

Gross Pathological Studies on Female Reproductive Organs of Thari Cow (*Bos indicus*)

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Abstract: Genitalia of one hundred Thari cows were collected from Mirpurkhas slaughter house, Mirpurkhas Sindh, Pakistan, for gross-pathological studies. Sixty five percent tracts of the sample collected were found abnormal having one or more abnormalities while 19 percent tracts normal without any visible abnormality. Sixteen percent animals were found pregnant at different stages of pregnancy. The most affected part of the tract was uterus (70.8%) followed by cervix (64.6%) oviduct (60.0%), ovaries (49.2%) and vagina (38.5%). The incidence of par-ovarian cysts was 15.4%, follicular cysts 10.8%, luteal cysts 7.7%, bursitis 6.2%, ovarian hematoma 3%, ovarian hypoplasia 4.6%, ovario-bursal adhesions 4.6% and ovarian stone 1.5%. The incidence of oviduct abnormalities were pyosalpinx 26.2%, salpingitis 23.1%, hydrosalpinx 10.8% and cysts on oviduct wall 4.6%. In uterus, pyometra 43%, endometritis 38.5%, metritis 30.8%, hydrometra and mucometra 12.3%, cysts on uterine wall 6.2%, black spots 6.2% and mechanical injuries 3%. The cervical abnormalities included kinked cervix 30.8%, prolapse of cervical rings 29.2%, cervicitis 27.7%, pus in cervix 18.5%, twisted cervix 15.4%, cysts on cervical wall 3%, mechanical injuries 1.5% and abnormal discharges 10.8%. In vagina, vaginitis was 18.5%, valvo-gaginitis 10.89, vagino-cervical-parametritis 16.9% cysts in the floor of vagina 6.2%, mechanical injuries 4.6% and abnormal discharges 12.3% were recorded. The study revealed a high incidence of reproductive disorders, most of the reproductive problems were of minor nature that could have been treated and animals saved from slaughter.

Key words: Reproductive disorders, slaughter house materials, Thari Cows

Introduction

Thari cattle is dual purpose (milk and draught) breed (Wahid, 1975). The breed derived the name from its home tract, "THAR", the desert area of District Tharparkar Sindh, Pakistan. This is the area where almost every livelihood is based on annual rainfall, which is very irregular and makes the life of every individual difficult. Average milk yield of this breed is 1900 liters per lactation (Bakhat *et al.*, 1984). This is enormously below the normal level (5000 liters) from a dairy cow in the developed countries. The developing countries have breeds and types of livestock with lower genetic potential to produce milk and meat than the types of animals used in temperate region. However, indigenous animals are generally better adapted than exogenous animals to environmental stress such as heat, humidity, fluctuating levels of nutrition and the inadequate veterinary care.

The animals suffering from various reproductive disorders like an-oestrus, repeat breeding, inflammation of reproductive tract, pyometra and mucometra cause heavy losses to the farmers. The observations based on the slaughter house material, Qureshi and Ahmed (1966) reported 72

percent and Vighio (1980) reported 94 percent gross pathological abnormalities of reproductive tracts in cattle. Slaughter house material has a significant role in determining the actual cause of reproductive inefficiency in animals in this area. Therefore this study was designed to examine the incidence of gross abnormalities of various parts of reproductive tract of Thari cows maintained under the hard environmental conditions prevailing in the area.

Materials and Methods

One hundred reproductive tracts of Thari cows were collected from slaughter house of Mirpurkhas, Sindh, Pakistan and brought to the Laboratory of Department of Animal Reproduction, Sindh Agriculture University, Tandojam, for gross pathological studies. The abnormalities were recorded according to the procedure described by Kaikni (1978) and subsequently followed by Vighio (1980). Each reproductive tract was carefully examined for the presence of any lesions or abnormalities like tumour, cysts, inflammatory conditions and other visible changes.

Tubular part of the reproductive tract was

dissected by giving dorso-longitudinal cut and examined. The vagina was the first part of the tract to be opened and examined and the observations were recorded. The cervix was dissected dorso-longitudinally from os-internum to os-externum and examined for prolapse of cervical rings and any contents inside. Uterus and fallopian tubes were opened by midline incision and examined for inflammation, presence of pus and other changes. The ovaries were examined externally and internally for the presence of cysts and other abnormalities. The data was presented in percentage.

Results and Discussion

During the study period, it was observed that the animals were brought from various places of Mirpurkhas Division. The pre-slaughter reproductive status of the animals could not be obtained because no such record was available. It was observed that most of the animals were culled and sold due to low production, old age and socioeconomic reasons.

Ovarian Abnormalities: The ovarian abnormalities are presented in Tables 1 and 2. It was found that 49.2% ovaries were affected from different abnormalities. The abnormalities were par-ovarian cysts (15.4%), follicular cysts (10.8%), luteal cysts (7.7%), bursitis (6.2%), ovarian hypoplasia, ovario-bursal-adhesions (4.6%), ovarian hematoma (3%) and stone in ovaries (1.5%).

The pathological conditions found in the present study for par-ovarian cysts were in line to those (15.8%, 14% & 13%) reported by Selunskaya (1975), Hamana *et al.* (1976) and Romaniuk (1976) in cattle. In contrast, lower percentage of par-ovarian cysts (1.2 to 8.3%), were recorded by Perkins *et al.* (1954); Qureshi and Ahmed (1966); Seitaridis and Metaxopoulos (1971); Kruif (1976) and Roinf (1977) in cattle. The findings for follicular cysts were in agreement with the results (10%) of Kruid (1976), while the findings (12.5%) of Vighio (1980) were slightly higher than the results obtained in the present study. However the lower percentage (1.5-4.5%) for follicular cysts were reported by others (Nair and Raja 1974; Elwisy 1976 and Alam 1984). The percentage of luteal cysts (7.7%) found in Thari cow, was higher than those (0.6-4.1%) recorded by Alam (1984) in other breeds of cattle. On the other hand higher percentage (10.1% & 15.62%) reported by Averikhin and Vyatkin (1976) in cows.

The ovario-bursal-adhesions (4.6%) found in the present study were similar to those (4.8%) obtained by Perkins *et al.* (1954) in cattle.

Whereas the findings (37.5%) of Vighio (1980) were higher than the present results. The ovarian hypoplasia was recorded as 4.6% in the present study. This value was higher than the findings (0.08 to 1%) of other authors (Nair and Raja 1974 and Elwisy, 1976) in cows. This variation in ovarian hypoplasia may be due to hereditary characters and other environmental factors. The ovarian hematoma (3.1%) found in the present study were higher than those (0-5 and 0.08) reported by Nair and Raja (1974) in cattle. Ovarian stone was found 1.5% in the present study. This may be persistent and incomplete regressed corpus luteum of previous cycle.

Oviduct Abnormalities: It was found that 60% of the oviducts had different types of abnormalities Presented in Table 1 and 3. These were pyosalpinx (26.2%) salpingitis (23%), hydro-salpinx (10.8%) and cysts on the oviduct wall (4.6%).

The incidence of salpingitis recorded in the current study (23%) was in agreement to that (24%) reported by Seitaridis and Tsangaris (1977) in cows. However, the results (35.5%) of Buchi (1978) were higher than the present findings. On the other hand lower percentage (1.3-7.8%) of salpingitis was reported by others (Perkins *et al.*, 1954; Averikhin and Vyatkin, 1976) in cows. The incidences of hydrosalpinx (10.8%) and pyosalpinx (26.2%) recorded in the present study were lower than the findings of Vighio (1980) in cattle, who recorded hydrosalpinx 39% and pyosalpinx 68.2% in cattle slaughtered at Hyderabad slaughter house. The cysts on oviduct wall was observed 4.6% in the cows, in present study. These findings were lower than those (16.5%) recorded by Tsumura *et al.* (1982), while the findings (1.3%) of Donigiewicz (1978) were lower than the current study.

Uterine Abnormalities

It was observed that the uterus was the most affected (70.8%) part of the reproductive tract of Thari cows (Tables 1 and 4). The abnormalities observed were metritis (30.8%), endometritis (38.5%), hydrometra (12.3%), pyometra (43%), mucometra (6%) and mechanical injuries (3.1%). The incidences of metritis (30.8%) observed in the present study were higher than those (5.3-13.8%) reported by Perkins *et al.* (1954) and Erb (1979) in cattle. However the endo-metritis (38.5%) recorded during this study was higher than those (10.8-30%) reported by Averikhin and Vyatkin (1976); Hamana *et al.* (1976) and Gopal (1977) in other breeds of cattle. However studies of Fivaz and Swanepoel (1978), Donigiewicz

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Table 1: Gross-pathological abnormalities of reproductive tract in Thari cows. Number of tracts affected = (N-65)

Organs	Number of tracts Examined	Number of affected organs	Percentage
Ovaries	(N-65)	32	49.2
Oviduct	(N-65)	39	60.0
Uterus	(N-65)	46	70.8
Cervix	(N-65)	42	64.6
Vagina	(N-65)	25	38.5

Table 2: Gross-pathological abnormalities of O varies in Thari cows. (N-65)

Pathological conditions	Number of abnormalities	Percentage
Ovarian hypoplasia	03	4.6
Per ovarian cysts	10	15.4
Follicular cysts	07	10.8
Luteal cysts	05	7.7
Ovario bursal adhesions	03	4.6
Bursitis	04	6.2
Hydrobursitis	02	3.0
Ovarian hematoma	02	3.0
Stone in ovaries	01	1.5

Table 3: Gross-pathological abnormalities of oviducts in Thari cows (N-65).

Pathological conditions	Number of abnormalities	Percentage
Salpingitis	15	23.0
Hydrosalpinx	07	10.8
Pyosalpinx	17	26.2
Cysts on oviduct wall	03	04.6

Table 4: Gross-pathological abnormalities of uterus in Thari cows (N-65)

Pathological conditions	Number of abnormalities	Percentage
Metritis	20	30.8
Endometritis	25	38.5
Hydrometra	08	12.3
Pyo-metra	28	43.0
Muco-metra	08	12.3
Cysts on uterine wall	04	6.2
Black spots in uterus	04	6.2
Mechanical injuries	02	3.1

Table 5: Gross-pathological abnormalities of cervix in Thari cows (N-65)

Pathological conditions	Number of abnormalities	Percentage
Kinked cervix	20	30.8
Prolapse of cervical rings	19	29.2
Cervicitis	18	27.7
Plus in cervix	12	18.5
Double external-os	01	1.5
Twisted cervix	10	15.4
Cysts on cervical wall	02	3.0
Mechanical injuries	01	1.5
Abnormal discharges	07	10.8

Table 6: Gross-pathological abnormalities of vagina in Thari cows (N-65)

Pathological conditions	Number of abnormalities	Percentage
Vulvo-vaginitis	07	10.8
Vaginitis	12	18.5
Cysts on the floor fo vagina	04	6.2
Vagino-cervical-paramertis	11	16.9
Mechanical injuries	03	4.6
Mucocus discharges	08	12.3

Note: Percentage of pathological conditions is based on total number of tracts affected = N-65.

(1978) and Hartmann (1980) indicated higher values (47 to 90%) than the results of current study in cattle. The observations regarding mucometra and hydrometra (12.3%) in the present study were lower than the results (25.4%) reported by Gopal (1977). The incidence of pyometra (43%) found during the present study, was higher than the results (14.8 to 35.2%) of Gopal (1977), Vighio (1980), Hussain and Muniraju (1984) in cattle. The cysts on the uterine wall (6.5%) found in the present study were in agreement with the findings (7.8%) of Avarikhin and Vyatikin (1976) in cattle.

The higher pathological abnormalities in uterus observed during the current study, could be due to improper management of parturient cows and establishment of micro-organisms at the time of parturition. The present study indicates that the uterine abnormalities were the main cause of infertility in Thari cattle and that most of the animals were discarded on unproductive grounds. The area of lacerated endometrium provides favourable environments for bacterial growth from 8-12 days after calving in some herds 80-100% (Settergren, 1983). McEntee (1983) reported that 93% uteri were infected from 3 to 15 days postpartum. Thus uterus is the site of severity for infection at the time of parturition and explains the possibility of the highest percentage of pathological changes in the uterine environment.

Cervix Abnormalities: The cervix was found to be the second highest affected (64.6%) part of the tract (Table 1 and 5). The abnormalities were kinked cervix (30.8%), prolapse of cervical rings (29.2%), cervicits (27.7). In cervix (18.5%), twisted cervix (15.4%) cysts in the cervical wall (3%) double external-os (1.5%), mechanical injuries (1.5%), mechanical injuries (1.5%) and abnormal discharges (10.8%).

The incidence of kinked cervix (30.8%) was higher than the findings (23.9% and 6.4) of Vighio (1980) and Garcia (1988) in cattle. The prolapse of

cervical rings (29.2%) recorded in this study were lower than the results (37.3%) of Vighio (1980) in cattle. The incidences of cervicitis found (27.7%) in the present study were in line to the results (15-24%) of Ishaque (1971) and Donigiewicz (1978) in cattle. However, the cervicitis observed in the current study was higher than those (5 to 12.8%) reported by Perkins et al. (1954), Vighio (1980), Singh et al. (1987) and Kumar et al. (1986) in cattle.

Vaginal Abnormalities: The vagina was found to be the lowest (38.5%) affected part of the reproductive tract in Thari cows. The individual pathological incidences were vaginitis (18.5%), vagino-cervical-parametritis (16.9%), abnormal discharges (12.3%), vulvo-vaginitis (10.8%), cysts on the floor of vagina (6.2%) and mechanical injuries (4.6%) (Table 1 and 6).

The results obtained in the present study for the vaginitis (18.5%) were in agreement with those (18.5%) reported by Ovcharenko et al. (1975), in Barren cattle. While higher figures (28.3%) were noted by Perkins et al. (1954) in cattle. However, the lower figures (6% and 9%) were recorded by Roman and Bawa (1977) and Houssain and Muniraju (1984) in cattle. The percentage of vaginal cysts was higher (6.2%) than those (1% and 1.4%) reported by Roine (1977) and Garcia (1988). The percentage of vaginal discharges recorded (12.3%) in the present study was lower than the findings (16%) of Kruif (1976) in cattle. During the study period, it was observed that most of the animals brought for slaughter were productive. On investigation, it was found that the reproductive problems were not of serious nature but mainly may be due to lack of proper feeding and health coverage which were managable. Socio-economic conditions of the people of the area (Thar) were the main reason behind the selling of such animals. The farmers were not aware of the physiological status of the animal sold.

Slaughtering of fertile animals due to low productivity perhaps as a result of poor management, must be stopped in order to preserve the genetic of our breeds.

- = There is a great need to introduce the sexual health management programme
- = The fertility camps, workshops, training programmes, animal health and management programmes should be organized in the area.
- = The farmers should be educated for the timely treatment and proer breeding of their animals.

Veterinary services should be re-organized by strengtening of mobile veterinary services, increasing the number of veterinary hospitals, particularly in the area of Thar.

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