

SHEEP HEALTH

Fact Sheet . . . No. 3



URINARY CALCULI (WATER BELLY)

Urinary calculi, or water belly, a common disease of male sheep, is caused by the formation of small stones, called calculi, in the urinary tract that cause retention of urine and rupture of the urinary bladder or urethra. Calculi also form in the female but very rarely cause a problem because of the large size of the urethra (the tube that empties urine from the bladder). Wethers that are castrated at a young age have a small penis and urethra, leading to much easier blockage of the urethra by small calculi. The disease occasionally affects breeding rams.

The calculi usually lodge in either the sigmoid flexure, a large "s"-shaped curve of the penis just behind the scrotum, or in the urethral process, which is an extension of the urethra that protrudes several centimeters beyond the end of the penis. A high incidence of urinary calculi is found in western lambs and in feeder lambs about four to six weeks after entry into the feedlot. In severe cases, up to 20 percent of a group of lambs may develop the disease.

Several factors contribute to the development of urinary calculi, most relating to a narrow calcium to phosphorus ratio. In feedlot lambs, this ratio should be approximately 2:1. Lambs are often fed very high levels of concentrate relative to roughage. Concentrates are generally high in phosphorus relative to calcium, so that calcium-phosphorus ratios of 1:1 are not unusual.

Lambs with urinary calculi are depressed, off feed, and show a "humped up" appearance. The abdomen is often distended, especially if the bladder has ruptured. If the urethra has ruptured, swelling along the penis will be observed, indicating the presence of urine in the tissues. Close examination of lambs affected with the

disease will often reveal salt crystals adhered to the wool around the prepuce, or opening of the penis along the belly wall.

Treatment of affected lambs may be rewarding, especially if the condition is diagnosed soon after onset. The most effective treatment is a surgical procedure called a urethrostomy, which involves amputation of the penis and suturing it to the skin in the area just below the pelvis. Chances of recovery are much less if rupture of the urinary bladder has already occurred. Amputation of the urethral process, a quick and simple procedure, is performed if the calculus is lodged in this structure.

Prevention of urinary calculi is much more rewarding than treatment. Call a veterinarian when the condition is suspected. The most important preventive measure is to have a proper calcium-phosphorus ratio of approximately 2:1 in the diet. Chemical analysis of the ration, especially in the forage in the ration, is advisable so the proper levels of calcium can be fed. Calcium levels are easily increased by the addition of calcium carbonate (limestone) to the ration. Acidification of the urine of lambs prevents the formation of most urinary calculi. This is accomplished by the addition of 0.5 percent ammonium chloride to the ration. Ammonium sulfate in slightly higher amounts will also satisfactorily acidify the urine. In small groups of lambs, feeding of $\frac{1}{4}$ ounce of ammonium chloride daily will help prevent the disease.

An ample supply of fresh water at all times is also important for prevention. In severe outbreaks, veterinarians may also recommend the addition of up to 4 percent salts in the ration to increase urine output and thus dilute the mineral content of the urine. When this is done, it is especially important to make sure that plenty of clean fresh water is available at all times.

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