

Assessing the treatment outcome of various reproductive diseases of animals by follow-up monitoring in VTH, BAU

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Abstract

Background

Reproductive disorders have been found to be a major reason for decreased reproductive efficiency in animals. The present study was conducted to determine the effectiveness of different treatment for various reproductive diseases of domestic animals in Veterinary Teaching Hospital (VTH), Bangladesh Agricultural University (BAU), Mymensingh.

Methods

A total of 100 animals were registered for treatment during the study period. Among those 59 cattle, 9 goats and 1 turkey were treated for reproduction related diseases. On the other hand, 28 cows and 3 goats were brought for regular pregnancy diagnosis. Standard procedures were followed for the diagnosis and treatment of the diseases.

Results

Among the reproductive diseases of cattle, conception failure was 37.29% (n=22), uterine infection was 33.89% (n=20), anestrus was 13.56% (n=8), repeat breeding was 5.08% (n=3), vaginal prolapse was 3.39% (n=2), postpartum vulvo-vaginitis was 1.69% (n=1) and ovarian hypoplasia was 1.69% (n=1). Only 2 bulls 3.39% (n=2) were diagnosed with posthitis. In goats, retention of placenta was 66.67% (n=6), abortion was 22.22% (n=2) and anestrus was 11.11% (n=1). There was one turkey with cloacal prolapse. All the animals having reproductive disease were treated in VTH. There was 93.22% improvement/effectiveness found in cows. The turkey and goats show 100% effectiveness of treatment.

Conclusion

We can conclude that the most common reproductive diseases of cattle and goats in Bangladesh are uterine infection, anestrus, conception failure, postpartum vulvo-vaginitis, vaginal prolapse, repeat breeding syndrome, abortion, retention of placenta and posthitis. Any disease or disorder of the genital tract may affect the reproduction as well as the production and fertility. Therefore, it is important to be concerned about the treatment and management of the diseases of the genital tract. Careful management and treatment of these diseases will ultimately help to increase the animal's productivity in Bangladesh. The treatment given in VTH, BAU are successful for recovery.

Keywords: Animals, Reproductive disease, treatment, outcome

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Introduction

Reproductive disorders are the major causes of reduced productivity in domestic animals. These disorders lead to reduce the reproductive efficiency as well as reduce the lifetime production of the animals (Lawson *et al.*, 2004; Inchaisri *et al.*, 2010). Farmers have limited knowledge about hygiene and reproductive management of domestic animals. Therefore, faulty management practices such as failure to identify oestrus correctly, poor herd management practices and record keeping are the greatest causes of reproductive disorders in a domestic animal, to mention a few (Waldner and García Guerra, 2013; Crowe *et al.*, 2018). Common reproductive diseases of domestic female animals are anestrus, repeat breeder, uterine infection, poor heat detection, ovarian cyst, early embryonic death, retained placenta, dystocia, and pyometra. On the other hand, main reproductive diseases of male animals are orchitis, phimosis, posthitis, and balanoposthitis.

Usually, reproductive diseases are diagnosed and treated by the veterinarians on the basis of history and clinical examination. There are some reports on clinical case records from Veterinary Teaching Hospital, Bangladesh Agricultural University (Das and Hashim, 1996; Samad *et al.*, 2002; Sarker *et al.*, 2013), Haluaghat Upazilla Veterinary Hospital, Mymensingh (Sarker *et al.*, 1999) and Dairy Cooperatives in Pabna district (Pharo, 1987), Chandanaish Upazilla of Chittagong district, Bangladesh (Pallab *et al.*, 2012) and Patuakhali Science and Technology University Veterinary Clinic (Rahman *et al.*, 2012) and also in different areas of Bangladesh (Mazid *et al.*, 2006; Asaduzzaman *et al.*, 2016). However, in most of the publications, they only recorded the occurrences of diseases. They did not evaluate or monitored the success or failure of the given treatments. Therefore, it is very essential to know how the farmers/owners are responding to the prescribed treatment for their animals. Farmers/owners are bringing their sick animals to Veterinary Teaching Hospital (VTH), BAU every day for treatment. Analysis of reproductive disease among the animals brought

to VTH will give us a comprehensive idea about the disease occurrences. However, farmers only being prescribed here, the treatment outcome of any prescription has not been evaluated or monitored. Therefore, the present study was designed to find out the occurrence and effectiveness of different treatment of reproductive diseases of domestic animals in VTH, BAU, Mymensingh.

Materials and Methods

Study area

The study was carried out at Veterinary Teaching Hospital, Bangladesh Agricultural University, Mymensingh during the period from March 2017 to February 2018. One hundred sick animals were brought to the hospital for treatment of reproductive diseases. All the treated cases (n = 68; 59 cattle and 9 goats) of reproductive diseases and one turkey were selected for this study. Another 31 animals (28 cattle and 3 goats) were brought for routine pregnancy diagnosis. The description of each animal and owner's complaint was recorded.

Data collection

Data such as farmer's name & address, animal species, breed, age, sex, body weight, owner's complaint, history, clinical signs, diagnosis, treatment, advice, and prognosis were entered into data collection sheet. The owners were interviewed for the history of the problem and the animals were examined clinically for diagnosis of diseases. History was taken according to the owner's complaint.

Methods of diagnosis of diseases and disorders

The tentative diagnosis of diseases was performed by following standard diagnostic procedures on the basis of history, clinical signs and clinical examination of the animal such as rectal palpation or ultrasonography by the working veterinarian.

Treatment given for reproductive diseases

Specific treatment was given for specific diseases after proper diagnosis of diseases (Table 1).

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Table 1. Treatment given in VTH for the reproductive diseases

Diseases	Treatment
Uterine infection in cow	Inj. Pronapen-40 lac vial (5), Intra-uterine infusion daily -5 days; Inj. Vita AD ₃ E -10 ml (3), IM inj. every alternate day for 3 days
Anestrous in cow	Inj. Vita AD ₃ E -10 ml (4), IM Inj. every alternate day for 3 days; Inj. V plex-10 ml (3), IM Inj. every alternate day for 3 days; after 1 month, Inj. Fertilon-5 ml IM
Conception failure in cow	Inj. Ovureline -1 ml IM injection once only; Pow. DCP Plus-1 kg pack, 2 tsp orally twice daily
Abortion in goat	Inj. Streptopen-0.5gm (3), IM injection for 3 days; Inj. Dextrose 5%-250 ml, IV injection at a time, Inj. Oxytocin -10 ml vial, 2 ml IM injection at a time
Cloacal prolapse in turkey	Tab. Ciprocin-1, as crushed tablet in 8 part and administered orally twice daily; Cream Betnovet-N-1 tube, apply thrice daily in cloaca
Retention of placenta in goat	Inj. Streptopen-0.5gm, IM injection for 3 days; after 1 day, Inj. Metherspen-1 vial, IM Inj. at a time
Granular vulvo vaginitis in cow	Inj. SP Vet-2.5gm, IM injection for 3 days; Povisep, apply locally with cotton once daily for 3 days; Inj. Keto Vet-10 ml, Inject 5ml IM for 2 days
Vaginal prolapse in cow	Inj. Cal-D-Mag-200 ml bottle (2), inject 50 ml SC for 8 days
Repeat breeding syndrome in cow	Inj. Fertagyl-2.5 ml, single injection
Posthitis in bull	0.01% PPM- wash daily; Inj. Streptopen-2.5 gm vial (5), 1 vial IM injection for 5 days; Inj. Hista-Vet-10 ml (2), 5 ml IM injection for 3 days

Inj. Pronapen- 40 lac: Procaine Penicillin 30 lac and Benzyle Penicillin; Inj. Vita AD₃E: Vitamin A 500000 IU, Vitamin D₃ 75000 IU, Vitamin E 50mg per ml; Inj. Streptopen: Procaine penicillin 3lac, Benzyl penicillin 1lac, Streptomycin 500mg per 0.5g; Tab. Ciprocin: Ciprofloxacin 500 mg; Inj. Metherspen: Methyl Ergometrine Maleate 200 mcg/ml; Inj. SP Vet: Penicillin G Procaine + Penicillin G Sodium + Streptomycin; Inj. Cal-D-Mag: Calcium Gluconate 20.8%, Magnesium Hypophosphite 5%, Dextrose 20%, Chlorocresol 0.10%; Inj. Fertagyl: Gonadorelin (GnRH); Inj. Hista-Vet: Pheniramine melete BP 227.5 mg

Routine check-up

A follow-up evaluation was performed to determine the effectiveness of each treatment given. A routine checkup was carried out from the 7th day of the prescription until recovery or till next oestrus cycle, where applicable by visiting the owner's house or by mobile communication.

Data analysis

Data were entered in Microsoft Excel Spreadsheets and percentages of reproductive diseases and their treatment outcomes were calculated.

Result and discussion

Occurrence of reproduction related diseases and disorders in animals treated in VTH:

A total of 100 patients were registered having concern about reproductive problems. Among them 87 were cattle, 12 were goat and 1 was turkey. The present findings in this study revealed the occurrence of the major reproductive problems in cattle were uterine infection (33.89%), anestrous (13.56%), conception failure (37.29%), pustular vulvo-vaginitis (1.69%), vaginal prolapse (3.39%), repeat breeding syndrome (5.08%), ovarian hypoplasia (1.69%) and posthitis (1.69%) (Table 2); Whereas in goats were abortion (22.22%), retention of placenta (66.67%) and anestrous (11.11%) (Table 3), and only a single case of cloacal prolapse in turkey.

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Table 2. Occurrence of reproduction related diseases and disorders in cattle treated in VTH (March 2017 to February 2018)

Sex	Diseases/disorders	Number	Percentage (%)
Female	Conception failure	22	37.29
	Uterine infection	20	33.89
	Anestrous	8	13.56
	Repeat breeding	3	5.08
	Vaginal prolapse	2	3.39
	Pustular vulvo-vaginitis	1	1.69
Male	Ovarian hypoplasia	1	1.69
	Posthitis	2	3.39
	Total	59	100

Table 3. Occurrence of reproduction related diseases and disorders in goats treated in VTH (March 2017 to February 2018)

Diseases/disorders	Number	Percentage (%)
Retention of placenta	6	66.67
Abortion	2	22.22
Anestrous	1	11.11
Total	9	100

Percentage of pregnancy diagnosis cases

Among the 100 patients, 31 animals were brought to VTH, BAU only for pregnancy diagnosis (2-6 months pregnant), where 28 were cows and 3 were goats. Nearly seventy one percent (71.42%)

cows were found pregnant and 28.57% found non pregnant (Table 4). All the goats (n=3) were found pregnant (Table 4). The pregnancy diagnoses were done accurately by per rectal palpation and ultrasonography.

Table 4. Percentage of pregnancy diagnosis performed in VTH from March 2017 to February 2018.

Animal	Total number (n=31)	Pregnant	Percentage (%) of pregnant	Non-pregnant	Percentage (%) of non pregnant
Cow	28	20	71.42	8	28.57
Goat	3	3	100	0	0

Treatment outcome of different reproductive diseases of animals in VTH, BAU

We found 93.22 to 100% effectiveness (Table 5) of the treatment given in VTH, BAU. The

treatment outcomes of different animals are summarized in table 5.

Table 5: Improvement of animals after receiving effective treatment at VTH, BAU

Species	Number of animal treated	Number of animals cured	Percent cured (%)
Cattle	59	55	93.22
Goat	9	9	100
Turkey	1	1	100

The occurrence of uterine infection in cow was 33.89%. It is higher than the prevalence rate 29.4% reported by Moghaddam and Mamoei

(2004) in Iran and 7.6 to 11.9% reported by Faruq (2001) and Sarder et al. (2001) in selected areas of Bangladesh. Uterine infection can be caused

by a number of factors, including the infectious agent, parturition in unhygienic condition, retained placenta, dystocia, vaginal prolapse and manual removal of placenta. Intrauterine antibiotic infusion and vitamin, mineral supplement were provided to the patients for treatment. Sheldon *et al.* (2003) suggested oxytetracycline for intra uterine infusion. However, Penicillin is another preferred antibiotic for treating the uterine infection as it penetrates all layers of the uterus. Most of the bacteria, which normally penetrate the endometrium and causes septicemia, were found sensitive to penicillin (Paisley *et al.*, 1986; Smith and Risco, 2002). In the present study both penicillin and oxytetracycline was used for intrauterine infusion. All the cows with uterine infection treated in the present study were cured and conceived later on.

The percentage of anestrus was 13.56. In most of the cases, size and shape of both ovaries were found normal with few small follicles. Regressing corpus luteum was palpated in ovaries but the animal did not show sign of heat or the owner could not detect. It may be due to weak estrus sign or lack of farmers' knowledge of estrus behavior. Rahman *et al.* (2013) recorded a 22.35% occurrence of anestrus. The higher prevalence of anestrus might be the result of variations in predisposing factors such as nutritional status, management conditions, hormonal imbalance, reproductive tract infections, and persistent corpus luteum. McDougall (2010) proposed the use of GnRH for treating anestrus cow. In this study, at first vitamin-mineral supplement and anthelmintic was provided to improve body condition and thereafter GnRH injection was given for anestrus treatment and animals were cycled later on.

In total 37.29% of cases were diagnosed as conception failure. It was assumed that the conception failure might be due to incorrect timing of artificial insemination (AI), improper heat detection or artificial insemination by unskilled AI technician (Siddiqui *et al.*, 2013). In those cases, the owners were suggested to give GnRH injection immediately after insemination.

In some cases, they also suggested providing twice insemination in a single detected heat. All the treated cows respond well to the treatment and conceived later.

Pustular vulvo-vaginitis was found in 1.69% cases. Brenner *et al.*, (2009) found 50% cow affected with necrotic vulvo-vaginitis in Israel. Local wash of the area, antibiotic and anti-inflammatory drugs were prescribed for treatment and the animal showed a positive response to the treatment.

The percentage of vaginal prolapse was 3.39%, which was lower than the prevalence rate of 13.40% reported by Rahman *et al.* (2013). Henricks *et al.* (1972) suggested that a combination of increased estrogens levels with decreased progesterone and increase production of relaxin, especially in the last two weeks of pregnancy may cause relaxation of the pelvic ligaments and surrounding soft tissue structures. The lower prevalence rate of vaginal prolapse may be attributed to the availability of calcium supplement in feed and less chance of the occurrence of hypocalcaemia. Baxter (2004) suggested manual replacement of the prolapsed vagina in mild cases. In the present study, two cows were found with vaginal prolapse and both of them were mild cases. They were manually corrected and subcutaneous calcium was prescribed as supportive treatment.

About 5.08% cases of repeat breeding were observed in cows during the study period. Rahman *et al.* (2013) reported 19.27% and Khair *et al.* (2013) reported a 32.76% occurrence of repeat breeding in different areas of Bangladesh. Repeat breeding could be caused by a number of factors including sub-fertile bulls, endocrine imbalance, malnutrition, reproductive tract infections and poor management practices such as incorrect time of insemination or faulty heat detection, inappropriate semen handling and insemination techniques (Arthur *et al.*, 1989). In addition to these, communal use of bull for natural services is also considered as contributing factors. Treatment of repeat breeding depends on the cause. In the present study, GnRH injection

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was given immediately after insemination, where no other causes were found. Whenever, any managerial faults such as health detection and incorrect insemination identified, farmers were advised how to overcome the managerial issues.

Ovarian hypoplasia was confirmed by rectal palpation and found in 1.69% cases, where both ovaries were found very small according to the age of the animals. Ovarian hypoplasia affected animal have infantile reproductive tract and never exhibit estrus. Treatment of ovarian hypoplasia included improving the feed quality, cleaning the housing and grazing the cattle frequently. When the ovarian structure gets improved, PMSG could be given intramuscularly (Darrel and Kesler, 2002; Opsomer *et al.*, 2000). In the present study, vitamin supplement was provided. However, those animals were sold before evaluating the treatment outcome.

During the one-year study period, only one male disease (1.69%) was found. It was posthitis. Antiseptic wash, antibiotic and anti-inflammatory drugs cured the bull.

The proportional prevalence of abortion was 22.22% in goats. Srivastava *et al.*, (1985) reported 0.8% cases of abortion. Recently, Ahmed *et al.*, (2008) have reported a 43.7% prevalence of abortion. The common cause of abortion is brucellosis (Mekonen *et al.*, 2010; Rahman *et al* 2012). Rahman *et al* (2012) reported the higher prevalence of brucellosis was found in Black Bengal goats with the history of previous abortion (33.33%). Infected animals should be treated with tetracycline, oxytetracycline, and chlortetracycline or procaine penicillin (Braun *et al.*, 2006). In the study period, the aborted goats were prescribed for antibiotic, intravenous saline and oxytocin for bacterial infection and placental expulsion.

In the present study, 66.67% goats were diagnosed with retained placenta. Karim *et al* (2014) reported 50% prevalence rate in selected areas of Bangladesh. However, the prevalence of retained placenta in goats could vary from 1.5 to

95.7%, based on breeds, regions and different managerial conditions (Neils *et al.*, 2009; Fthenaki *et al.*, 2000). The retained placenta may occur as a result of premature birth, which may arise in a variety of circumstances. It is associated with abortion due to infectious causes, caesarian section and pharmacological induction of parturition (Peters and Ball, 1987). Treatment of retained placenta includes antibiotics and hormones. Some studies revealed that administration of 3 mg of ergonomic or a similar drug developed from ergot may be more beneficial than oxytocin in cases of atonic myometrium because of its prolonged oxytocin effect (Roberts, 1986). Systemic antibiotics are believed to be beneficial in retained placenta cases where fever was also present (Drillich *et al.*, 2006). In present study systemic antibiotic and ergot preparation were prescribed and there was satisfactory improvement in all cases of retained placenta in goats.

A total of 11.11% cases of goats were found anestrus. GnRH preparation was given for treatment in those cases. The goats later detected in heat and conceived.

During the study period, one turkey was found with cloacal prolapse with maggot infestation. At first surgical procedure was followed to remove maggots and then vitamin C supplement and antifungal cream were prescribed and the bird was cured.

Non-response to treatment and follow up treatment

Reproductive information of 100 animals was collected. Among them, 68 animals (59 cattle, 9 goats) were bought having the complaint of reproductive diseases. The rest were only to check pregnancy status. Among the treated animal owners, 3 cows were found not responded to the treatment and one were sold out without any treatment. Among, the animals that were bought for pregnancy diagnosis, the farmers without any further intervention sold non-pregnant animals. However, one farmer having non-pregnant cows decided for treatment intervention to make his cow pregnant in the next

cycle. That animal was diagnosed as anestrus and treated accordingly, the animal cycled later on.

Conclusions

We can conclude that the most common reproductive diseases of cattle and goats in Bangladesh are uterine infection, anestrus, conception failure, pastular vulvo-vaginitis, vaginal prolapse, repeat breeding syndrome, abortion, retention of placenta and posthitis. Any disease or disorder of the genital tract may affect the reproduction as well as the production and fertility. Therefore, it is important to be concerned about the treatment and management of the diseases of the genital tract. Careful management and treatment of these diseases will ultimately help to increase the animal's productivity in Bangladesh.

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