

ULTRASONOGRAPHY STUDY OF RABBITS PREGNANCY

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ABSTRACT

In this assay an ultrasonography study of pregnant uterus was performed in 100 female rabbits of New Zealand, California and Chinchilla breeds, belonging to the Rabbit Production Module at FESC - Facultad de Estudios Superiores Cuautitlán, UNAM, Universidad Nacional Autónoma de México. Fetal development was measured and recorded after the 5th day post copulation and on 7th, 12th, 15th, 20th, 27th and 29th days successively, watching closely the changes appeared in every one of these steps and comparing with the *in vivo* measurements of the slaughtered obtained products of 4 pregnant useless female rabbits in the same pregnancy periods. Observation and measurement of the ultrasonography images led to establish the characteristics of the fetal development of rabbits. The above data let us to determine the gestational age of internal products and demonstrated the ability to make diagnosis as early as 7 days of pregnancy, which is important in rabbit production, because it is possible to know the number of carried embryos and finally to establish standard data in rabbit production to evaluate the gestational age.

Key words: rabbits, pregnancy, ultrasound.

INTRODUCTION

Ultrasonography as a medical tool in Veterinary Medicine is really used for diagnosis in many animal species, whereas in rabbit production is focused in early pregnancy studies (YPSILANTIS, 1999). The ultrasonography pregnancy diagnosis in female rabbits is made after the 7th day of pregnancy, when ultrasound given images are clear and sharp even in the blastocyte step of the embryos (MEXICAN RADIOLOGY AND IMAGE FEDERATION, 1992).

This ultrasonography diagnosis method is precise and accurate at the 7th day of intrauterine development embryos, establishing the parameters or indicators units of the fetus size, this tool may be useful in rabbit production at near future when its application become widely used in a practical way, but even now the most usual way for detecting pregnancy is manual examination.

In this assay some results are show about ultrasonography measurements of embryos in-uterus in pregnant rabbits comparing the *in vivo* respective sizes of products in killed rabbits.

MATERIAL AND METHODS

Material:

1. 100 female rabbits of different ages and races (New Zealand White, California and Chinchilla) all of them coming from a productive rabbit module at FES-C UNAM.
2. An ultrasound trasductor (5 megahertz) for rectal human use was employed (ALOKA SSD500)
3. Alcohol solution 96 ° GL.

Methodology

All the animals included in this experiment were lodged under the same food and reproductive management conditions. Feeding process consisted in a balanced commercial product furnished *ad libitum*. Natural mating was performed in a natural way at 11th days *post partum*.

Measures of structural embryo images were initiated at the 5th day *post coitum* and afterwards at 7th, 12th, 15th, 20th, 27th and 29th days, overlapping of ultrasonography images after day the 20th did not permit to measures fetal development.

Rabbits were positioned in a leg up position, abdomen area was moisturized with 96 °GL alcohol and the trasductor was applied to the area moving gently but firmly from skull to tail areas or side to side up to get clear images on screen.

Once the images were clear and sharp on screen, they were kept and saved in electronic media, to be measured later.

During this period (7, 12, 15, and 20 days) of pregnancy, 4 useless rabbits were killed in order to measure the fetal vesicles through a surgical dissection.

Measures size records were valid after taking an ellipse figure control (standard ultrasonography data apparatus) and were: Major axis, Measure + Area, Circumference, Minor axis.

RESULTS AND DISCUSSION

Measures of the embryonic vesicles are given as follows: 104 observations of 7 days, 120 observations of 12 days, 193 observations of 15 days and 137 observations of 20 days of pregnancy, and as previous mentioned, it was not possible to get measures of 27th and 29th days of pregnancy, due to the fact that vesicles are overlapping and no accurate neither objective data are available

The following data (Table 1) correspond to obtained averages gotten from the measures during the study (subsequent observations were registered just to follow gestation period).

In this study it has been proved that images of 7th day are only available for pregnancy diagnosis and not for measuring.

The differences between measures obtained by ultrasonography of vesicles and real fetus sizes in killed male rabbits, probably was ought to kind of ultrasonography system, it used to a sectorial tube, that affect the measuring angle.

Table 1. Differences between obtained by ultrasonography and vesicles and real fetus sizes in killed rabbit does.

	7 th day	12 th day	15 th day	20 th day
Ultrasonography	1.08	1.48	1.89	2.85
Dissection	0.9	1.5	2.0	2.5

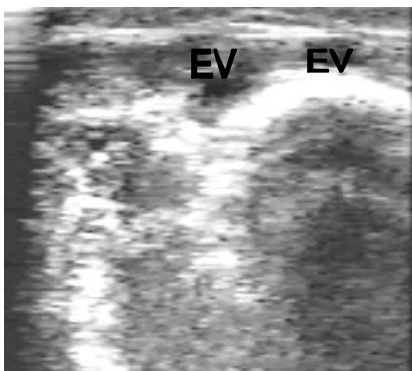


Image 1:7th pregnancy days.

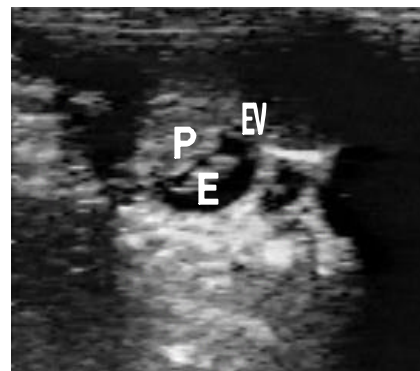


Image 2:12th pregnancy days.

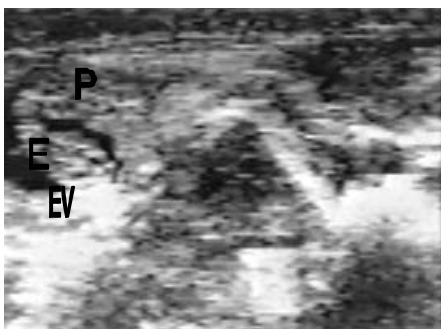


Image 3:15th pregnancy days.

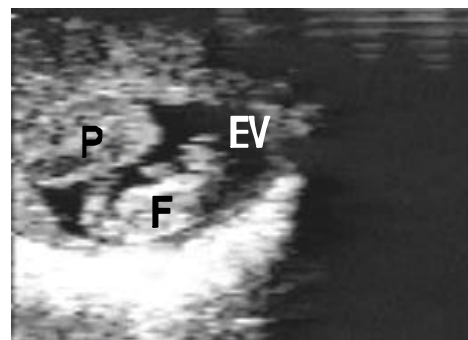


Image 4:20th pregnancy days.

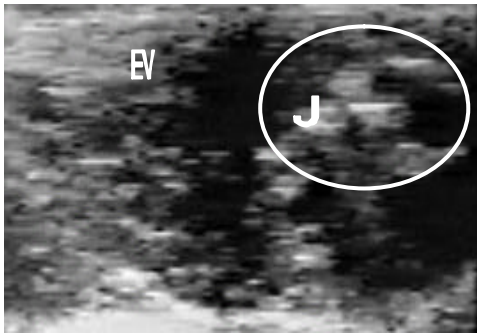


Image 5: 27th pregnancy days .

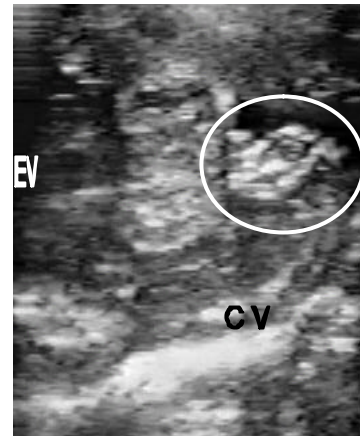


Image 6: 29th pregnancy days .

At 7 days of pregnancy (image: 1) embryonic vesicles (EV) are clearly seen. In this gestation step the identified images are built by round areas that may be hyperopic or isoecocic, and these images indeed permit diagnose pregnancy in this period. Later, on 12th day of gestation (image 2), it is possible to identify hypoecocic structures in the inner part of vesicles that correspond to the placenta formation (P) and the embryo (E).

At the 15th day (image 3), the embryo is clearly seen and the placenta formation too occupying a third part of the vesicle, in this pregnancy step; heart beating can be noticed. At the 20th day of pregnancy (image 4), the placenta-fetus proportion is 1 to 1, and fetus movements are appreciated; heart beating may be seen also which is very notorious this time, besides, fetus image is whiter (hyperecic).

On 27th and 29th day fetus structures (image 5 and 6), are clearly seen and fetal movements and heart beating may be recorded but in this period it is hard to say the difference that are for single fetus and the one that is for a neighbor product due to the overlapping of the osseous structures as spinal column (SC) and jaw (J).

As YPSILANTIS (1999) showed the above data let us determine the gestational age of internal products and demonstrated the ability to make diagnosis as early as at 7 days of pregnancy, which is important in rabbit production, because it is possible to know the number of carried embryos and finally to establish standard data in rabbit production to evaluate the gestation age (RADIOLOGY AND IMAGE MEXICAN FEDERATION, 1992).

CONCLUSIONS

The use of ultrasound test in rabbits is an alternative method of pregnancy diagnosis in rabbits.

A 7th day pregnancy diagnosis can be obtained by ultrasound tests.

The use of ultrasound tests as a diagnostic method doesn't allow us to know the number of embryos that the rabbit carries.

The number of births, breed and age of the animals don't affect in any way the size of the vesicles.

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