



# Fertility in cows

## The non-pregnant and pregnant cycle

Case studies courtesy of  
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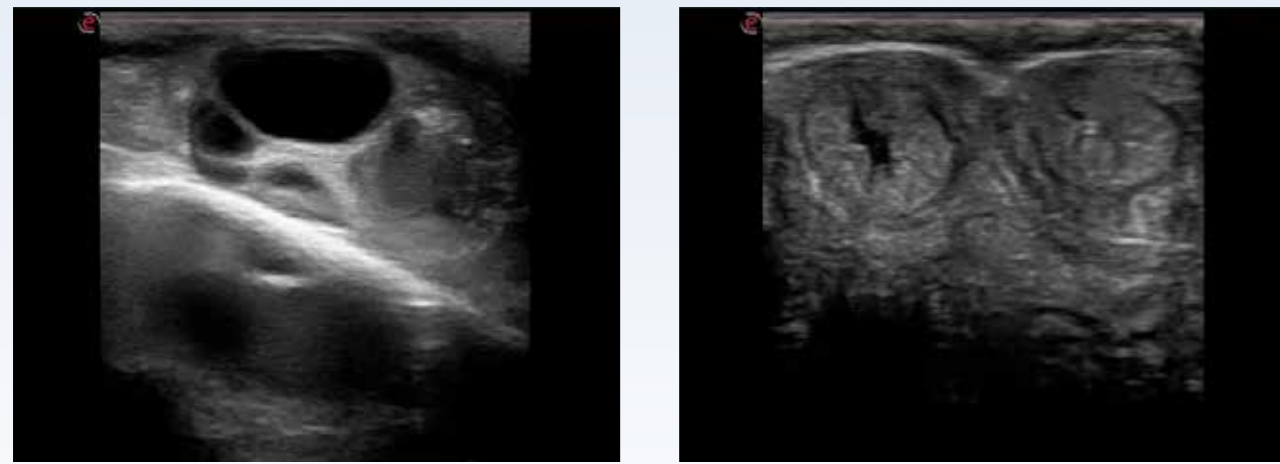
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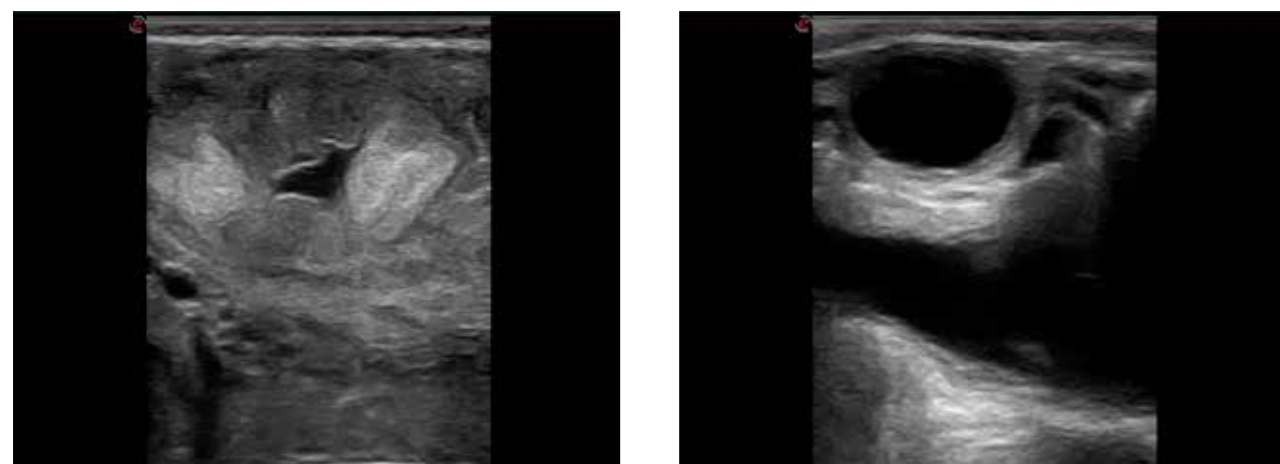


### The non-pregnant cycle

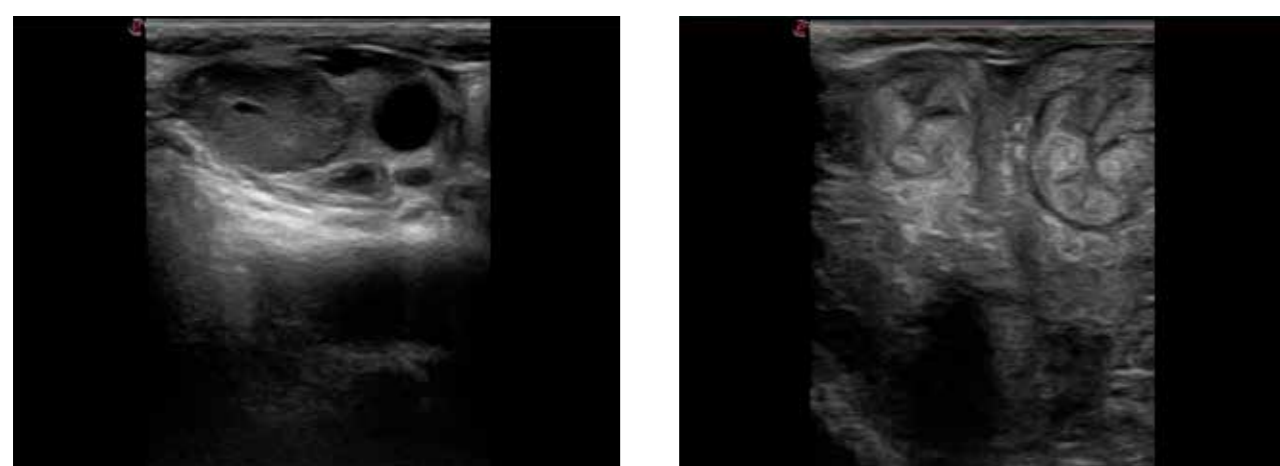
**Proestrus, days 18-20** Growth of the last wave dominant follicle.



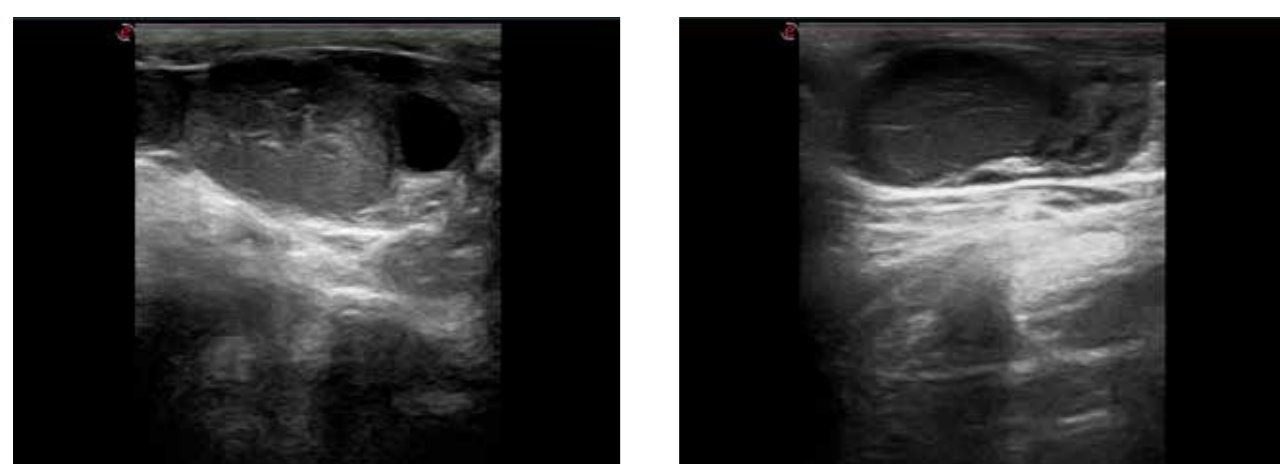
**Oestrus, days 0-1** Uterine echotexture is typically dark, reflecting an extensive degree of edema of the endometrium. The preovulatory follicles have an internal diameter of 15 mm (18 mm in total). The size range is 9-23 mm. During follicular dominance, the uterine horns are maximally curled.



**Metoestrus, days 1-5** Three to four days post ovulation, the new CL can be identified; its size is between 14 and 20 mm. Developing CL appears as a poorly defined, irregular, greyish-black structure with echogenic spots all within the ovary. The follicular cavities have a similar appearance to those of the CL: both the follicular and luteal fluids are anechoic, but the CL is surrounded by the luteal wall (2-2.5 mm thick)



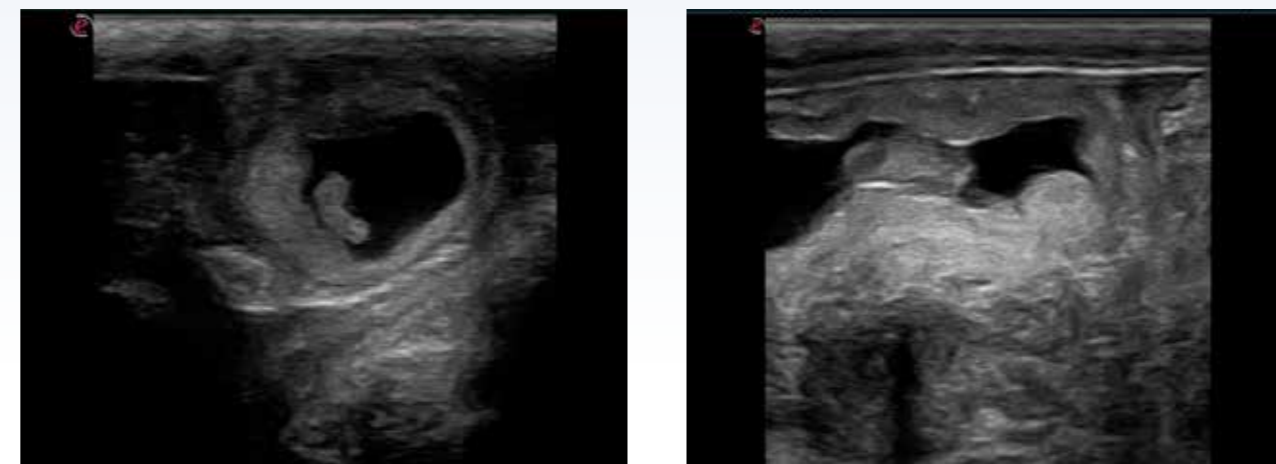
**Dioestrus, days 6-17** Mid-cycle CL is a well-defined granular, greyish echogenic structure with a visible demarcation line from the ovarian stroma. At around day 10, the CL reaches its biggest size, about 20-30 mm. In a regressing CL, the demarcation line with the ovarian stroma is faint, owing to the slight difference in echogenicity between the tissues. During luteal dominance, the uterine horns are less curled.



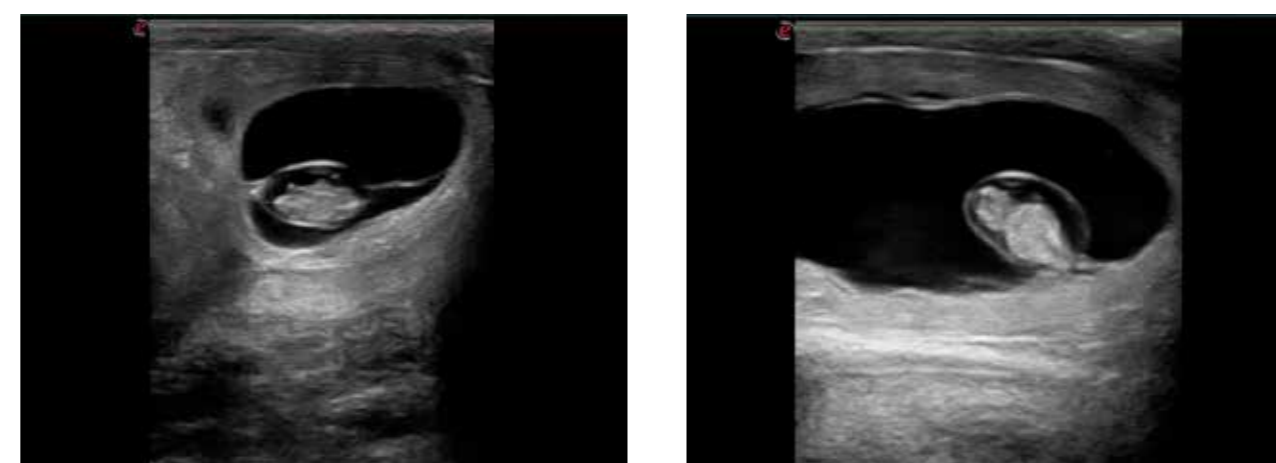
### The pregnant cycle

**Day 21** From day 20 of pregnancy, the embryonic sac is filled with fluids and the length of the embryo is about 5 mm. A positive diagnosis of pregnancy is only reliable when the embryo is clearly visible. In everyday practice, diagnosis is therefore made from day 25.

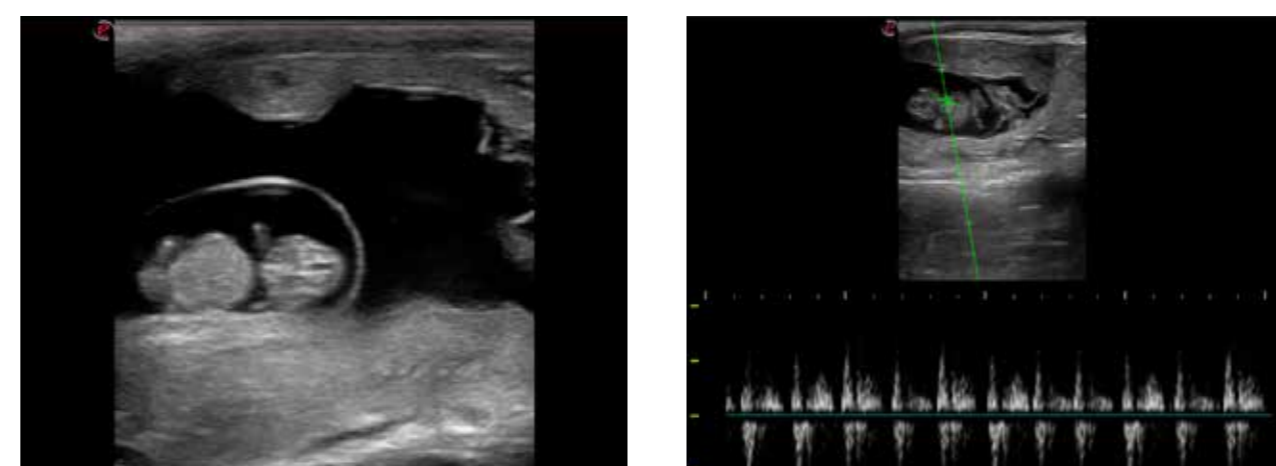
**Day 28** Embryonic sac 18-20 mm, also visible in the contralateral horn. The embryo forms a C-shape. It is possible to perceive the pulsation of the cardiac sketch as a sparkle of echogenic points.



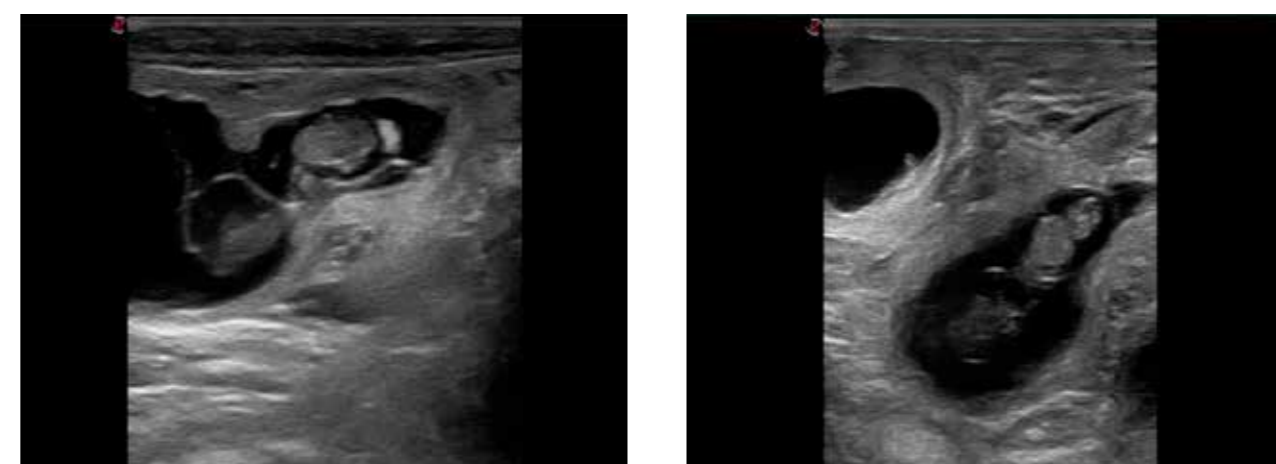
**Day 34** The embryo is enveloped by the thin membrane of the amniotic vesicle.



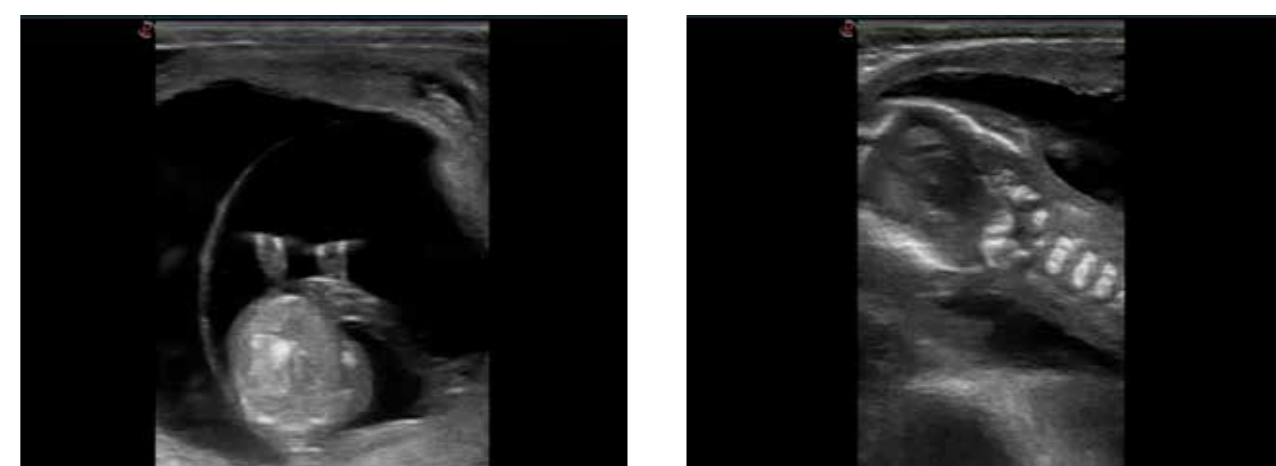
**Day 42** The detection of the fetal heartbeat is possible using Power Doppler.



**Twin pregnancy** Day 37.

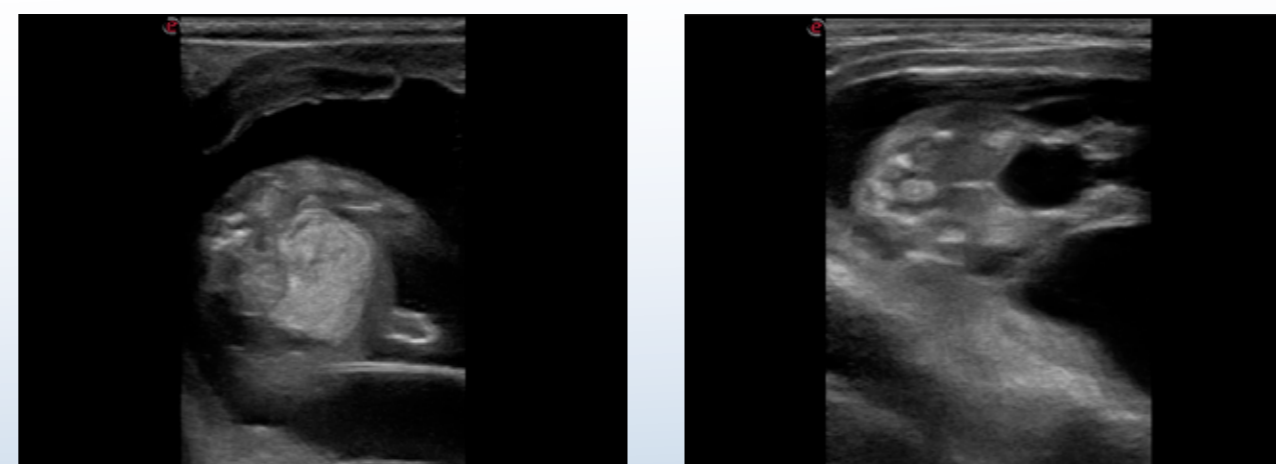


**Pregnancy follow-up** Pseudo-ampoule image of the embryonic vesicle disappears at day 70 and the skeletal structure is recognizable.



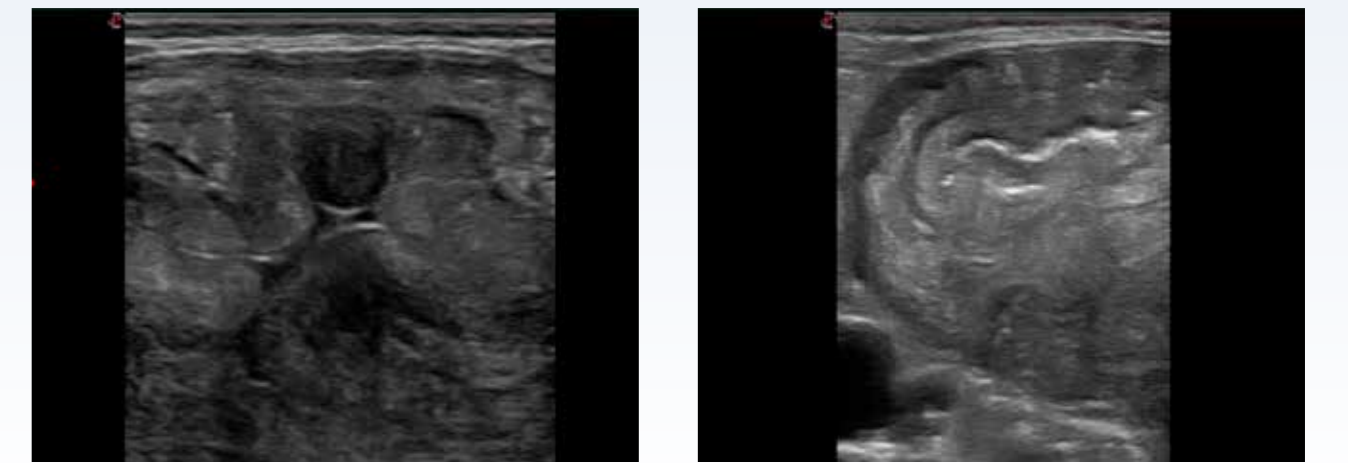
**Sexing of the fetus** Starting from days 55-60 days, it is possible to ascertain the sex of the fetus based on the location of the genital tubercle. Male on the left, female on the right.

M: 86 days - F: 77 days.

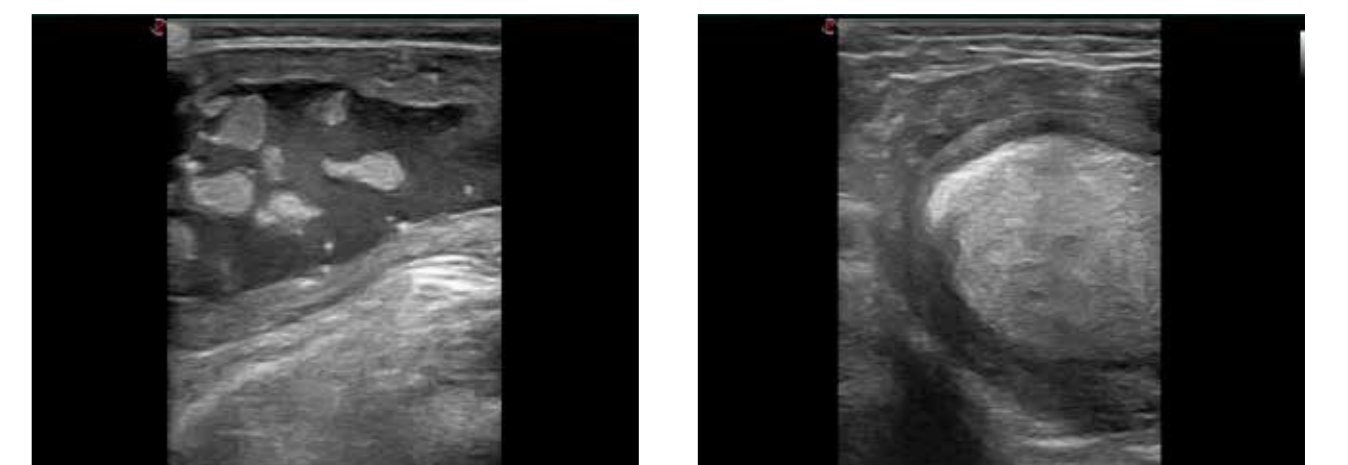


### Main pathologies

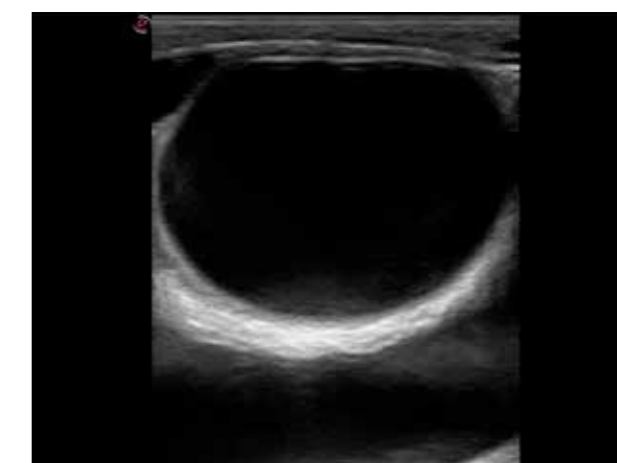
**Endometritis and Mucometry** Purulent or mucopurulent uterus: collections of fluid in the dilated uterine lumen, which could be more or less echogenic and abundant; purulent mucus tends to have a foggy ultrasound appearance with hyperechoic particles inside, while the mucometry is perfectly anechogenic.



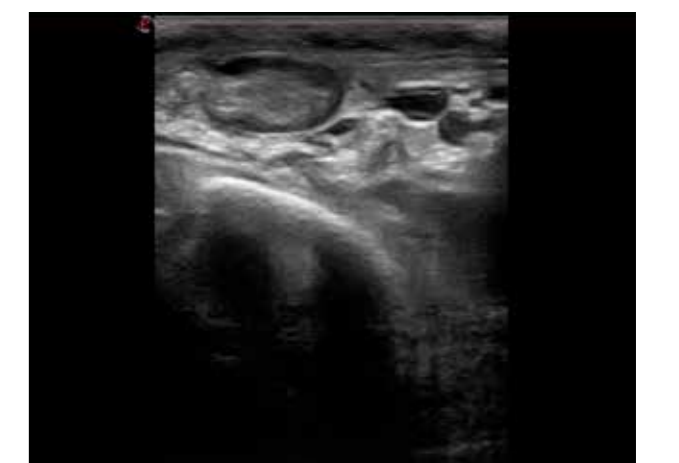
**Pyometra** Accumulation of pus within the uterus- uterine lumen with contents of mixed echogenicity and no evidence of a fetus, fetal membranes or placentomes. Accumulation of pus can be clustered (left) or scattered (right).



**Follicular cyst** Responsible for abnormal cyclic activity and decreasing of fertility fluid filled structures with a diameter greater than 25 mm lasting more than 10 days in the absence of a functional CL.



**Ovarian hypofunction** The development of the ovary is arrested. It can be single or bilateral. The ovary is hard, free of structures, and sometimes cordiform.



**Fetal death** Fetal death occurs as a result of a delay in the growth of the embryo. Most of the losses occur between days 28 and 42. The dead embryo is expelled or reabsorbed. During the reabsorption of the embryo, the amount of fluid decreases and its echogenicity increases. The embryo loses its contours and structures, becoming undefined.



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