## **Genus: Borrelia species**

### **Taxonomy and classification**

- Order :Spirochaetales includes two families
- Family: Spirochaetaceae
- Family: Leptospiraceae
- Genus: Serpulina, Treponema, Borrelia (Spirochaetaceae)
- and Leptospira(Leptospiraceae)
- non-pathogenic spirochete
- pathogenic spirochete (Leptospira, Treponema, Borrelia)

#### **General characteristics**

- Helical, slender, relatively long cells
- The Borrelia species are Spirochaetes highly adapted to arthropod transmission.
- They infected both human and animals

#### **General characteristics**

- The animals pathogens includes:
- *B.burgdorferi* caused (Lyme disease)
- *B.anserina caused* (avian spirochetes)
- *B.theileria caused* (tick spirochaetosis in cattle)

#### **Natural Habitat**

- Ticks are the main vectors of Borrelia affecting animals .
- The Rodents main reservoir of *B.burgdorferi*
- *B.anserina* infection occurs in all countries and the birds is the reservoir and the ticks is the main vector.













### Pathogenesis and pathogenicity

- Endotoxin may be involved in pathogenesis of Borrelia spp.
- In Lyme disease Immune complexes and immunosuppression may also play part in pathogenesis
- *B.burgdorferi* infects humans ,dogs and other domestic animals
- The first manifestation is skin rash around the site of tike bite

<u>Laboratory diagnosis</u> *Borrelia anserine* 



- Detection of Borrelia (8-20µm in length) in blood , spleen and liver by dark field microscopy, Giemsa stain, fluorescent antibody(FA) technique
- culture the bacteria in 6-10 day old fertile chicken or turkey eggs
- Immunodiffusion tests used to detection either antigen or antibody.

Laboratory diagnosis

Borrelia theileria

Detection the organism in blood using darkfeild microscope(20-30µm in length) or detection by Giemsa stain smear

<u>Laboratory diagnosis</u> *B. Burgdorferi* 

 Detection of Borrelia (10-30µm in length) in tissues and joint fluids by dark field microscopy, Giemsa stain, fluorescent antibody(FA) technique



#### **Laboratory diagnosis**



## **B. Burgdorferi**

- culture the bacteria in Kelley's medium and examined weekly by dark field microscopy
- Molecular procedure have been developed to identified the bacteria
- Serology : indirect FA technique for antibody detection and ELISA technique also used.

## References



# Any Question