

**Investigation of haemoparasitic diseases of cattle in
Assam with special reference to *Theileria
orientalis*..... signs & symptoms, detection,
associated risk factors and treatment.**

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Pictures: Dr. Parikshit Kakati.

Prevalent haemoparasites

1. *Babesia bigemina*.

Vector: Rhipicephalus (Boophilus) microplus.

2. *Anaplasma marginale*.

Vector: Rhipicephalus (Boophilus) microplus.

3. *Theileria orientalis*.

Vector: Rhipicephalus (Boophilus) microplus.

Haemaphysalis bispinosa.

4. *Trypanosoma evansi*.

Vector: Tabanus fly.

Risk factors

- Predisposing factors associated with *Theileria orientalis*.
 - Pregnancy (Last trimester).
 - Peak lactation in case of high yielders.
 - Newly introduced animal.
 - Transportation stress.
 - Pure and cross-bred animals.
 - Concurrent viral and bacterial infections.

Symptoms observed in *Theileria orientalis*.

- High rise of body temperature.
- Inappetance.
- Sudden drop in milk yield.
- Lacrymation.
- Anaemia.
- Abortion.
- Passing of tarry colored (Black) sticky dung.
- Non responsive to treatment with antibiotics and antiprotozoals used against babesiosis.
- Chronic cases will have normal body temperature but animal will be depressed and reluctance to eat.

Diagnosis

- Sample to be collected: Whole blood in EDTA/ Heparin.
- Diagnosis methods:
- Microscopic examination of Giemsa stained blood smear.
- Molecular detection by Polymerase Chain Reaction (PCR).

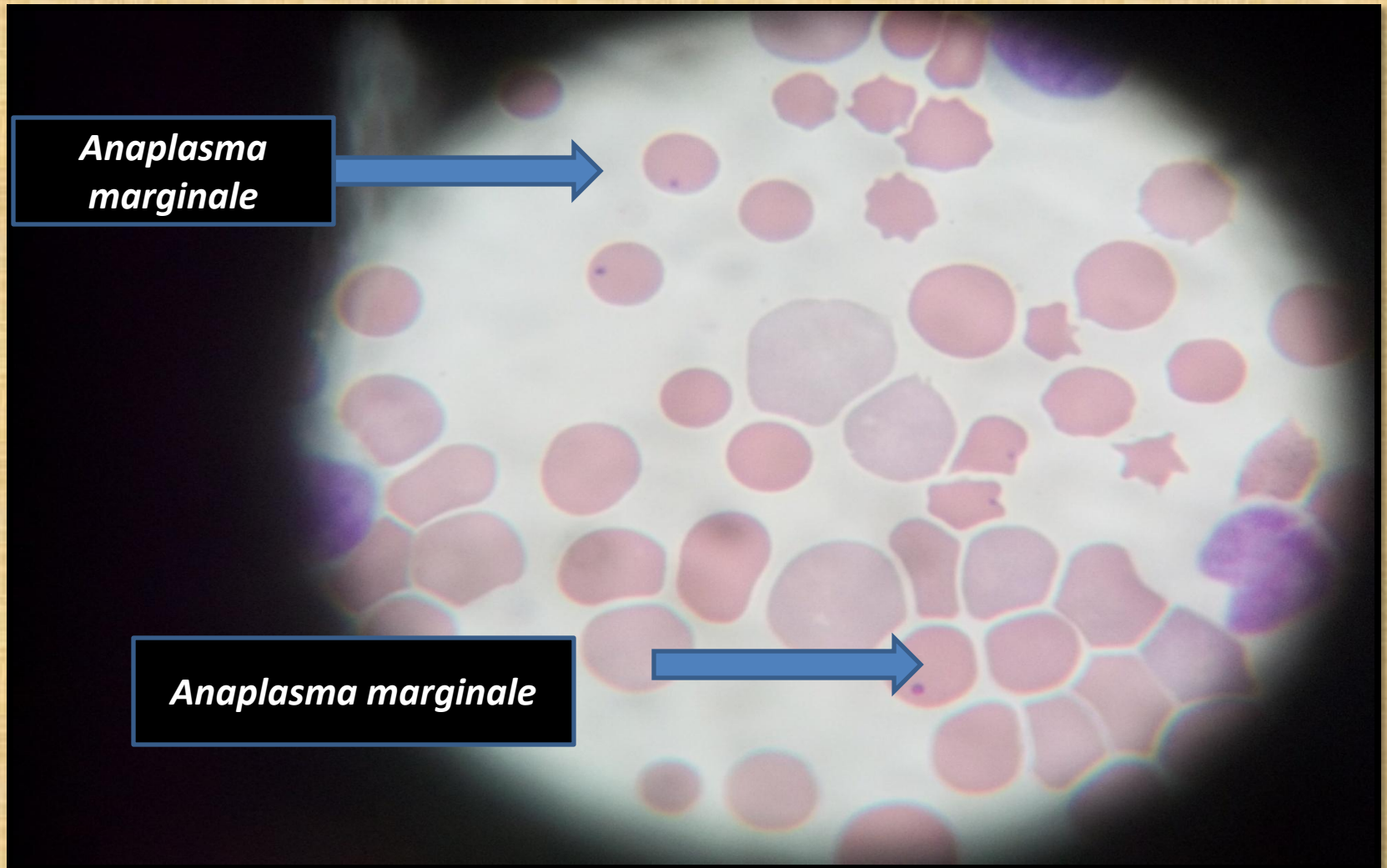
Treatment

- Animals can be treated if the case is detected early.
- Only drug of choice: Buparvaquone (Marketed as Zubion, Thelzon etc. by various brands).
- Presentation: 2 ml and 20 ml glass vials.
- Dosage: 2.5 mg per Kg body weight/ 1 ml per 20 kg body weight.
- Route: Deep intramuscular only.
- Schedule: Single injection is sufficient to cure the animals but may be repeated at 72 hours interval if parasite is again detected at 72 hours post treatment.

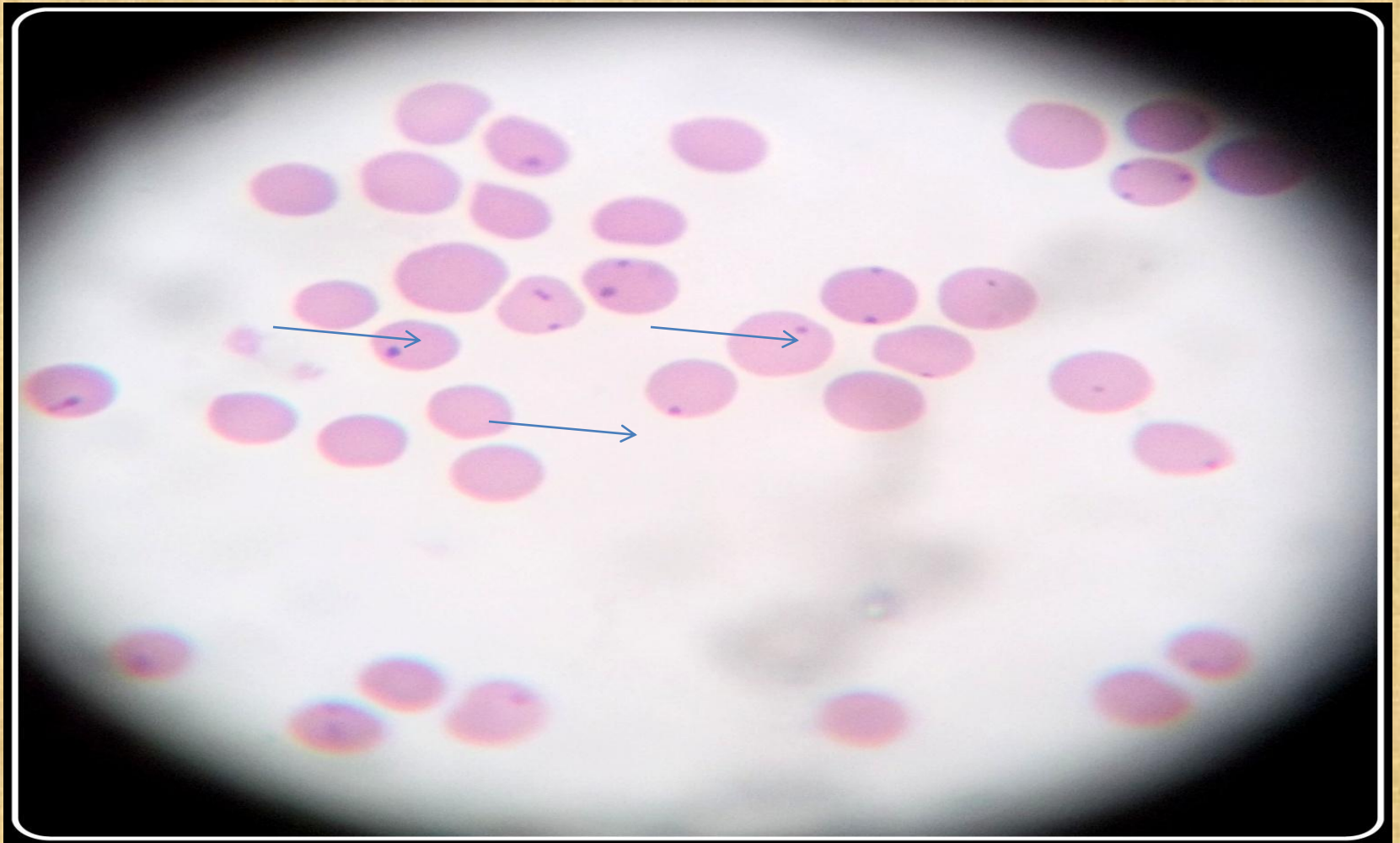
Prevention and control

- Screening of herd at least twice a year.
- Screening of the new animal for presence/absence of the parasite before introducing into the herd.
- Monitoring the pregnant animals, specially in their last trimester for signs of disease.
- Control of tick vectors by using appropriate acaricides in rotational manner at least thrice a year.
- Burning of unused hay and dried grass, cracks and crevices of the barn.
- Providing antistress/ immune-stimulant medicines like restobal, stressvit etc during pregnancy and after calving.
- No vaccines are available against *Theileria orientalis*.
- Owners should not use Rakshavac-T vaccine which is used against *Theileria annulata* and is not prevalent in this part of the country till now.

Giemsa stained blood smear showing *Anaplasma marginale* organisms on the RBC periphery.



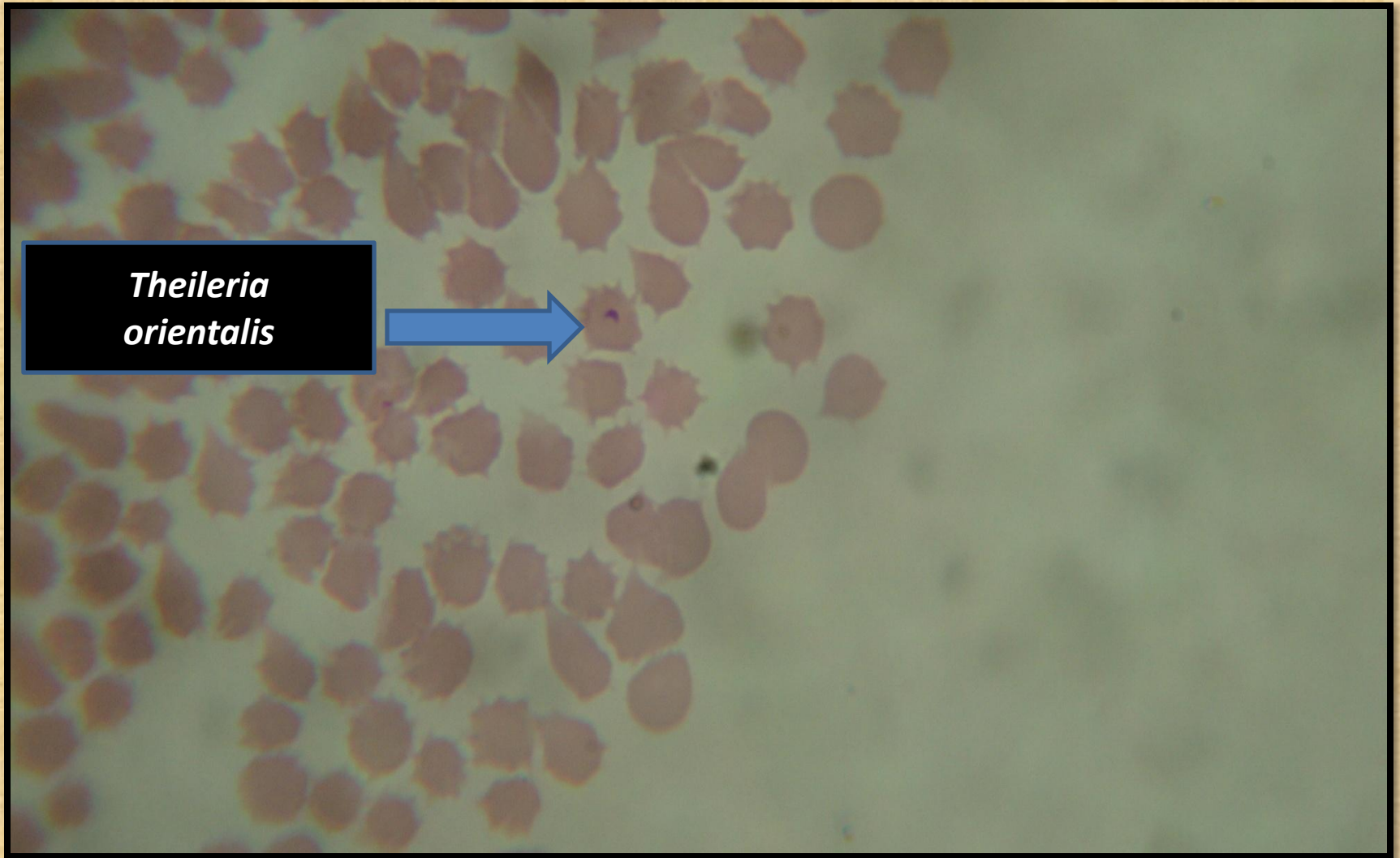
Giemsa stained blood smear showing numerous *Anaplasma marginale* organisms on the RBC periphery.



Giemsa stained blood smear showing paired pear shaped *Babesia bigemina* inside the RBC.



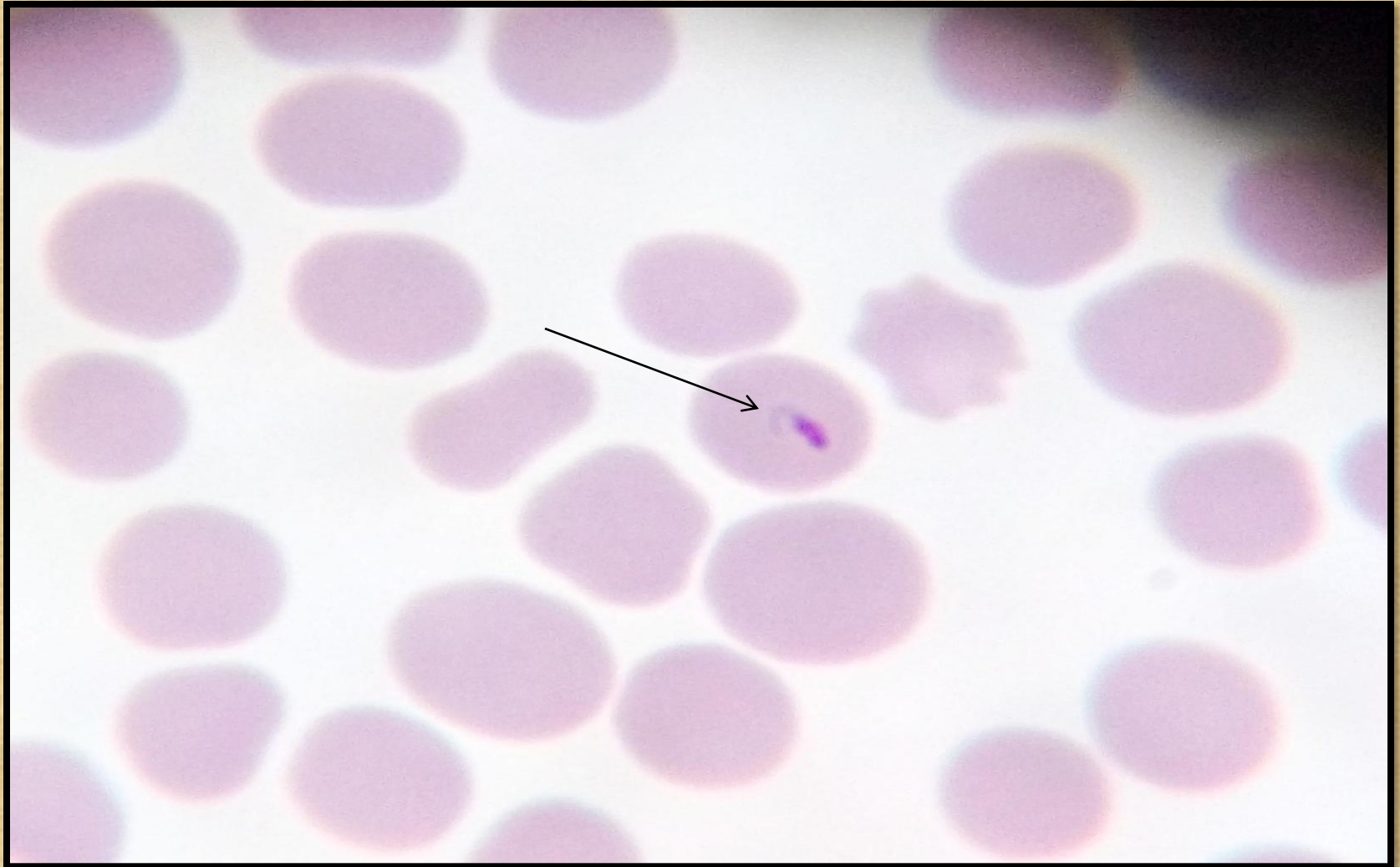
**Giemsa stained blood smear showing crescent shaped
Theileria orientalis inside the RBC.**



**Giemsa stained blood smear showing intraerythrocytic rod of
T. orientalis. (X1000)**



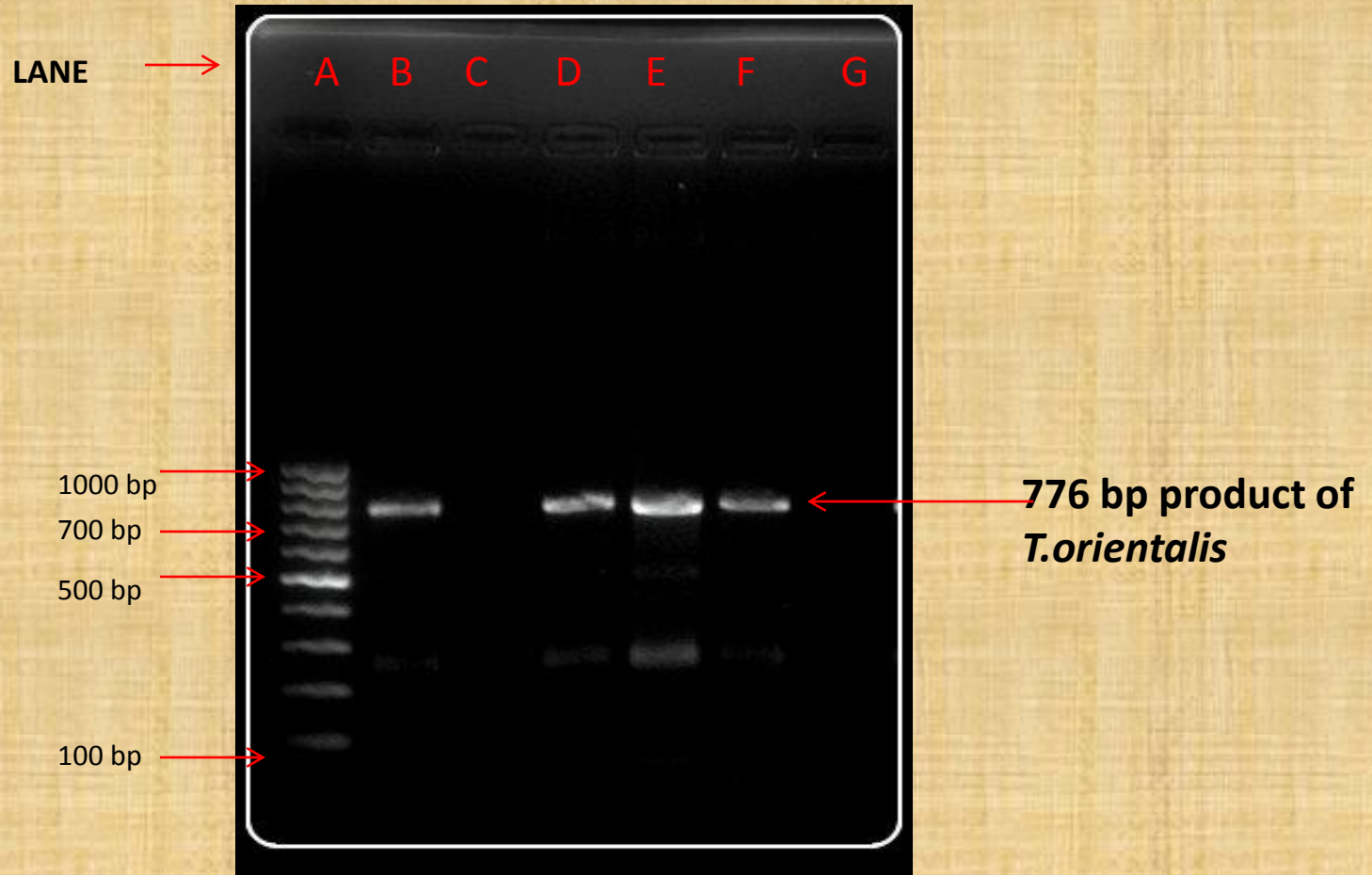
**Giemsa stained blood smear showing comma shaped
intraerythrocytic form of *T. orientalis*. (X1000)**



Giemsa stained blood smear showing intralymphocytic schizont of *T. orientalis*. (X1000)



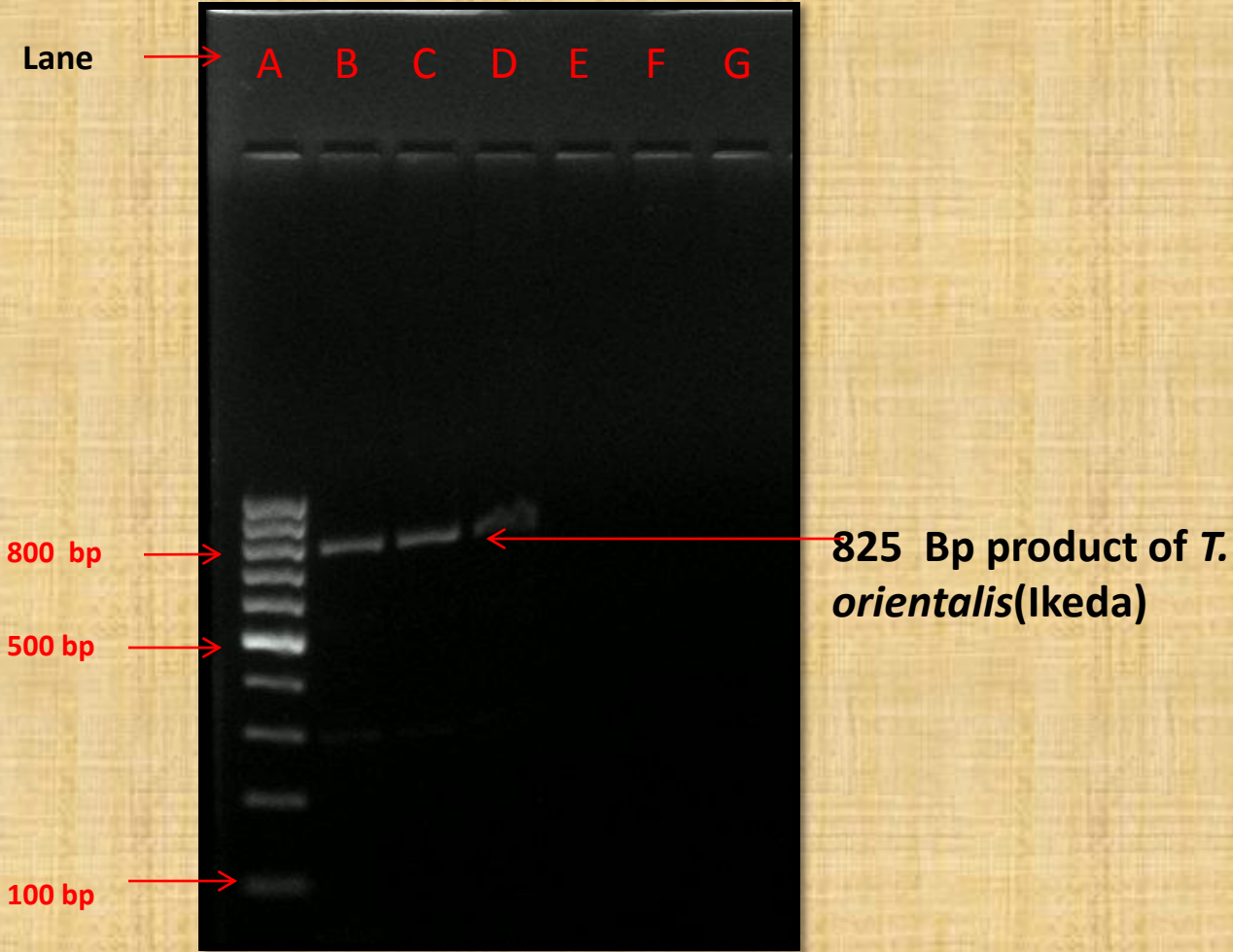
Gel picture showing 776 bp product of *Theileria orientalis*.



Lane A: 100 bp Ladder
Lane B: Positive Control
Lane C: Negative Control

Lane D,E,F : Positive Sample
Lane G: Negative Sample

Gel picture showing 825 bp product of *Theileria orientalis* Ikeda Strain

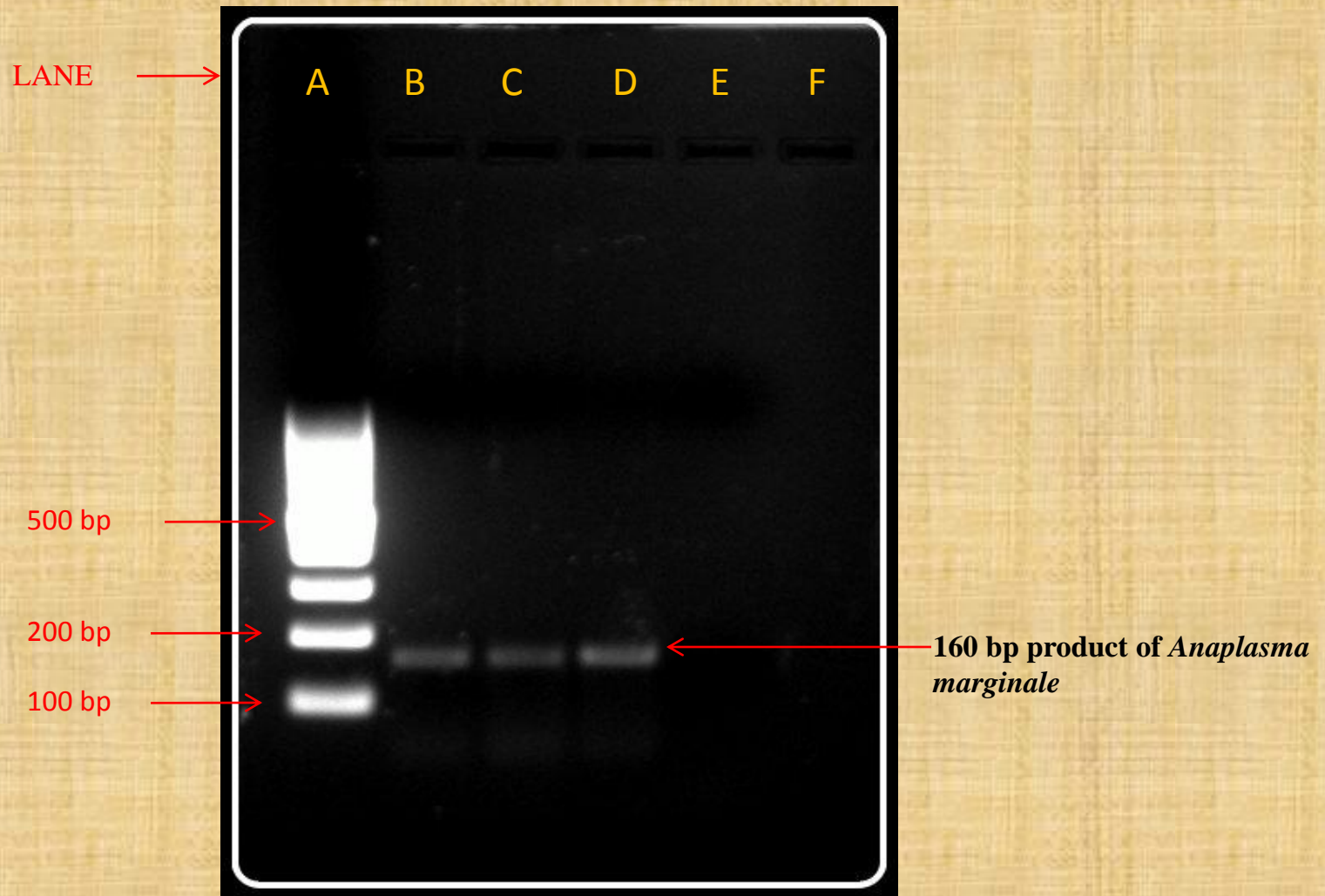


Lane A: 100 bp Ladder

Lane E,F,G :Negative Samples

Lane B,C,D : 825 bp product of *Theileria orientalis* Ikeda Strain

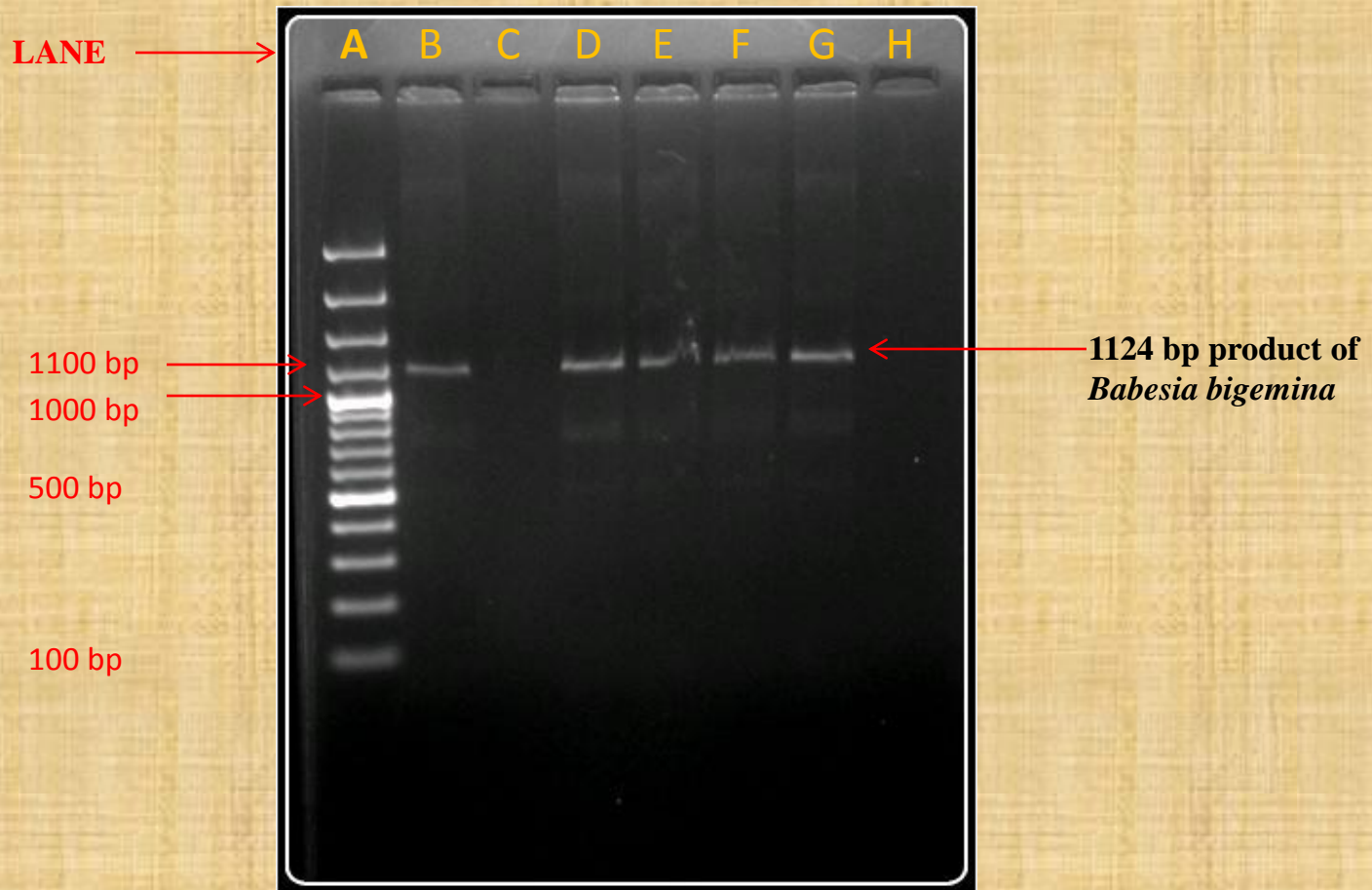
Gel picture showing a 160 bp product of *Anaplasma marginale*



Lane A: 100 bp Ladder
Lane B : Positive Control
Lane F: Negative Sample

Lane C,D : Positive Samples
Lane E: Negative Control

Gel picture showing a 1124 bp product of *Babesia bigemina*



Lane A: 1 kb Ladder
Lane B: Positive Control
Lane C: Negative Control

Lane D,E,F,G : Positive Samples
Lane H: Negative Samples

Pale and icteric mucous membrane of conjunctiva in a cow suffering from *Theileria orientalis*.



**Pale vaginal mucous membrane in a cow
suffering from *Theileria orientalis*.**



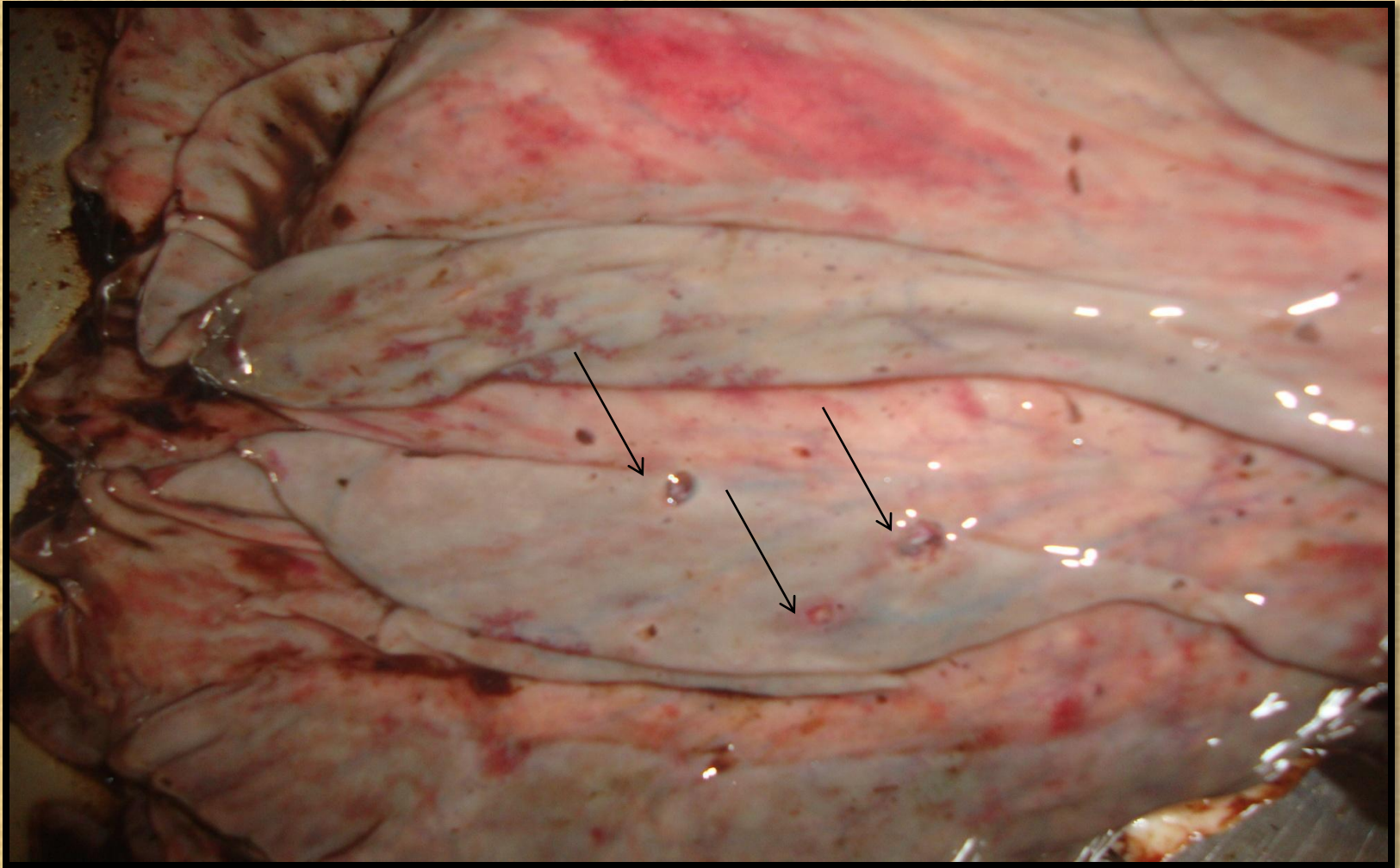
**Tarry colored dung observed in a
T. orientalis positive case.**



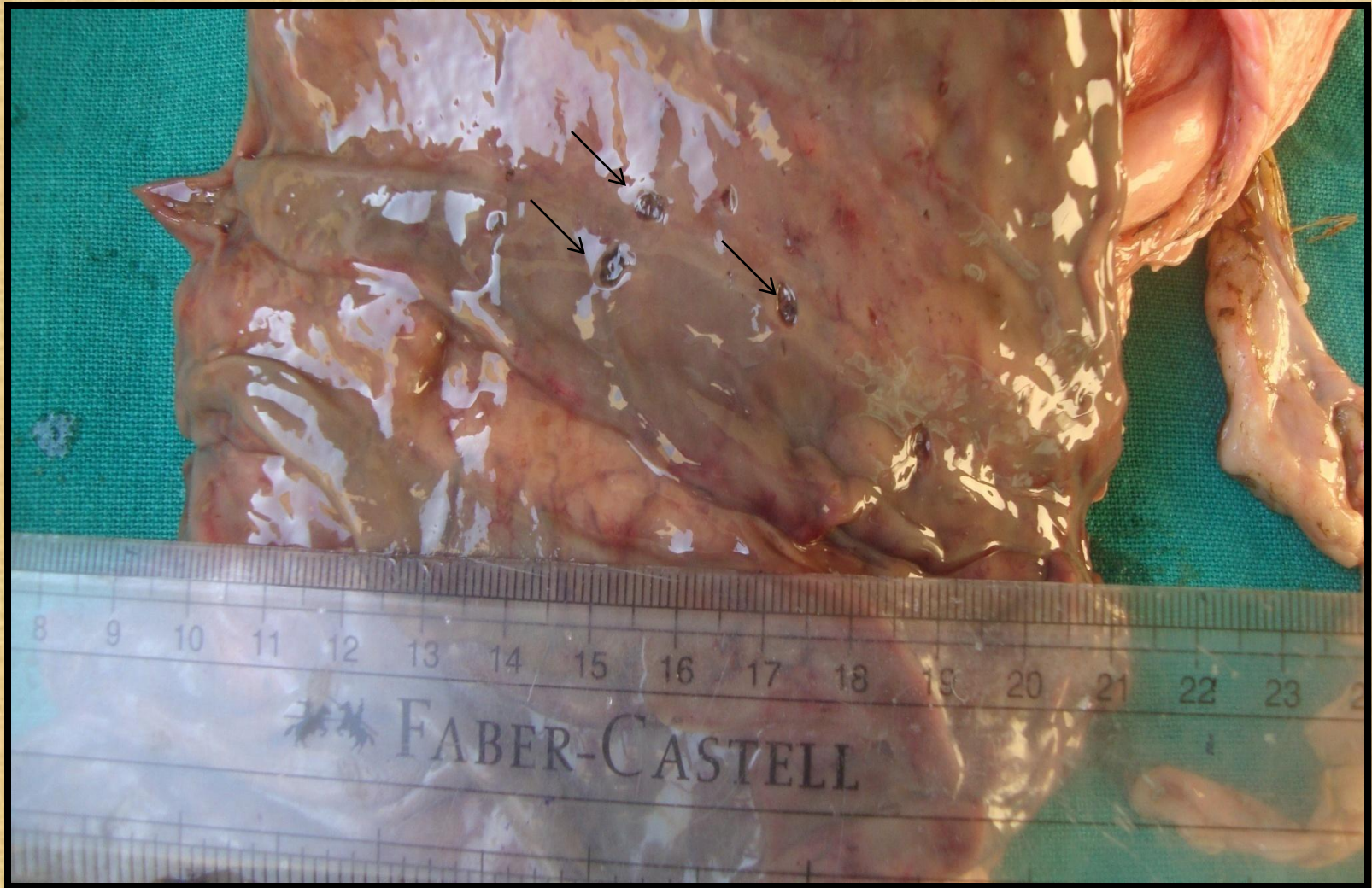
**Abomasal ulcers observed in a cow suffering from
Theileria orientalis at post mortem.**



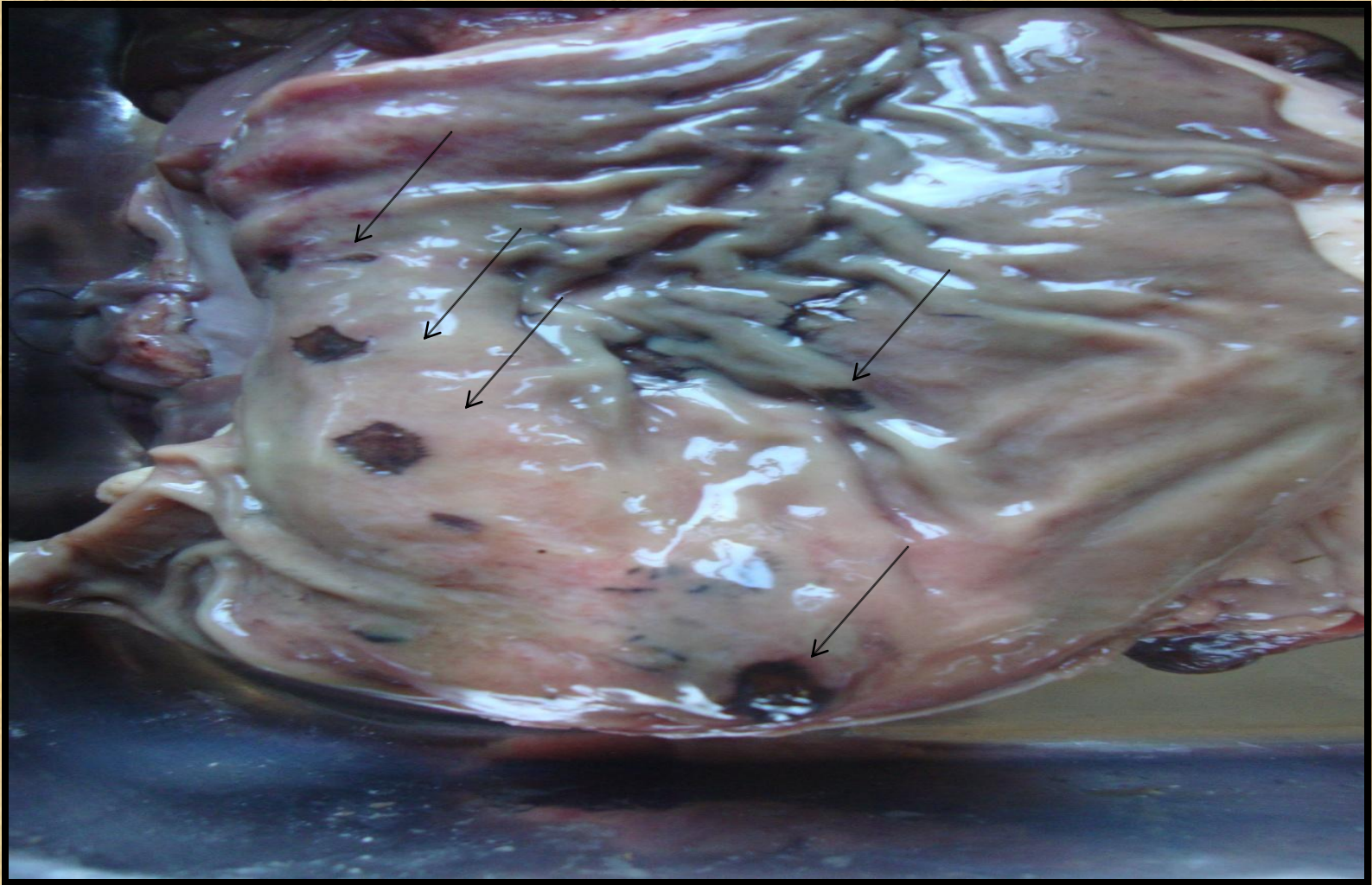
Punched-out ulcers in the abomasal mucosa of a *T. orientalis* positive fatal case.



Punched-out ulcers in the abomasal mucosa of a *T. orientalis* positive fatal case



**Punched-out ulcers in the abomasal mucosa of a
T. orientalis positive fatal case**



Aborted fetus of a *T. orientalis* positive fatal case.



For more information & details, contact

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