Brucellosis

The species of brucella and their principal farm animal host are :

Brucella abortus ----------*cattle .*

Brucella melitensis---------*Goat*

Brucella ovis ----------*sheep.*

Brucella suis----------*swine.*

Brucellosis Caused by Brucella abrtus (Bangs disease).

Epidemiology :

1- Is wide spread and of major economic importance occurs in cattle of all age but persist most commonly in sexually mature animal.
2- Congenital infection occurs in calves borne from infected dams.
3- Infection occur in utero and may remain latent in the calf in early life and the animal may remain serologically negative until its first parturition .
4- The disease occur naturally in sheep exposed to infected cattle.
5- *Brucella abortus* it is greatest concentration in the contents of the pregnant uterus ,the fetus and fetal membranes and consider major source of infection.
6- Disease Transmitted by : ingestion .
7- Penetration of the intact skin and conjunctiva and contamination of the udder during milking.
8- Introduction of infection by flies, dogs, rats, ticks and fodder .
9- The organism susceptible to heat, sunlight and slandered disinfectant .
10- B. abortus cause **undulant fever** in man, infection occurring by drinking of infected milk and occur in human work in meat processing and other source is domestic big ,cattle and unpasteurized dairy product**.**

Pathogenesis:

- Br. abortus predilection for the pregnant uterus ,udder,testicle and accessory male sex gland ,lymph node ,joint capsules and bursae.

- B.----invasion of the body -----localization occur in lymph node draining the area and spread to other lymphoid tissue including spleen and mammary and iliac lymph node .
- In the adult ,non-pregnant cow ,localization in the udder and uterus .
- Infected udder clinically normal but itasource of reinfection of uterus, as a source of infection for calves or human drinking the milk.
- Erythriol : substance produced by the fetus and capable of stimulating growth of Brucella abortus .
- Erythritol occur in greatest concentration in the placental and fetal fluid and it responsible for localization of the infection in the tissue .

Clinical Finding :

1-in highly susceptible non-vaccinated pregnant cattle ,abortion after the 5^{th} month of pregnancy.

2-retention of placenta and metritis .

3- in the bull,orchitis and epididymitis ,one or both scrotal sacsmay be affected with acute ,painful,swelling to twice normal size

4- the seminal vesicles enlargement can be detected on rectal palpation .

5-B. abortus can isolated from lesion of non suppurative synovitis in cattle

6-Hygromatous swelling especially of the knees.

7-erosive non suppurative arthritis of stifle joint.

Clinical pathology :

1-Isolation of the organism

2- Tests for presence of antibodies of Br. abortus in blood ,milk ,why,vaginal mucus and seminal plasma .

3-the organism may be present in the cervical mucus ,uterine flashing and udder secrstion of experimentally infected cow for up to 36day after abortion

4- Br.require 5 day -2weeksto grow.

5-Elisa test .

6-Rose Bengal test use as an initial screening test.

Necropsy finding :

1- Necrotizing placentitis and disseminated inflammatory reaction in aborted tissue .
2- Pathological changes in bovine fetus include : granulomatous lesion and focal necrosis in several organism ,edema of the subcutis and skeletal muscle
3- Serohemorrhagic lesion in body cavities and bronchopneumonia
4- Placenta isusually edematous ,necrosis of cotyledone.

Differential diagnosis of abortion in cattle

1-Brucellosis ,(Brucella abortus) / 5 months +

2-Trichomonosis ,(Trichomomas foetus) / Primarily first ,5 months

3-Neosporosis (Neospora caninum) /3-8 months of gestation (mean 5 . 5 months)

4-Vibriosis,(Campylobacter fetus /46 months

5-Leptospirosis Abortion may occur at acute 25-30% Abortions

6-Infectious bovine rhinotracheitis/second half of gestatio

7-Mycoses (Aspergillus, Absidia) /3-7 months

8-Listeriosis / 7 months Autolys

9-Epizootic bovine abortion / Third trimester abortion or birth of premature weak calves

10-Bovine viral diarrhea/ Any time during gestation; most common in first trimester

Treatment :

RX

-treatment is unsuccessful because of intracellular organism ,in LN.and mammary gland and reproductive organs.

- long acting oxytetracyclin 20mg/kg.bw. ,I/m 3-4 days.interval for five treatment with combination ,

-Streptomycin 245mg/kg.Bw. i/m daily 12-20 days.

Control:

1- Control and eradication :

-Test and reduction of reservoir of infection ,all breeding cattle in the herd are tested and those whichpositive culled and ssent to slaughter.

- Quarantine

- Depopulation

-Vaccination :

The vaccine use are:

-Strain-19 vaccine of Brucella abortus ,vaccination at 4 and 8 month of age

-Calves vaccinated at 2months of age

-Strain K45/20A adjuvant -------dead vaccine ,two vaccination is need ,is ineffective when given before 6 month of age .

-Hygienic measures :isolation or disposal al infected animal

-disposal of aborted fetuse ,placenta and uterin discharge .

-disinfection of contaminated area,chlorhexidine gluconate effective .

Brucella melitensis in Goat

organism present in milk of infected goats. Br. melitensis is the most invasive and pathogenic for human resulting disease is sever and long lasting. ,

Caused brucellosis in goat and sheep and occasionaly cattle and Caused malta or Mediterranean fever in human .

Diagnosis : Is made only because the infection has diagnose in human.

Treatment : RX

500 mg of tetracycline intraperitoneal for 6weeks .

Control

- Vaccination with ,Elbergs REV1(living attenuated).,vaccinated animal at 3-8 month of age .
- Killed adjuvant vaccine called H38 use in lactating and pregnant does.
- *Br. abortus* Strain 19 used .