (-ve)
Motility	Negative (-ve)
MR (Methyl Red)	Negative (-ve)
Nitrate Reduction	Positive(+ve)
Oxidase	Positive(+ve)
Shape	Coccobacilli, or short rods
Spore	Negative (-ve)
Urease	Positive(+ve)
VP (Voges Proskauer)	Negative (-ve)
