THE USE OF ULTRASONIC TECHNIQUES FOR THE DIAGNOSIS OF EARLY PREGNANCY IN MARES

Kısraklarda Erken Gebelik Tanısında Ultrasonografik Tekniklerin Kullanımı

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ÖZET

Bu çalışmada 416 kısrakta, ultrasonografi tekniği ile erken gebeliğin teşhisi amaçlanmıştır.
Çalışmada 82 kısrağa gebeliğin 14-15 günlerinde, 97 kısrağa 16-17 günlerinde, 116 kısrağa 18-20 günlerinde, 121 kısrağa da gebeliğin 21-22 günlerinde ultrasonografi tekniği uygulanarak gebelik teshisi yapılmıştır. Elde edilen sonuçlar, bütün hayvanlara gebeliklerinin 35-40 günlerinde tekrar ultrasonografi uygulanarak, doğruluk oranları kontrol edilmiştir. Buna göre çalışmada gebeliğin 14-15 günlerinde doğruluk oranı %88.8, 16-17 günlerinde %94.3, 18-20 günlerinde %96.1 ve 21-22 günlerinde %100 olarak bulunmuştur.
Muayeneler sırasında 12 adet kısrakta erken embriyonik ölüm ve 5 adet kısrakta da ikiz gebelik saptanmıştır.
Anahtar Sözcükler: Erken Gebelik Tanısı, Ultrasound, Kısrak

SUMMARY
Eearly pregnancy diagnosis of 416 mares were carried out by ult rasonography technique, in this study.
Ultrasonographic technique was used to diagnose the pregnancies of. 82 mares on 14-15th days, of 97 mares on 16-17th days, of 116 mares on 18-20th days and of 121 mares on the 21-22nd days of pregnancies. All results controlled by ultrasonography on the 35-40th days of pregnancies again. According to this control, the rate of corrent pregnancy diagnose on 14-15th days vas 88.8%, on 16-17th days 94.3%, on 18-20th days 96.1% and on 21-22nd days 100%.
By means of the above diagnose techniques, early embryonic deaths at 12 mares and twin pregnancies at 5 mares were observed.
Key Words: Early pregnancy diagnosis, ultrasound scanning, mare.

INTRODUCTION

In addition to having a short beeding season, mares also show individual variations depending on their length of oestrous period and ovulation (Yurdaydın and Sevinç 1983, Leidl 1993).

Therefore, in order to obtain satisfactory fertility, it is essential to have a good knowledge of basic mating habits such as oestrous behavior, duration of the oestrous cycle, ovulation, the time of insemination and early pergnancy diagnosis. Furthermore, it is necessary to monitor all the factors which affect fertillity (Yurdaydın 1986, 1991, Horoz and Şenünver 1994).

B-mode real-time scanner is used by rectal route to diagnose ovulation time, early pregnancy, twinning and genital diseases in domestic animals (Alan 1992, Arthur, Noakes and Pearson 1982, Dinç and Alacam 1990, Kılıçoğlu and Alaçam 1985, Pierson, Kastelic and Ginther 1988).

The fertilized ovum is coming into the uterus in 5-6 days after ovulation in mares. Conceptus is highly mobile within the uterine lumen until the 17th day. Regardless to the side of entry into the uterus, the equine conceptus moves between the uterine horns and uterine body (Alaçam 1994, Gordon 1983). Conceptus is re-cognized by development of a blastocele cavity within the embryo as early as 9-12 days postovulation (Dean, Irwin and Hillman 1983, Elmore 1988, McDonald 1989). From 15 to 20 days the pregnancy will appear as a black circular structure that may have an echogenic spot at ist dorsal or ventral limits. The embryo is probably not visible at this time. The embryonic vesicle is 17-33 mm in diameter during the 14-15 days postovulation and it can be diagnosed with 92% accuray rate by ultrasonography (Alaçam 1994, Dean, Irwin and Hillman 1983, Elmore 1988, Gordon 1983). The vesicle has a growth rate of 3-4 mm daily between 12-15 days and 2 mm daily on 15-17th days postovulation. Pregnancy diagnosis can be determined with 95-98% accuracy rate on the 17th day. The vesicle is often irregular in shape by increasing uterine tone and thickening and encroachment of the uterine wall on the vesicle. The embryo is first detected ultrasonographically within the vesicle at days 20 to 25 and is most commonly observed in the ventral position. The heartbeat is commonly detected at about day 22. From a practical standpoint, the first examination could be postponed until 20 to 22 days postovulation, this eliminates the scanning of mares that are destined to re-

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turn to oestrous, ovarian follicle, endometrial cyst and uterine lumen (Alaçam 1994, Allen 1988, Burns and Layton 1986, Ekici 1993, Roberts 1986).

The allantois is recognized on the day 24 and concurrent with its expansion and the contractions of the yolk sac. The interplay of growth between these two fluid-filled structures result in the embryo moving from ventral (day 22) to dorsal (day 40) aspect of the vesicle. After the day 40 the yolk sac degenerates and the umblical cord elangates. From the dorsal pole, permitting the fetus to gravitate to the ventral floor where it is seen in dorsal recumbency from day 50 onward (Alaçam 1994, Burns and Layton 1986, Ekici 1993).

Twine pregnancy and early embryonic deeath aslo can be detected by ultrasonographyc examination. Most of the embryonic deaths occur during 35-40 days postovulation. Ultrasonographyc reexamination must be done on the 40th day postovulation (Allen 1988, Elmore 1988).

MATERIALS and METHODS

Early pregnancy diagnosis of 416 mares were carried out by ultrasonography technique, at TJK Izmit Boarding House Breeding Farm, from 1994 to 1995.

Ultrasonographic technique was used to diagnose the pregnancies of 82 mares on 14-15th days, of 97 mares on 16-17th days, of 116 mares on 18-20th days and of 121 mares on the 21-22nd days of pregnancies. All results controlled by ultrasonography on the 35-40th days of pregnancies again.

RESULTS

The accuracy rate of the pregnants on 14-15th days was 88.4% and nonpregnant rate was 91.9%. On 16-17th days 94.3% and 95.4%, on 18-20th days 96.1% and 100%, on 21-22nd days 100% and 100% respectively, as shown in Table 1.

We also determined early embryonic deaths at 12 mares and twin pregnancies at 5 mares.

Table l. The Accuracy Rate of Pregnancy Diagnosis.

	Days 14-15	Days 35-40	Accuracy Rate %	Days 16-17	Days 35-40	Accuracy Rate %	Days 18-20	Days 35-40	Accuracy Rate %	Days 21-22	Days 35-40	Accuracy Rate %
Preg. (+)	45	40	88.8	53	50	94.3	52	50	96.1	73	73	100
Preg. (+)	37	34	91.9	44	42	95.4	64	64	100	48	48	100
Total	82	- -	90.3	97	97	94.8	116	- - -	98	121	- - -	100

Preg: Pregnancy

DISCUSSION

The results indicated that an early pregnancy in mares could be detected on the 22nd day by ultrasonography with 100 % accuracy. In addition twin pregnancies and earley embryonic deaths could also be diagnosed.

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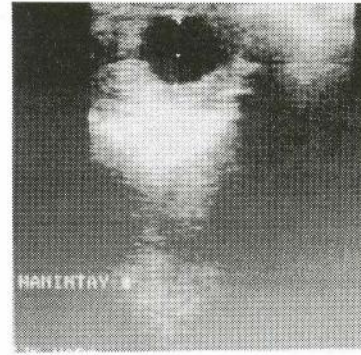
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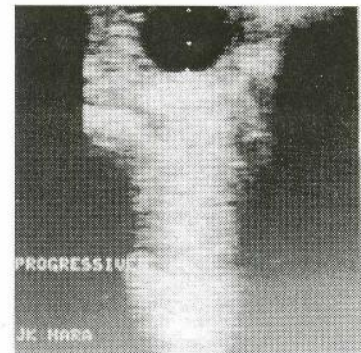
Resim 1: 14 Günlük gebelik
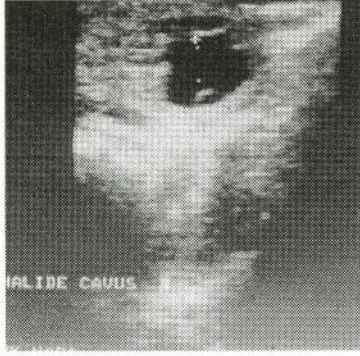Figure1: 14 day pregnancy

Resim 2: 16 günlük gebelik
Figure2: 16 day pregnancy

Resim 3: 18 günlük gebelik
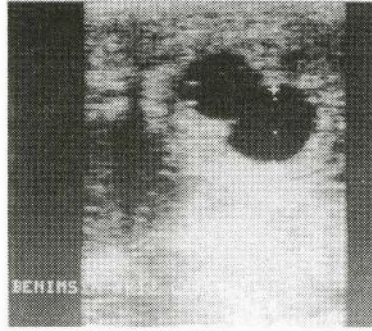Figure3: 18 day pregnancy

Resim 4: 20 günlük gebelik
Figure4: 20 day pregnancy

Resim 5: 22 günlük gebelik
Figure5: 22 day pregnancy

Resim 6: 40 günlük gebelik
Figure6: 40 day pregnancy

Resim 7: 17 günlük ikiz gebelik
Figure 7: 17 day twin pregnancy