Beni –Suef University
Faculty of veterinary medicine
Theriogenology department

Summary of Ph.D.Thesis

Presented by

Dr.Bakar Ramadan Abdel-Halim

(Assistant Professor of Theriogenology, Faculty of Veterinary Medicine, Beni-Suef University)

Submitted to

Standing scientific committee for Theriogenology& Surgery, Anesthesiology and Radiology

(Professors)

2018

Summary

The present study was carried out on fifty five (55 buffaloes) of 2-8 years old, these animals were divided into two groups:

Group (1): include 5 buffaloes were in the farm of the faculty of veterinary medicine, Beni-suef University. The farm has free stall housing in open yards with adequate shelter, nutrion and water supply; the animals were scanned for normal reproductive cycle.

Animals in this group with normal genitalia, ultrasonographic examination of these animals revealed that their ovaries were active carrying either follicles or CL. These follicles characterized by a central anechoic antrum surrounded by a very thin hyperechoic wall. Small, medium and large follicles ranged from 0.4-1.7cm in diameter. While the CL.Characterized by roughly granular, gray- structured oval area with or without cavity. Small, medium and large CL. With range of 1.2-1.6 cm. in diameter. This group of animals was followed up during cyclical changes, pregnancy diagnosis and determination of fetal age by estimation of certain parameters belonging to each trimester of pregnancy and postpartum period till complete uterine involution and ovarian recyclicity. Early pregnancy diagnosis could be performed by ultrasonography through detection of the diameter of the pregnant horn, embryonic vesicle in the uterine horn ipsilateral to the ovary containing CL. At 16 days post-insemination, the embryo was imaged as around hyperechoic structure in the uterine horn and surrounded by anechoic (black) fetal fluid in the uterine cavity. At the beginning of organogenesis stage (22-35 days, the age of accurate pregnancy diagnosis in this study), viability of the fetus, heart beats and development of the fetus inside the uterus were followed till the end of gestation.

The same group of animals was scanned during postpartum period till complete involution of the uterus and ovarian recyclicity. Scanning was done

daily during first week postpartum then weekly till complete involution. In this study, the first onset of follicular development at 29.8 ± 2.39 days postpartum, onset of first ovulation at 35.4 ± 2.01 days postpartum, onset of first estrus at 46.8 ± 2.29 days postpartum and duration of uterine involution at 46.6 ± 2.29 days postpartum.

Group (2): include 50 buffaloes were clinical field cases in Beni-Suef governorate and scanned for pathological affections. This group was subdivided into:

Subgroup (1): include animals with ovarian affections

Subgroup 1.1. Animals with smooth inactive ovary with a history of anestrum (10 animals).

The ultrasonographic image of smooth ovaries appeared as small structure (less than 2 cm. in diameter), the cortex appeared hyperechoic devoid from any structures and was well demarcated from the hypoechoic medulla. All animals with smooth ovaries were treated with Sod. Di-basic phosphate + Gn-RH Analogue with ovarian massage.8 animals came in heat and inseminated. Ultrasonographic examination (22-30 days post-insemination) revealed that only 6 buffaloes became pregnant. While at (45-70days post-insemination all treated animals diagnosed pregnant.

Subgroup 1.2. Animals with cystic ovarian disease included 3 buffaloes of which 2 buffaloes with follicular cysts and 1 buffalo with luteal cyst.

The ultrasonographic appearance of ovarian cysts was a large anechoic antrum more than 2.5 x 2.0 cm. in diameter, surrounded by either a thin hyperechoic wall less than 3 mm. thickness (follicular cyst) and anechoic (black)anrtum or a thick hyperechoic wall more than 3 mm thickness (luteal cyst).

All animals with follicular cysts were treated with Gn-RH analogue followed by PGF2 alpha analogue at day 9 post Gn-RH treatment. All animals

came in heat and inseminated. Ultrasonographic examination at 35-45 days post-insemination revealed that all animals became pregnant.

Buffalo with luteal cyst was treated with one injection of PGF2 alpha analogue, the animal came in heat and inseminated. Ultrasonographic examination at 35-45 days post-insemination revealed that the animal became pregnant.

Subgroup 1.3. Animals with retained or persistent CL included 12 buffaloes with history of prolonged postpartum anestrum up to 4 months.

The ultrasonographic appearance of the retained CL was characterized by a roughly granular, gray-structured oval area with a relatively hypoechoic echotexture with a mean diameter of 1.8-2.0 cm.

All animals with retained CL were treated with one injection of PGF2alpha analogue. All animals came in heat and were inseminated. Ultrasonographic examination at 35-45 days post-insemination revealed that only 10 buffaloes became pregnant.

Subgroup 1.4. Animals with granulose cell tumor included one buffalo with a history of irregular estrus, continous estrus and repeat breeding.

Ultrasonographic appearance of the buffalo diagnosed with granulose cell tumor (suspected) ovary was large in size reaches 8 cm. in width and 15 cm. in length and spongy form in appearance and presence of large follicular cyst of 2-2.5 cm. in diameter on the surface of the ovary, the diagnosis was confirmed by histopatological examination by pathology department in the faculty of veterinary medicine Beni-Suef University. The animal was fattened and slaughtered.

Subgroup (2): animals with uterine affections

Subgroup 2.1. Animals with endometritis included 6 buffaloes with history of repeat breeding.

Ultrasonographic examination of mild degree of endometritis revealed a mild thickening of endometrium and uterus with segmental accumulation of anechoic fluid within the uterine lumen. The severe degree of endometritis was characterized by thickening of the endometrium and a wide spread accumulation of uterine fluid within the uterus.

All animals with endometritis were treated with intra-uterine infusion of oxyteytracycline or lotagen with one injection of PGF2 alpha analogue. All buffaloes came in heat and were inseminated after complete healing which diagnosed by ultrasonographic examination and rectal palpation.

Ultrasonographic examination 30-45 days post- insemination revealed that only 4 buffaloes were pregnant and 2 buffaloes still repeat breeding.

Subgroup 2.2. Animals with pyometra included 6 buffaloes. 4 buffaloes with history of repeat breeding with copious amount of pus discharged from the uterus (open pyometra) and 2 buffaloes with postcoital pyometra (closed pyometra).

By ultrasonography pyometra appeared as a great distention of the uterine lumen with solid mass (hypoechoic) contains hyperechoic particles which appeared in ultrasonographic image as continuous motion (snow storm).

All buffaloes with pyometra were treated with one injection of PGF2 alpha analogue followed by intra-uterine infusion with oxytetracycline or lotagen. 4 buffaloes came in heat after complete healing which diagnosed by rectal palpation and ultrasonography, and were inseminated after two consecutive cycles. Ultrasonographic examination (30-45 days post-insemination) revealed that only 4 buffaloes were diagnosed pregnant.

Subgroup 2.3. Animals with mummified fetus included only one buffalo and did not receive any treatment.

Subgroup 2.4. Animals with intra-uterine fetal death included only one buffalo and did not receive any treatment.

Subgroup (3): animals with cervical affections included 10 buffaloes with history of repeat breeding. Ultrasonography, cervicitis appeared as an increase in thickness and echogenicity of cervical rings with ill identified hypoechoic lumen. All buffaloes were treated with the same treatment of endometritis.

Only 8 buffaloes responded to the treatment and were inseminated after two consecutive cycles while, 2 buffaloes not responded to the treatment as the inflammation was chronic as diagnosed by ultrasonography. Ultrasonographic examination (30-45 days post-insemination) revealed that only 5 buffaloes were diagnosed pregnant.

Conclusion

From the present study, it could be concluded that ultrasonography as a method of diagnosis is a good tool for:

1. Detection of ovarian activity, follicular waves, follicular development and ovulation during cyclical changes in buffaloes.
2. Early pregnancy diagnosis that shorten the open days.
3. Control of intercalving period through early diagnosis of ovarian activity and uterine involution post-partum and follow up of recently parturient buffaloes.
4. Diagnosis of infertility problems.
5. Reduction of costs of treatment especially in case of miss diagnosed cases through detection and accurate diagnosis of the main cause of infertility.