

Popular Article

Common Infectious Cause of Abortion in Cattle and Buffalo – An Economical threats

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Introduction

Abortion in cattle and buffalo significantly affects productivity is a common clinical problem. Accurate diagnosis is critical to ensure that control measures are effective. Economically, abortions are great concern to the farmers, because

- The foetus is lost.
- A prolonged period of uterine disease and sterility may follow.
- If the cause of the abortion is infectious it threatens the rest of the herd.
- The unproductive female must be maintained for a long period or sold.
- If the infectious cause is zoonotic in nature, then it may dangerous to human population e.g., *Brucella abortus* (*Bangs disease in human*).

Bovine abortion may be due to infectious, toxic, endocrine, physical or nutritional causes. Infectious agents accompanying with abortion in cattle include viruses, bacteria, protozoa, and fungus. The exact proportion of cases due to infectious agents is not known, but in 90% of cases in which an etiologic diagnosis is achieved the cause is infectious. Foetal death is the most imperative condition that limits cow's ability to produce a calf and considerably reduces the profit. Depending upon the cause of "abortion" a cow may experience, foetal loss, embryonic loss or a still birth. Symptoms are frequently similar and diagnosis requires the services of a trained veterinarian and often the veterinary laboratory. The symptoms of infections in most animals are similar regardless of the cause of infection. In most of abortion cases foetuses are not found and cows may have creamy white discharge from the vagina. Some farmers may not even realize that there is a problem until a remarkably large number of cows are diagnosed "empty" at the time of pregnancy checking.

Abortion in dairy cattle is commonly defined as a loss of the foetus between the age of 45 days and approximately 260 days. Pregnancies lost before 45 days are usually referred to as early embryonic deaths, whereas a calf that is born dead between 260 days and full term is defined a stillbirth. A low rate of abortions (3 to 5 abortions per 100 pregnancies per year) is usually observed on farms and often considered “normal”.

The diagnosis of abortions often presents a challenge to the herd owner and the herd veterinarian. Although a steady increase in the abortion rate in a herd may be noted over a period of many years, a sudden and dramatic increase is more commonly seen. For this reason, prompt and thorough action is required when abortions do occur. Well-kept records will often be of benefit during the investigation of abortion problems

Common Infectious agents associated with abortion in cattle-

Bacterial	Fungal	Viral	Protozoan
<i>Campylobacter fetus</i>	<i>Aspergillus fumigatus</i>	Bovine herpesvirus 1	<i>Neospora caninum</i>
<i>Brucella abortus</i>	<i>Mucor</i> spp.	Bovine viral diarrhoea virus	<i>Tritrichomonas foetus</i>
<i>Leptospira</i> spp.	<i>Absidia</i> , <i>Rhizopus</i> spp.	or Epizootic abortion	bovine <i>Trypanosoma</i> spp.
<i>Listeria monocytogenes</i>			

Infectious factor with Common names	Abortion timing	Means of spread	Foetal and Placental lesions
<i>Brucella abortus</i> Brucellosis Bang’s disease	6-9 months Abortion or stillbirth 2 wk to 5 mo after infection	Through contact with infected birthing tissues and fluids (e.g., placenta, aborted foetuses, foetal fluids, vaginal discharges).	Placenta: retained, cotyledons necrotic, red-yellow; area between thickened. Calf: normal or autolytic with bronchopneumonia.
<i>Campylobacter fetus venerealis</i> <i>C fetus fetus</i>	4-9 months	Bulls are the main mode of transmission (esp. older ones). Infected cows can	Placenta: mild placentitis, hemorrhagic cotyledons and an edematous intercotyledonary area.

<i>C jejuni</i> Vibriosis		reinfect clean bulls. AI equipment may transmit infection.	Foetus: fresh or autolysed; mild fibrinous pleuritis, peritonitis, bronchopneumonia.
<i>Leptospira interrogans</i> , serovars <i>grippotyphosa</i> , <i>pomona</i> , <i>a</i> , <i>canicola</i> , <i>icterohaemorrhagiae</i>	Last trimester Abortion 2-5 weeks after infection	Water contaminated by wildlife or other cattle.	Placenta: diffuse placentitis with avascular, light tan cotyledons and edematous, yellowish intercotyledonary areas. Foetus: autolysed
<i>Listeria monocytogenes</i>	Last trimester	Most commonly found in poor quality or spoiled silage.	Placenta: retained Foetus: autolysed Fibrinous polyserositis and white necrotic foci in the liver and/or cotyledons.
<i>Aspergillus</i> sp (60-80% <i>Mucor</i> sp, <i>Absidia</i> , or <i>Rhizopus</i> sp	4 months to term most common in winter	Contaminated dust, straw, grass clippings, and hay	Placenta: severe, necrotising placentitis Cotyledons enlarged, necrotic, intercotyledonary area is thickened and leathery. Foetus: autolysed~30% have gray ringworm-like skin lesions principally involving the head and shoulders.
<i>Tritrichomonas</i> <i>(Trichomonas) foetus</i> <i>Trichomoniasis</i>	first half of gestation	Bulls are the main mode of transmission (esp. older ones). Infected cows can reinfect clean bulls. AI equipment may transmit infection.	Placenta: retained, mild placentitis with hemorrhagic cotyledons and thickened intercotyledonary areas covered with flocculent exudates. Foetus: no specific lesions
<i>Neospora caninum</i> Neosporosis	Any stage, but most often 5-6 months	Canines play a role in transmission of <i>Neospora</i> .	Placenta, foetus: no specific gross lesions, autolysed. Microscopic: focal encephalitis with necrosis and nonsuppurative inflammation.
Bovine Viral Diarrhoea Virus	Complex pathology	Calves may become chronically infected prior to birth. May be	Placenta: retained, no specific lesions.

	Abortion usually up to 4 months	introduced into the herd by an infected animal.	Foetus: no specific lesions, autolysed, mummified.
Bovine Herpesvirus type I (BHV I) Infectious Bovine rhinotracheitis virus (IBRV)	Possibly any stage but most common from 4 months to term	Animal to animal contact with some aerosol spread.	In the majority of cases there are no gross lesions in the placenta or foetus. Placenta: necrotizing vasculitis Foetus: autolysed, foci of necrosis in the liver.
Epizootic Bovine Abortion Foothill Abortion	Usually in the last trimester	Transmitted to susceptible heifers by the bite of the soft argasid tick, <i>Ornithodoros coriaceus</i> (referred to as the pajaroello tick)	Placenta: No specific Foetus: hepatomegaly, splenomegaly, and generalized lymphomegaly. Microscopically - marked lymphoid hyperplasia in the spleen and lymph nodes and granulomatous inflammation in most organs.

Prevention and Control of Common Infectious cause of Abortion in Bovines

Due to the multifactorial etiology of abortions in cattle, general prevention of non-infectious abortion concentrates on good animal husbandry and management practices. The control of infectious abortion is based on good disease control through closed herd policy, careful screening and quarantine of bought-in or introduced (e.g. rented bulls) animals and good biosecurity. Once a sporadic abortion or an outbreak of abortions has occurred, it is, in most cases, difficult to prevent further abortions from occurring unless the causative agent is identified and can be eradicated. A keystone of abortion control in a cattle herd is good record-keeping of abortion events, and identification, if possible, of the causes in each detected case of abortion. A systemic examination of all abortion cases should be carried out by a veterinarian that will collect information on the history of the individual cow and the herd, examine the cow and the foetus (including placenta), collect laboratory samples and interpret results in linking with the cow and herd history. In some cases, samples will need to be taken as part of constitutional disease control measures; therefore, all abortions should be reported to the veterinarian.

Conclusion

Even today bovine abortion is still remaining a main economic problem in India. Several bacterial, viral, protozoan and fungal pathogens have been allied with abortion in cattle. These

pathogens can result in substantial economic losses, indicating the need for control measures to prevent infection or disease. Prevention must be focused on keeping accurate records and collecting good samples for laboratory analysis and employing good biosecurity practices that inhibit the introduction and spread of infectious agents and utilizing vaccination programs could limit abortion occurrence. Maintain the general health and immune function of animals by providing a well-formulated ration, clean water and a hygienic environment.