



**CACHE VALLEY
VIRUS
(CVV)**

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CACHE VALLEY VIRUS

- Occasional cause of abortion outbreaks in sheep.
- Spread by mosquitoes to pregnant ewes.
- Cause of infertility, abortions, stillbirths, and multiple congenital abnormalities in sheep.
- Potentially causes congenital birth defects of lambs, mostly affecting the brain and central nervous system. The virus also affects the skeletal tissue and muscles.



WHAT TO LOOK FOR

- The most noticeable effects are stillborn lambs and the birth of live lambs with congenital abnormalities affecting the CNS and musculoskeletal system.
- Hydranencephaly, hydrocephalus, cerebral and cerebellar hypoplasia, arthrogryposis, scoliosis, torticollis, and hypoplasia of skeletal muscles are common.
- Defects can show up as fused joints, curved or twisted spines, unusually thin and underdeveloped muscles, and enlarged skulls.
- Most lambs born with these severe defects are stillborn, yet CVV also can cause the birth of lambs that act abnormal, such as acting drowsy, weak, or unsteady.



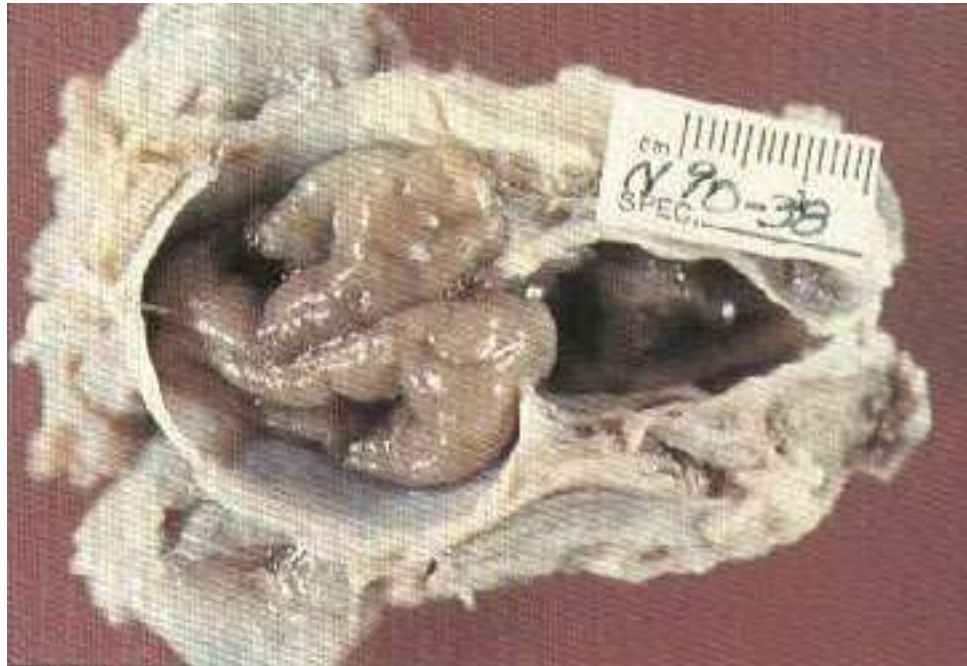
ARTHROGRYPOSIS CAUSED BY CVV



Arthrogryposis (crooked joints) is a congenital malformation that involves the posture and function of the limbs in newborn animals and humans.



LAMB AFFECTED BY CVV



INFECTION

- At less than 28 days of gestation, the embryos usually die and are reabsorbed.
- Between 28 and 45 days of gestation, the fetuses usually develop the "A-H syndrome," resulting in various congenital abnormalities affecting the central nervous system. Ewes that are infected usually show no signs of disease and develop a good immunity that lasts for several years. Cache Valley virus is similar to Akabane Disease except that it only affects sheep.
- After 45 days of pregnancy, there are usually no adverse effects.



CACHE VALLEY VIRUS

- The virus is endemic in most parts of the USA, Canada, and Mexico. Often there are epizootics affecting sheep over a wide geographic area that can include several states.
- At the time of abortion or birth the virus is usually no longer viable, and diagnosis is by demonstration of antibodies in precolostral serum or body fluids. Vaccines are not available.



DIAGNOSIS

- Determining whether Cache Valley was the cause of the abortions is difficult because the virus is not viable by the time its effects are noticed.
- Diagnosis often requires the demonstration of viral antibodies in serum or body fluids.
- Ewes that have been exposed to the virus appear to have lifetime immunity.



PREVENTION

- The most effective method of protecting ewes from the Cache Valley virus is to minimize their exposure to mosquito-infested areas during and shortly after the breeding season.
- No vaccine available.
- No known treatment available.



REFERENCES

- <http://www.sheep101.info/201/diseasesa-z.html>
- <http://www.physorg.com/news/2011-01-effects-cache-valley-virus-winter.html>
- <http://www.ag.ndsu.edu/news/newsreleases/2011/jan-10-2011/cache-valley-virus-may-have-affected-n-d-sheep>

