

6 Summary

Examination of pet rabbit urine

The urine of 102 pet rabbits was examined. The urine of 98 rabbits was obtained by compression of the bladder. For this purpose two different methods were employed. For method one the rabbits were held at the thorax directly under the forelegs. Applying this method the animal hung in front of the examiner with its back at his chest. Then the bladder was palpated and evacuated by carefully pressing with the free hand. The second method was much better tolerated by the animals. For this the rabbits were positioned on the right forearm of the examiner. The head of the rabbit was stuck above the elbow and all legs of the animal hung at the side of the forearm. In this position the caudal abdomen lies in the hand of the examiner and allows the extraction of the urine. The urine of four animals with urolithiasis was obtained with cystocentesis after sedation. Dipstick reagent strips (Combur⁹-Test[®], Firma Boehringer) as well as microscopic and physical tests were applied to the collected urine.

After the clinical examination of the pet rabbits special examinations (serological test for *Encephalitozoon cuniculi*, blood check, x-ray, identification of uroliths by infrared spectroscopy, pathological examination) were carried out. The rabbits were divided into three groups. One group included clinical healthy rabbits (17/102), one group rabbits suffering from urinary tract diseases (34/102) and one group animals suffering from other diseases (51/102).

27 (78,8 %) of the 34 Rabbits suffering from urinary tract diseases had an antibody titre to *Encephalitozoon cuniculi*. Of the total number 102 examined patients 59 (57,8 %) were seropositive. 13 (38,2 %) out of 34 rabbits with urinary tract diseases suffered from acute or chronic renal failure. 12 of these animals (92,3 %) had an antibody titre of *Encephalitozoon cuniculi*. 4 of these patients showed nephrolithiasis on both sides. In 14 rabbits a cystitis could be detected, 10 of these animals were female. 7 of the 34 patients with urinary tract diseases had concrements in their

bladder. In all 102 examined urine samples crystalline material was found, in most cases identified as calciumcarbonate and amorphous phosphate.

81 of the urine samples (79,4 %) were cloudy, 21 (20,6 %) were clear. 16 of these clear samples (76,2 %) were found in the group with urinary tract diseases. 4 patients with clear urine showed clinical signs of gastrointestinal disorder. Only one rabbit with clear urine belonged to the group of clinical healthy rabbits and was the youngest animal in this study.

76,5 % (13/17) of all healthy rabbits in this study as well as 64,7 % (21/34) of the animals with urinary tract diseases and 70,6 % (36/51) of animals with other diseases showed proteinuria (30mg/dl).

The microbiological examination showed a bacterial contamination of the urine with *Escherichia coli* in 8 of the 34 samples from patients with urinary tract disease. All of these bacteria were resistant to more than two antibiotics.