

A STUDY ON THE OCCURRENCE OF SILENT AND/OR ANOVULATORY
HEATS IN PERIPUBERTAL GILTS

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Ovulation without expression of oestrous symptoms ("silent heat") prior to the first detected oestrus is a common phenomenon in cattle (Bane et al., 1978) and in sheep (Foote et al., 1970). The knowledge of the occurrence of silent heats during the peripubertal period in gilts is limited. Einarsson et al. (1978) followed the ovarian activity in pubertal gilts belonging to a commercial herd, by daily heat checking and by estimation of the peripheral blood plasma levels of progesterone every 10th day. The progesterone levels indicated development of corpora lutea in 7 out of 39 gilts, without detection of preceding external signs of heat.

The aim of the present study was to investigate the occurrence of silent and/or unovulatory heats in peripubertal gilts. The investigation comprised clinical, endocrine as well as morphological studies.

Ninety crossbred gilts (Swedish Landrace x Swedish Yorkshire) were purchased at an age of 2-3 months and a body weight of 20-25 kg. On arrival to the clinic the gilts were placed in pens, 3-4 per pen. Nineteen gilts were placed in a barn without boars, and 51 gilts were placed in a barn with mature boars in adjacent pens. Another twenty gilts were exposed to 20 minutes daily direct boar contact from 140 days of age. The animals were fed according to the Swedish breeding stock standard. The investigations began when the gilts were 4-5 months old and continued until they had shown three heats. The heat control was performed once or twice daily. It comprised a careful inspection of the vulva. If the gilts had shown pro-oestrous signs, but no subsequent standing reflex, a vasectomized boar was used to check the standing reflex. For determination of the peripheral plasma levels of progesterone, blood samples were taken from the gilts at least once a week during the entire experimental period. Progesterone levels were determined by radioimmunoassay (Bosu et al., 1976).

Laparoscopy, according to Wildt et al. (1973), was performed in all gilts after their first observed heat. The ovaries were inspected in respect of macroscopic appearance and the presence or not of corpora lutea.

The average age at the first heat was 185 days (range 151-236) and the average body-weight 98 kg (range 65-131 kg). All gilts had low progesterone levels (0-3 nmol/l) before the first observed heat. The progesterone levels rose after the first observed heat and varied thereafter in a cyclical regular pattern. The laparoscopic examinations confirmed that no ovulations had occurred before the first observed oestrus. Various numbers of developing corpora lutea were present but in no case were signs of corpora lutea from earlier ovulations observed. All gilts showed external heat symptoms at their first oestrus. Four out of 90 gilts refused to stand for the boar despite expressing external heat symptoms. This occurred independent if the gilts were housed with a boar in adjacent pen or not. Judging from the appearance of the ovaries and the progesterone

levels, all 90 gilts ovulated.

No gilts showed elevation in peripheral plasma progesterone levels during the pubertal period. Neither did the laparoscopic inspection of the ovaries after the first observed oestrus reveal any signs of corpora lutea from a previous cycle. In an earlier investigation carried out under commercial conditions, Einarsson et al. (1978) found progesterone levels in a few gilts indicating the presence of active corpora lutea before clinical signs of oestrus were observed. As the study was carried out under commercial conditions the possibilities of insufficient oestrous detection could not be excluded.

Conclusions:

The results from the present study indicate that silent or unovulatory heats do not occur in gilts during the peri-pubertal period.

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