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

Ksraklardada Erken Gebelik Tamsında Ultrasonografik Tekniklerin Kullanımı

M. Ragip KILIÇARSLAN* M. Kemal SOYLU** Adem ŞENÜNVER* Ismail KIRŞAN* Babür CARIOĞLU***

ÖZET
Bu çalışmada 416 karsağa, ultrasonografi tekniği ile erken gebelik döneminin tanımlanılması, oluşturulan 82 karsağın gebelikli 14-15 gündüründe, 97 karsağın gebelikli 16-17 gündüründe, 16 karsağın gebelikli 18-20 gündüründe, 121 karsağın gebelikli 21-22 gündüründe ultrasonografi tekniği uygulanarak gebelik teşkili yapılmıştır. Edek edilen sonuçlar, bütün hayvanlara gebeliğinin 35-40 gündüründe tekniğe ultrasonografi uygulanarak, doğrulanmıştır. Çalışmadan gebelikli 14-15 gündüründe doğrulanmıştır oran 988,8%, 16-17 gündüründe 984,3%, 18-20 gündüründe 986,1% ve 21-22 gündüründe 97,00 oranına ulaşmıştır.

Maçanların sonlarında 12 adet karsaka erken embryonik ölüm ve 5 adet karınca ile kız gebelik suçlunun, 5 adet karınca ile kız gebelik suçlunun, Amatör Sütçü'den: Erken Gebelik Tanısı, Ultrasonografi, Kuyruk

SUMMARY
Early pregnancy diagnosis of 416 mares were carried out by ultrasonography 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 16 mares on 18-20th days and of 121 mares on the 21-22nd days of pregnancies. All results obtained by ultrasonography on the 35-40th days of pregnancies again. According to this control, the rate of current pregnancy diagnosis on 14-15th days was 98.8%, on 16-17th days 94.3%, on 18-20th days 90.1% and on 21-22nd days 97.0%.

Key Words: Early pregnancy diagnosis, ultrasonic scanning, mare.

INTRODUCTION

In addition to having a short breeding 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 pregnancy diagnosis. Furthermore, it is necessary to monitor all the factors which affect fertility (Yurdaydın 1986, 1991, Horoz and Şenünver 1994).


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 (Alacım 1994, Gordon 1983). Conceptus is recognized by development of a blastocoele 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 can be diagnosed with 92% accuracy rate by ultrasonography (Alacım 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 echoreactivity 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-

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 umbilical cord elongates. 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 death also can be detected by ultrasonographic examination. Most of the embryonic deaths occur during 35-40 days postovulation. Ultrasonographic reexamination must be done on the 40th day postovulation (Allen 1988, Elmore 1988).

<table>
<thead>
<tr>
<th>Table 1: The Accuracy Rate of Pregnancy Diagnosis.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days 14-15</td>
</tr>
<tr>
<td>Preg. (+)</td>
</tr>
<tr>
<td>Preg. (+)</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

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 early embryonic deaths could also be diagnosed.

**REFERENCES**

7. Arthur, G.H., Noakes, D.E., and Pear-
Figure 5: 22-day pregnancy

Figure 6: 40-day pregnancy

Figure 7: 17-day twin pregnancy