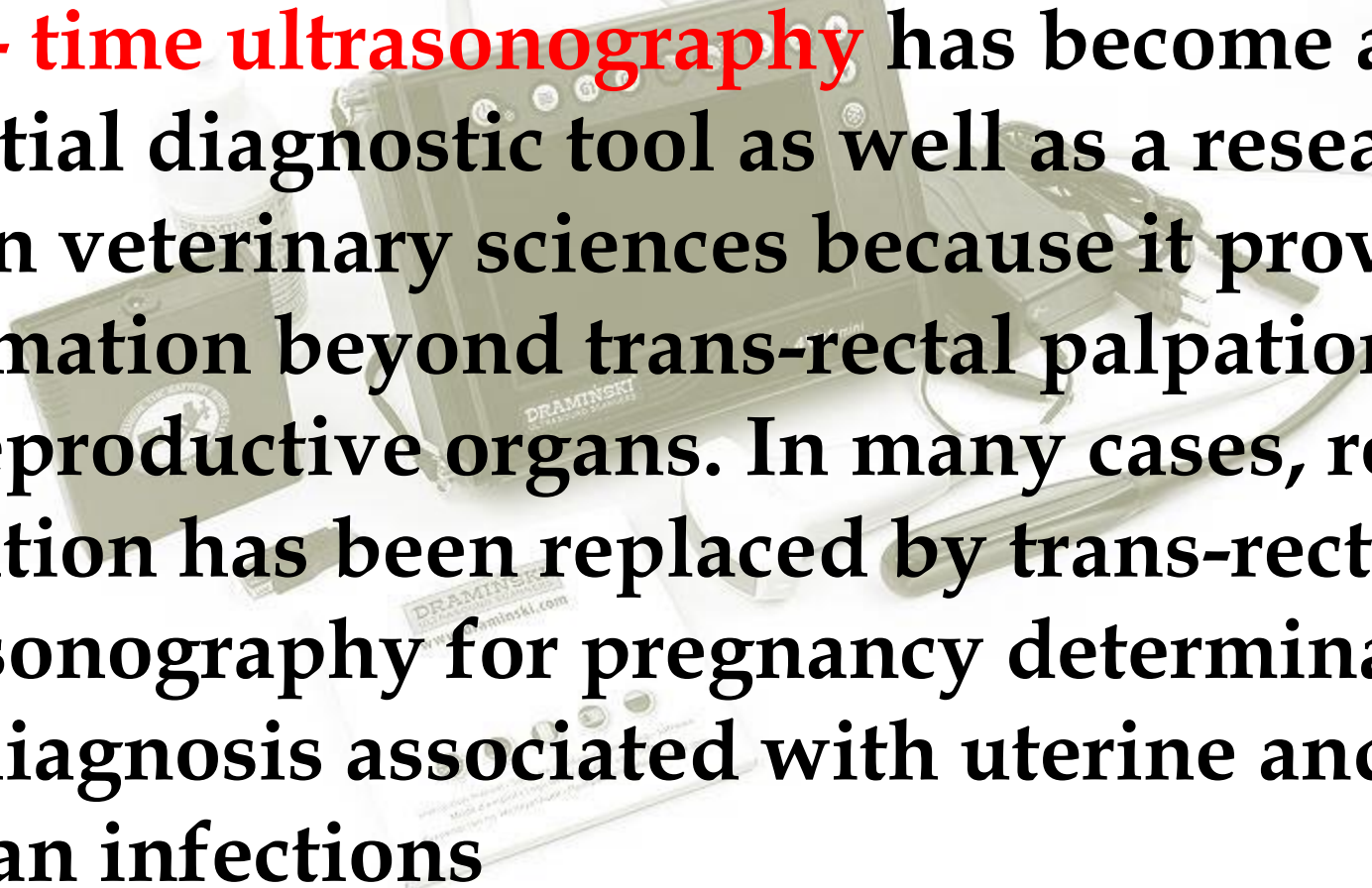


# Practical's applications of ultrasonic imaging in reproductive biology of Mares .



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**Real - time ultrasonography** has become an essential diagnostic tool as well as a research tool in veterinary sciences because it provides information beyond trans-rectal palpation of the reproductive organs. In many cases, rectal palpation has been replaced by trans-rectal ultrasonography for pregnancy determination, and diagnosis associated with uterine and ovarian infections

More recent applications in reproduction include:

- 1) *monitoring follicular changes and predicting ovulation.*
- 2) **confirmation of ovulation and evaluation of corpus luteum morphology;**
- 3) *estimating the stage of the estrous cycle*
- 4) **diagnosing ovarian irregularities and pathology;**
- 5) *detection of twins , embryo reduction and sex determination;*
- 6) *determining embryonic death*
- 7) *Evaluation of uterine pathology*

# 1-Early pregnancy diagnosis by using U.S

Trans-rectal sonography can be recommended in mares and cattle ,in **MARES** reliable diagnosis is sometimes possible between day **11 and 13**. the most important reason for early pregnancy examination is probably the detection of twins, twin pregnancies result in high rates of noninfectious **abortion**, **stillbirth**, **neonatal mortality** and significant delays in reproductive performance in mares



The vesicle was spherical from Days **10 to 18**, Embryonic Vesicle (EV) growth rate was 4.04 mm/day from Days **11 to 16**, (mean growth rate, **3.2 mm/d**),



Eng. Shahik Ameen Hasan

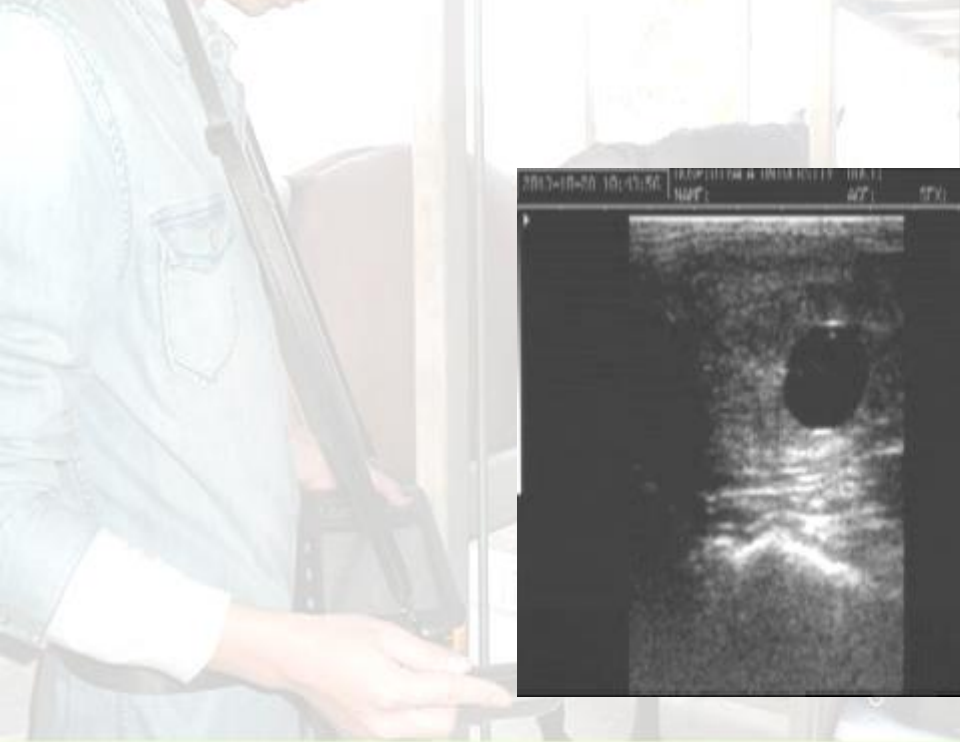


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## VSH5(Model 2015) Palm Ultrasound Scanner

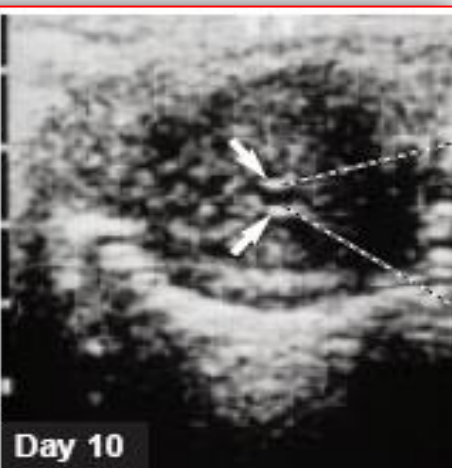
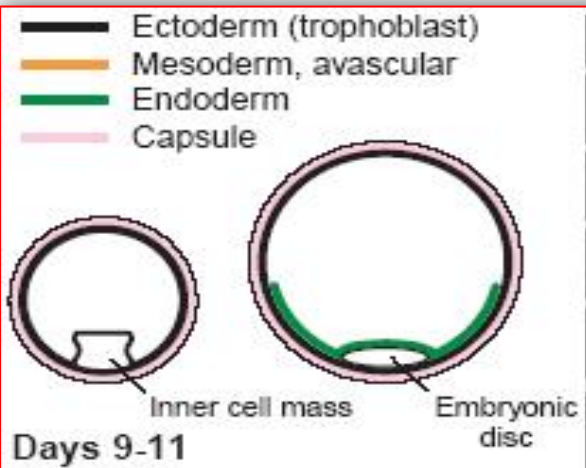
- 7 inch TFT screen
- Pretty and very light
- Full digital imaging technology, crystal-clear Image
- Can work with backfat probe
- Low power consumption
- 2G Large volume storage image
- Built-in battery
- Solid shell and structure
- Waterproof(Optional)



Linear probe, Mono-convex probe,  
Rectal probe, Backfat probe

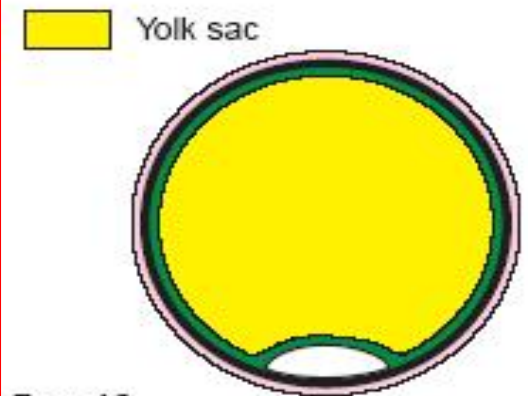
Carpu: minipro - 1200 port, video  
Overall size: 215mm\*147mm\*23mm  
Weight: 950g(with battery)  
Waterproof: IP65(optional)



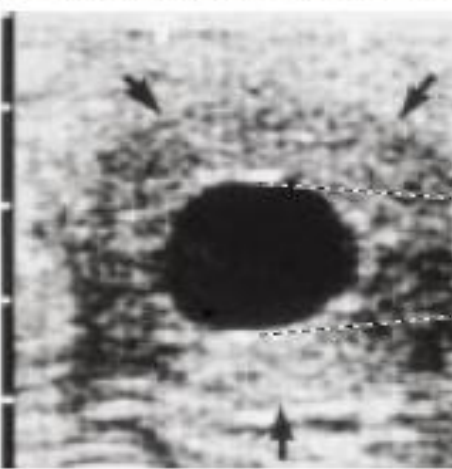
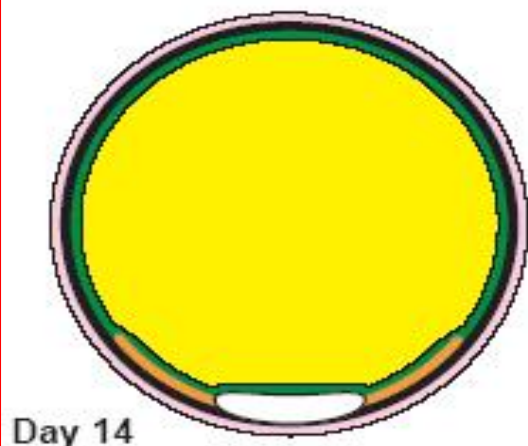


Days 9-11

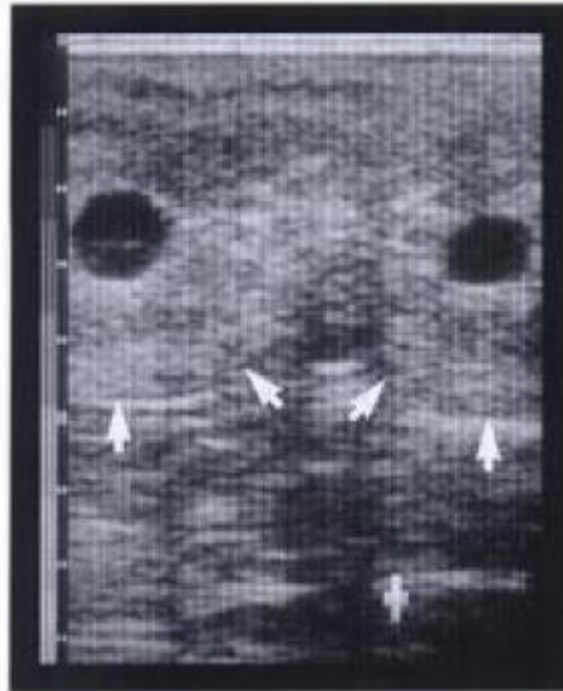
Day 10



Day 12



Day 14



**Fig. 1.71:** Twin pregnancy on Day 13. The two vesicles



## 2- SONOGRAPHIC IMAGES OF FOLLICLES:

Equine follicles are excellent subjects for trans-rectal imaging because they are large, filled with fluid and readily accessible. The following significant changes were found in the preovulatory follicle: **increasing diameter, shape change from spherical to pear-shape or conical** and **increasing thickness of the follicular wall**

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DOCT:

MED-9618U

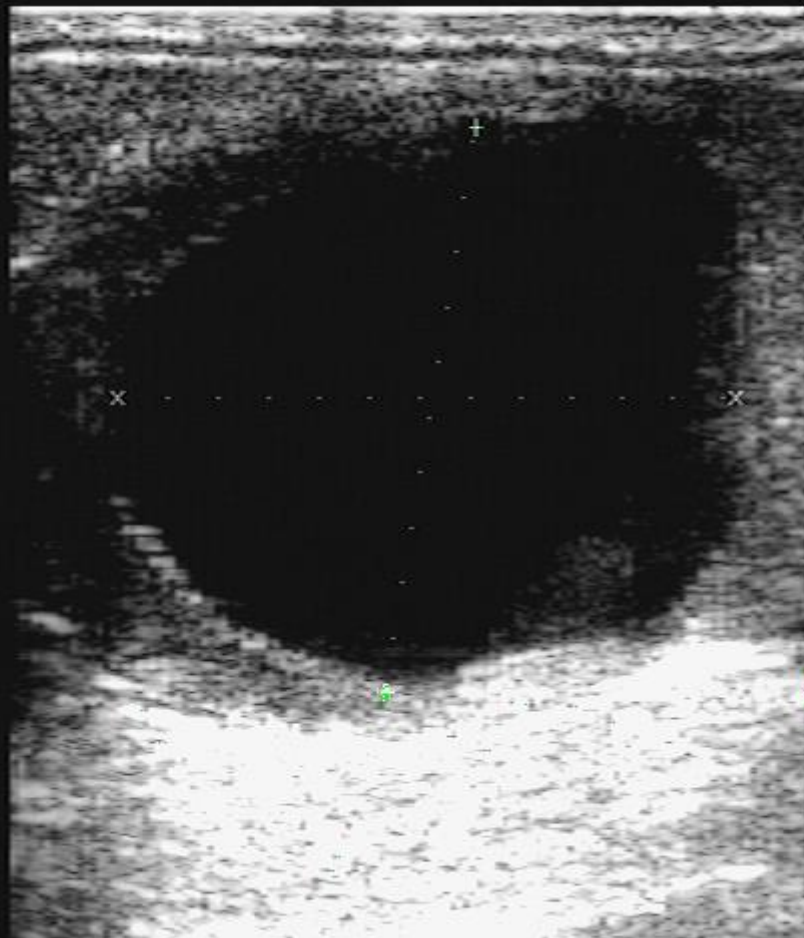
<U1.10>



NAME:

AGE:

SEX:



PROB:	LU-60	FREQ:	6.5MHZ
FPIN:	2	SPAN:	6
FM.AUG:	0.55	FR:	20
BG:	25/52	POWER:	88%
DR:	118	ANGLE:	100%
EDGEEN:	OFF	GAMA:	OFF

+D1= 38mm  
 XD2= 46mm  
 xD3=  
 xD4=  
 D1/D2= 82%  
 D3/D4=  
 Um1=

/511

DEP: 60

FREEZED

زود العراق

015) Scanner

and very light  
al-clear Image  
r consumption  
Built-in battery

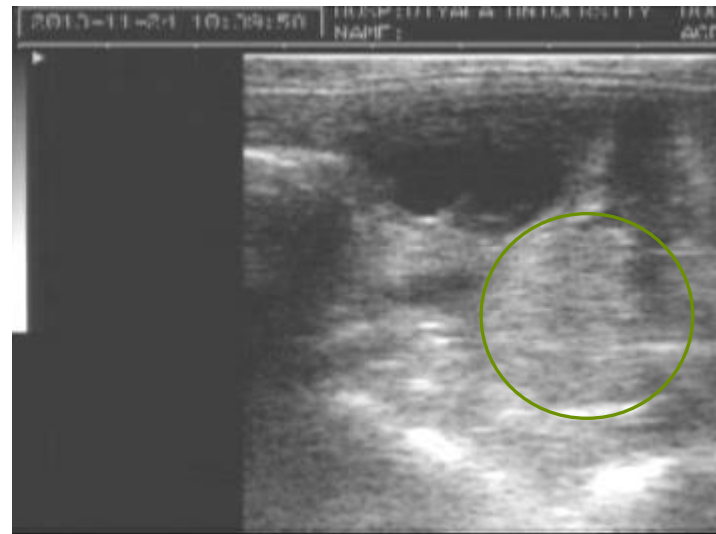
Solid shell and structure Waterproof(Optional)



4/2/2017

## 3-FORMATION AND DEVELOPMENT OF THE CORPUS LUTEUM :

One of the major uses of ultrasonography involves the immediate detection and evaluation of the luteal gland. The **corpus luteum** is detectable throughout its functional life during **diestrus** and **pregnancy** using **5** or **7.5 MHz** transducer and high -quality scanner



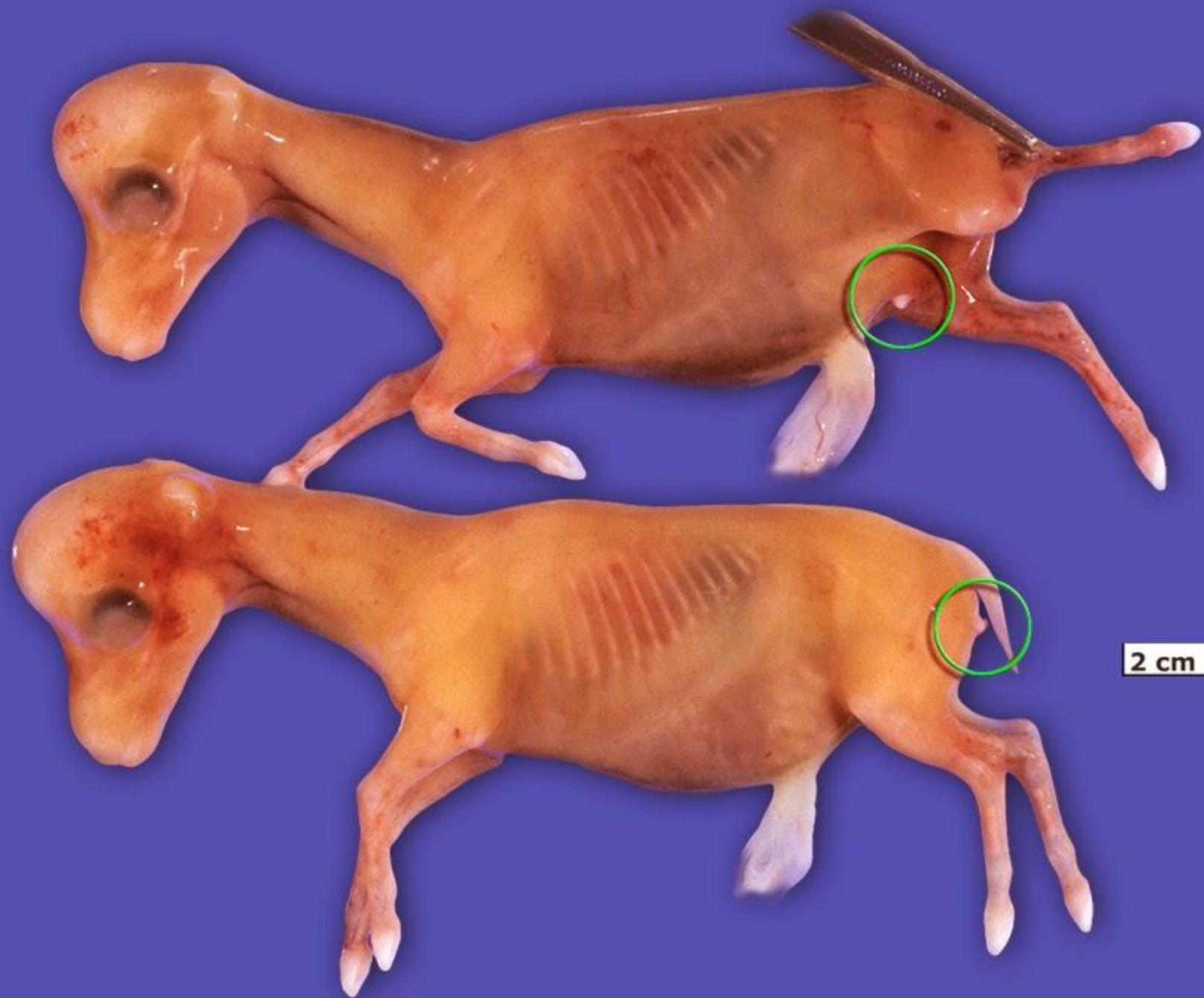


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## 4-ULTRASONIC DIAGNOSIS OF FETAL SEX

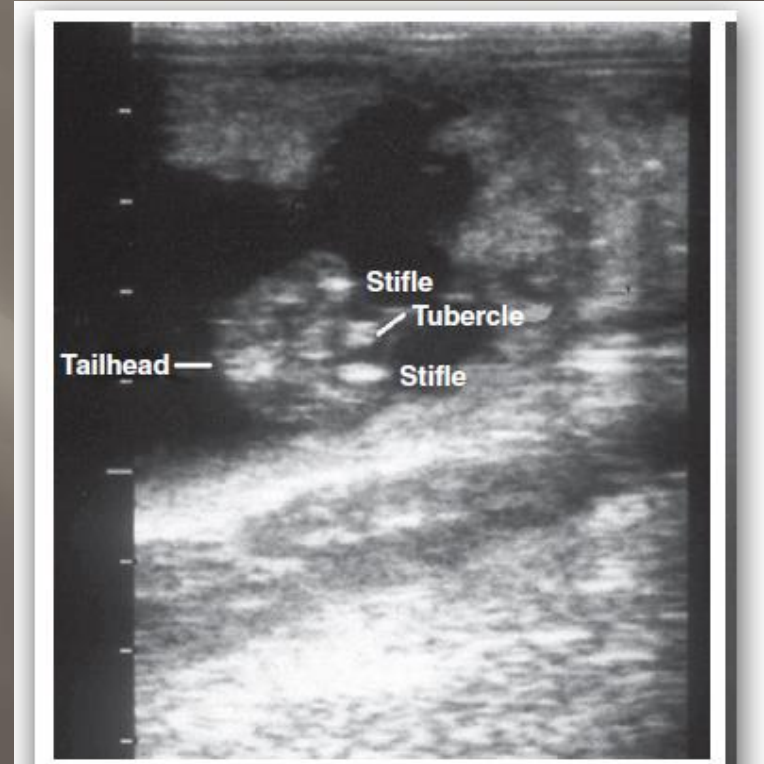
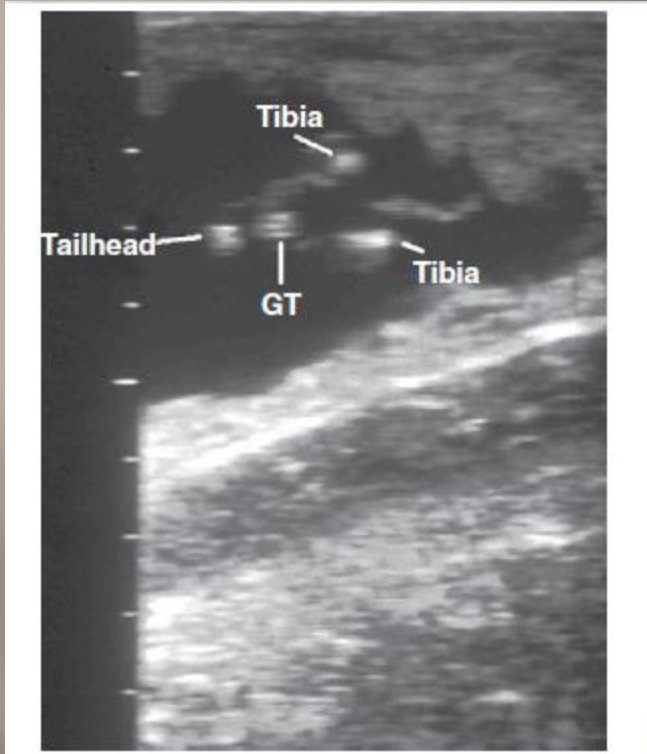
The determination of sex of an equine fetus after 55 days of gestation .the ultrasonographic scanning performed between **55 and 90days** of gestation,Involves finding the **genital tubercle** (precursor to the penis in *male* and precursor to the clitoris in *female*)And determining its location relative to other fetal structures .the **genital tubercle** appears as a **hyperechoic** bilobulated “equals” sign **2 to 3 mm** in length .Note that the stricture is near the umbilicus in the male fetus and near the tail in the female fetus

-



2 cm



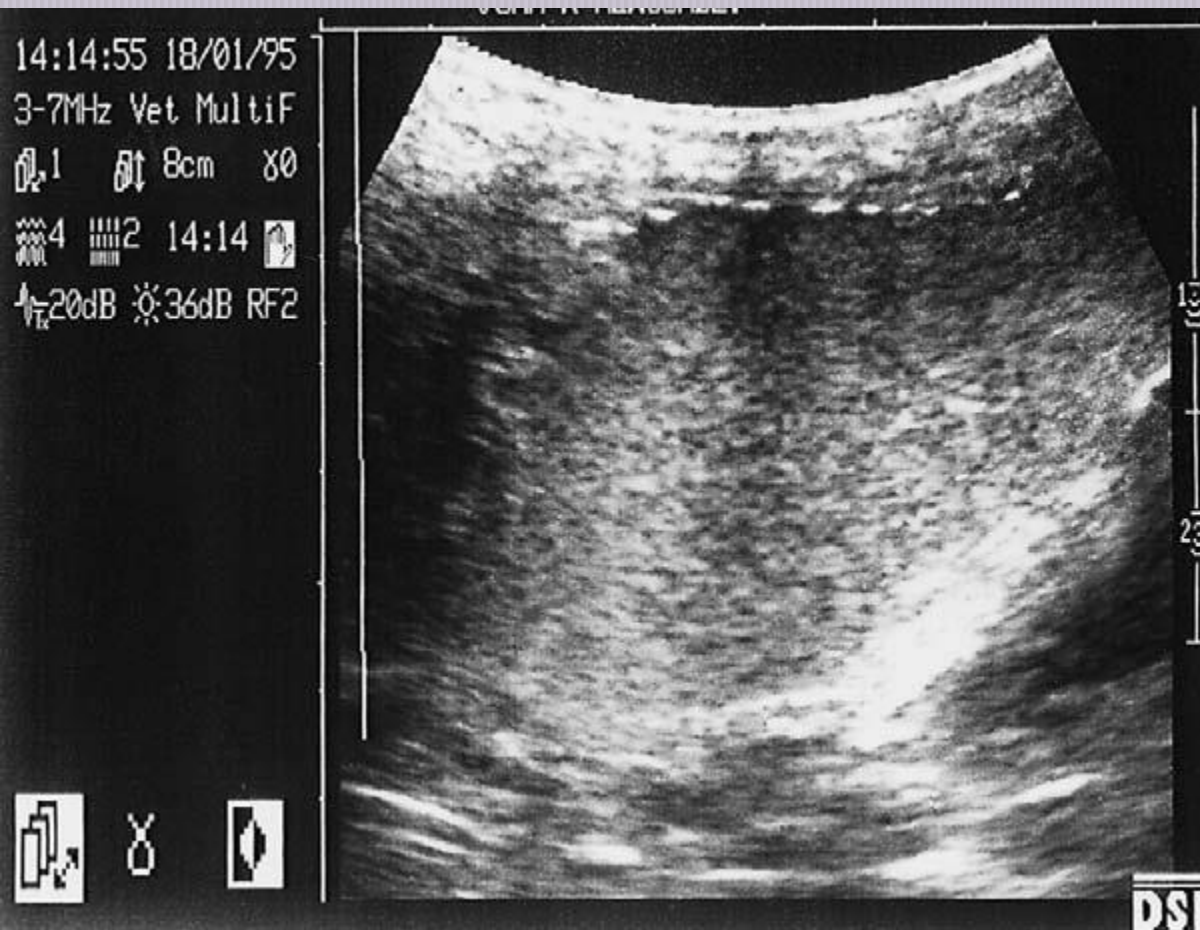


*5- Detection of intraluminal uterine fluid using trans-rectal ultrasound imaging.*

Transrectal ultrasonography provides a rapid, non-invasive method of assessment of the uterus. The large collections of fluid are attributed to **pyometra** or perhaps occasionally **mucometra**. The availability of ultrasound scanner would allow undisturbed visualization and estimation of the amount of purulent material in the uterus.



Ultrasonographic image of uterine fluid: normal fluid collection during estrus ;anechoic.



Ultrasonographic image of uterine fluid: **hypoechoic** with **hyperechoic** particles.



Ultrasonographic image of uterine fluid: **moderately echogenic** with echogenic particles .

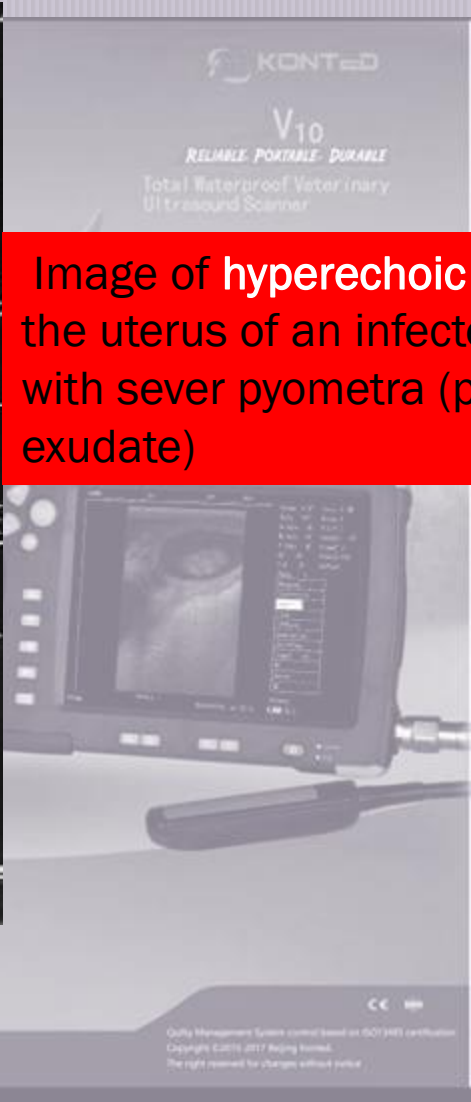
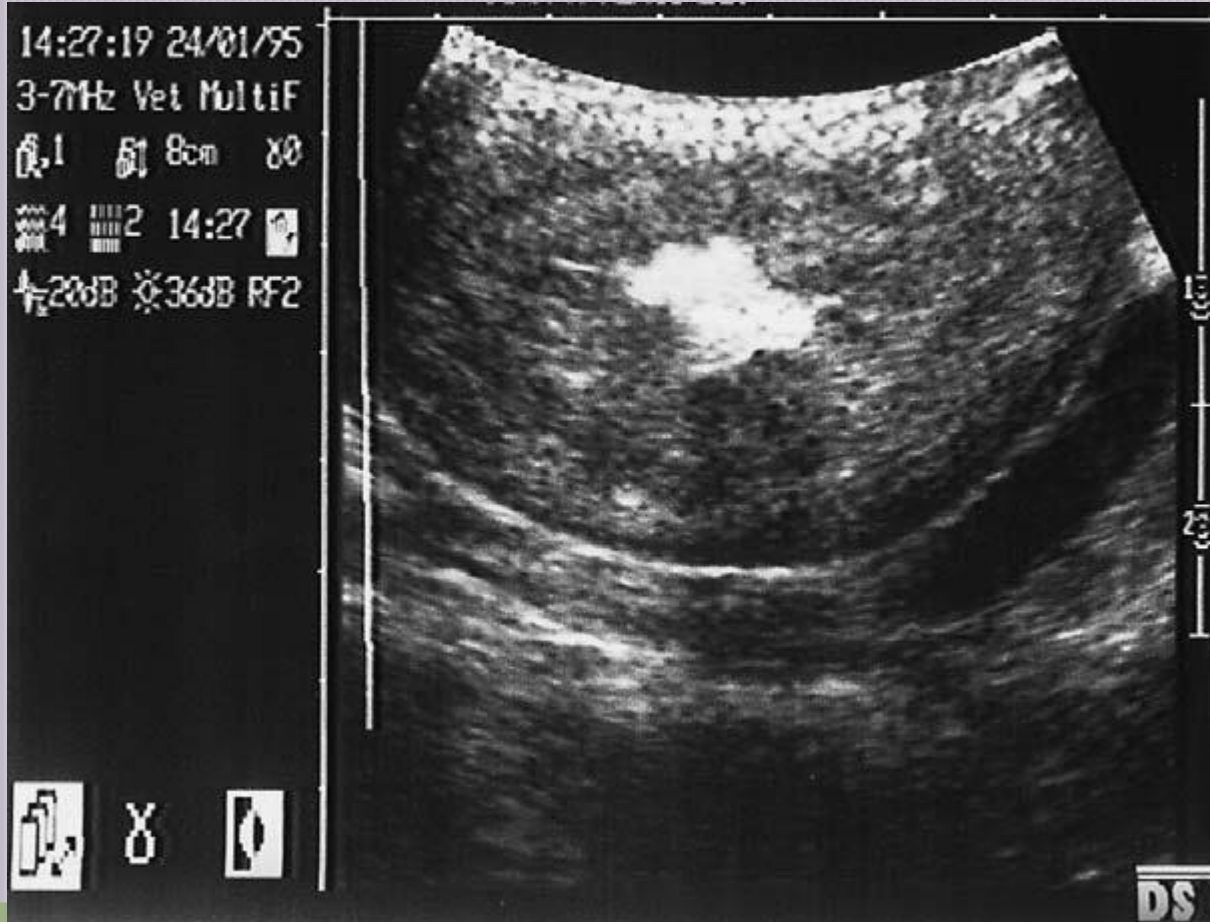


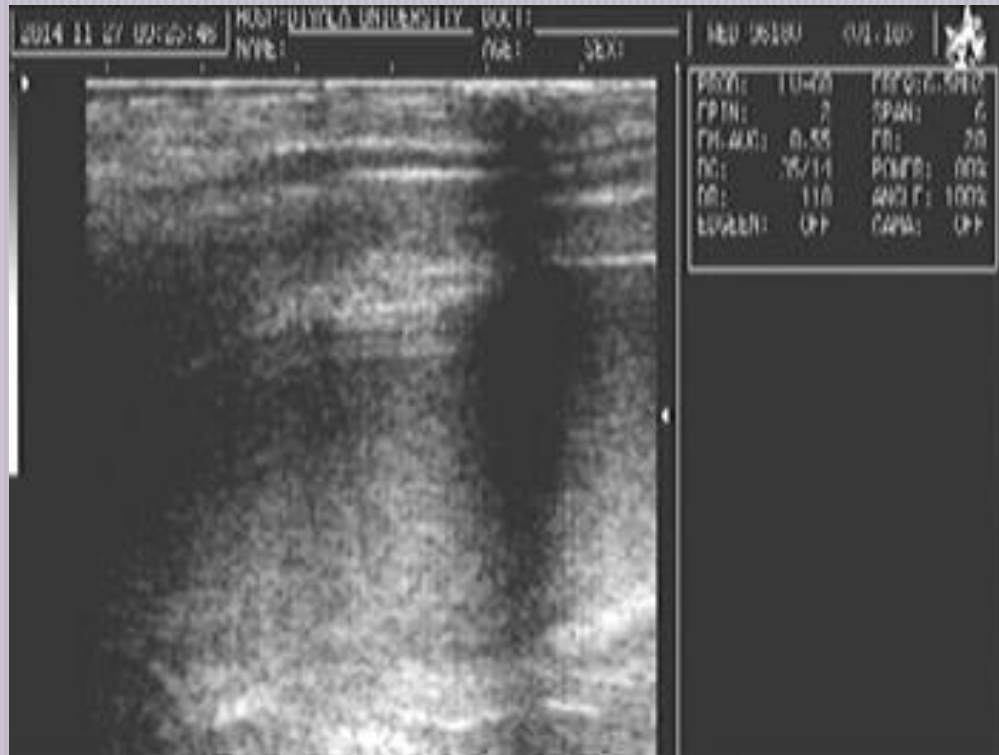
Image of **hyperechoic** fluid in the uterus of an infected mare with sever pyometra (purulent exudate)

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Tel: 8610-60219113 · Fax: 8610-60219213

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I LOVE  
HORSES



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