

REPRODUCTIVE STATUS, PREGNANCY WASTAGE AND INCIDENCE OF GROSS GENITAL ABNORMALITIES IN COWS SLAUGHTERED AT MAIDUGURI ABATTOIR, NIGERIA

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ABSTRACT

In a study to assess the reproductive status, pregnancy wastage and incidence of gross genital abnormalities in cows slaughtered at Maiduguri abattoir, 7375 female genitalia were examined over a period of 36 months from July 1997 to June 2000. A total of 55.49% organs were cyclic while 44.51% were non-cyclic. The cyclic organs included 12.64% at proestrus, 12.0% at estrus, 13.03% at metestrus and 17.82% at diestrus stage of the estrous cycle. Out of 3283 non-cyclic organs, 1676 were gravid from which 1676 fetuses were recovered. The fetal crown-rump (CR) lengths ranged from 6 to 85 cm with corresponding age range of 60 to 265 days. Juvenile organs with smooth ovaries were 3.78%. The gross abnormalities of the genitalia recorded included cystic ovaries (3.35%), ovarobursal adhesion (2.9%), ovarian hypoplasia (2.20%) and endometrocervicitis (1.7%). Oviductal occlusion accounted for 0.75%, hydrosalpinx 0.54%, pyometra 0.48%, parovarian cyst 0.26%, hypoplastic uterus 0.24% and uterine cyst 0.08% cases.

Keywords: Cows, genital abnormalities, incidence, pregnancy wastage.

INTRODUCTION

Reproductive performance is vital to the continued existence of cattle. This determines production efficiency of an animal or herd (Zemjanis, 1974) and sustenance of desirable level of cattle population. This largely depends on adequate nutrition and proper managemental system of rearing the livestock; the lack of which, coupled with pathological factors, results in infertility and sometimes sterility. These factors may range from specific disease affecting the reproductive organs directly or non-specific factors that underscore the reproductive efficiency (Asdell, 1968). Zdunczyk and Rasa (1986) reported that cows with genital injuries showed high incidence of placental retention, delayed uterine involution, endometritis, ovarian dysfunction and ovarian cysts. In a survey of female genitalia in Nigerian breed of cattle revealed that abnormalities of ovaries included cystic ovaries, ovarian hypoplasia, ovaritis, parovarian cysts, ovarian tumor and ovarobursal adhesion (Kumi-Diaka *et al.*, 1980; Kumar *et al.*, 1987; Abdullahi, 1991), and those affecting the oviduct, cervix and uterus include salpingitis, hydrosalpinx, oviductal occlusion, juvenile uterus, uterine hypoplasia, uterus unicornis, uterine abscess, pyometra, endometritis with or without cervicitis, cervical fibrosis, duplication of cervix and vagina (Ogwu *et al.*, 1980; Kelly *et al.*, 1981; Alam,

1984; Kumar *et al.*, 1987; Hussain, 1987; Abdullahi, 1991).

In the developing countries especially Sub-Saharan Africa, pregnancy wastage accounts for 20-25% fall in livestock production. In Sokoto, 4258 fetuses were recovered from 44886 cows examined after slaughter (Garba *et al.*, 1992). Zakari *et al.* (1988) reported that 23.3% of cows slaughtered in Maiduguri abattoir were pregnant. Alaku and Orijiude (1991) reported that an average of 17494 cows were slaughtered annually in Maiduguri abattoir between 1982 and 1989 and 21.34% of these were pregnant at the time of slaughter.

This study was carried out to provide information on the reproductive status, pregnancy wastage and the prevalence of gross genital abnormalities in female cattle slaughtered at the Maiduguri abattoir, Nigeria.

MATERIALS AND METHODS

Seven thousand three hundred and seventy five female reproductive organs from cattle slaughtered at the Maiduguri abattoir were examined over a period of three years from July 1997 to June 2000. Each organ was examined thoroughly after slaughter and was categorized as cyclic or non-cyclic.

Organs from cyclic cows were subdivided according to the stages of the estrous cycle. Ovaries lacking any evidence of functional structures but of normal size

were recorded as anestrus. The organs from non-cyclic cows were classified as gravid, juvenile or pathologic organs with gross abnormalities. Fetuses were recovered from the gravid organs and the fetal crown-rump lengths were measured using metric tape. The fetal age was estimated using equation formulated by Richardson *et al.* (1990). Organs showing gross genital abnormalities were subjected to detailed examination, as described by Arthur *et al.* (1989). Data obtained were subjected to statistical analysis using one-way analysis of variance and student 't' test (Compel, 1986).

RESULTS

A total of 7375 cows were slaughtered between July 1997 to June 2000 at Maiduguri abattoir from which reproductive organs were recovered. Out of these, 4092 (55.49%) were cyclic with a mean of 10.52 ± 0.59 cyclic cows slaughtered per day. The cyclic organs comprised of 12.64% at proestrus, 12.0% at estrus, 13.0% at metestrus and 17.82% at diestrus of the estrus cycle. Three hundred and twenty six (4.42%) organs were at anestrus.

A total of 3283 (44.51%) organs were non-cyclic with a mean of 8.42 ± 0.48 non-cyclic cows slaughtered per day. The study revealed that 1676 (22.72%) organs were gravid from which fetuses were recovered (Table 1). Out of these, 14.96% with a crown-rump (CR) length of 11.2 ± 3.1 cm and a corresponding age of 78.9 ± 11.3 days were at first trimester, 7.36% with CR length of 34.6 ± 1.05 cm and a corresponding age of 129 ± 3.78 days were at second trimester, while 0.4% whose CR length was 69.8 ± 6.3 cm with corresponding age of 217.5 ± 14.6 days were at third trimester. Fetal loss of 340.3 ± 9.7 was recorded between October and April compared to 218.3 ± 19.6 between May and September each year. The difference was statistically significant ($P < 0.05$). This observation was consistent throughout the period of the study. Juvenile organs were observed in 3.78% samples.

Table 1: Relationship between crown-rump (CR) length and age of fetuses recorded from cows slaughtered at Maiduguri abattoir.

CR length (cm)	Age (days)	Observations
6-13	70 ± 7.2	586
14-21	91 ± 6.9	517
22-29	112 ± 7.4	261
30-37	129 ± 8.5	145
38-45	150 ± 7.6	77
46-53	171 ± 9.2	36
54-61	189 ± 8.8	24
62-69	210 ± 6.3	18
70-77	231 ± 9.9	6
78-85	251 ± 9.8	6

Gross genital abnormalities were observed in 13.57% organs. The incidence of various genital abnormalities is shown in Table 2.

Table 2: Incidence of gross genital abnormalities in cows slaughtered at Maiduguri abattoir.

Genital abnormality	Observations	Prevalence rate (%)
Ovarian cysts	247	3.35
Ovarian hypoplasia	162	2.20
Parovarian cysts	19	0.26
Ovarobursal adhesion	214	2.90
Salpingitis	40	0.54
Hydrosalpinx	55	0.75
Oviductal occlusion	81	1.09
Hypoplastic uterus	18	0.24
Uterine cyst	6	0.08
Pyometra	35	0.48
Endometrocervicitis	125	1.70
Total	1002	13.59

DISCUSSION

Reproductive efficiency may follow a seasonal pattern in Nigeria, as observed in this study; where more fetuses were lost between October and April each year. This may be attributed to availability of feeds during the wet season when chances of conception are high. Conceptions become manifest towards end of the first trimester or beginning of second trimester of pregnancy. This period tends to coincide with some parts of the dry season (October-April) where most of pregnant cows are disposed due to feed scarcity. Many end up in the abattoir, resulting in higher number of fetus recovery.

In this study 22.72% pregnancy wastage was recorded. Similarly, Zakari *et al.* (1988) and Alaku and Orjiude (1991) reported 23.3 and 21.34% pregnancy wastage respectively among cows slaughtered at Maiduguri abattoir. Pregnancy wastage through the slaughter of pregnant cows may be attributed to inadequate antemortem inspection of animals in Maiduguri abattoir. Also cattle owners insist on sale of their animal for slaughter even when they are pregnant.

A prevalence rate of 13.57% gross genital abnormalities in cows was recorded in this study. This agrees with earlier findings by Abdullahi (1991). Ovarian cysts were observed to be the most common abnormality in the ovary. This agrees with earlier observation of Kumi-Diaka *et al.* (1980). Other conditions affecting the ovary were ovarian hypoplasia, ovarobursal adhesion and parovarian cysts. The values obtained in this study were in agreement with those of

Kumar *et al.* (1987) and Abdullahi (1991). Ovarian hypoplasia was however lower than earlier report by Hussain (1987).

Gross genital abnormalities of the uterus and oviduct observed in this study were salpingitis, hydrosalpinx oviductal occlusion, uterine hypoplasia and uterine cyst. This is in agreement with reports by Alam (1984), Hussain (1987), Abdullahi (1991) and Ibrahim (1994). Hypoplastic uterus was recorded to be 0.24% which is higher than 0.03% reported by Kumi-Diaka *et al.* (1980) and 0.09% by Ibrahim (1994). Since the condition is of hereditary origin, the higher incidence in this study may be due to unchecked breeding amongst animals carrying the trait.

The incidence of pyometra recorded to be 0.48% of the gross genital abnormalities coincides with 0.46% reported by Abdullahi (1991). In all pyometra cases, creamy white pus was observed in the uterus with retention of corpus luteum on the ovary. Endometritis, with or without cervicitis was recorded in 1.70% organs. Most of the cases were seen as catarrhal inflammation. The condition may arise following ascending infection from the external genitalia with frequent involvement of the cervix.

Juvenile organs where ovaries were small, smooth and lack any functional structure were 3.78% which is higher than 2.40% reported by Kumi-Diaka *et al.* (1980). The increase could be due to retarded development induced by poor nutrition.

A significant number of cows are slaughtered while they are still at optimal reproductive period. The slaughter of pregnant cows leads to heavy fetal wastage with detrimental effects on the livestock industry. Coupled with the high frequency of genital pathology, the reproductive efficiency becomes compromised. These will cause a dwindle in the number of calves produced and subsequently suppressed relevance of the cattle subsector as an important component of the economy. It is therefore desirable that pregnancy diagnosis and detection of cows with pathologic and hereditary abnormalities be performed thoroughly. There is the need to enforce laws guiding slaughter of cows. This will prevent the depletion of cattle population and hence increase in the livestock resources.

REFERENCES

- Abdullahi, U.S., 1991. Incidence of malformation and pathological condition in bovine female genitalia slaughtered at Maiduguri abattoir. *J. Anim. Prod.*, 13: 51-54.
- Alaku, S.O., and B.A. Orjiude, 1991. Slaughter of pregnant animals for meat in sub-sahelian West Africa. *Trop. Vet.*, 9: 171-176.
- Alam, M.G.S., 1984. Abattoir studies of genital diseases in cows. *Vet. Rec.*, 114: 195.
- Arthur, G.H., D.E. Noakes and H. Pearson, 1989. *Veterinary Reproduction and Obstetrics*. 6th Ed. Bailliere Tindall, London. pp: 51-76.
- Asdell, S.A., 1968. *Infertility and Sterility*. Churchill, London. pp: 184-242.
- Compell, R.C., 1986. *Statistics for Biologists*. Cambridge University Press. pp: 36-43.
- Garba, H.S., W.A. Hussain and B.T. Akingbemi, 1992. Fetal wastage through slaughtering of pregnant cattle at Sokoto abattoir. *Trop. Vet.*, 10: 126-128.
- Hussain, P.M., 1987. Infertility problems of cows in Northern Karnataka. *Indian Vet. J.*, 64(6): 529-530.
- Ibrahim, H., 1994. Reproductive status of female genitalia of cattle slaughtered at Maiduguri abattoir. *Nigerian J. Anim. Prod.*, 24: 135-141.
- Kelly, E.F., J.P. Renton and C.D. Munro, 1981. Assessment of oviduct patency in the cow. *Vet. Rec.*, 108: 357-360.
- Kumar, S., S.K. Agarwal and L.N. Purbay, 1987. Studies on reproductive disorders of non descriptive cattle. *Indian Vet. J.*, 10: 174-179.
- Kumi-Diaka, J., D.I.K. Osori and D. Ogwu, 1980. Incidence of genital abnormalities and physiological effects of genital pathology. *Nigerian Vet. J.*, 9: 51-57.
- Ogwu, D., J. Kumi-Diaka and D.I.K. Osori, 1980. Clinical incidence of developmental abnormalities of bovine female genital tract. *Nigerian Vet. J.*, 9: 6-9.
- Richardson, C., P.C. Jones. V. Benard, C.N. Herbert, S. Terileki and W.V. S. Wijeratne, 1990. Estimation of developmental age of bovine fetuses and newborn calf. *Vet. Rec.*, 126: 279-284.
- Zakari, H., M.N. Sivachelvan and G.A. Chibuzo, 1988. The comparative study of animal slaughter records in Maiduguri prior to and after the 1983 Rinderpest outbreak. *Annals of Borno*, 5: 224-233.
- Zdunczyk, S. and A. Rasa, 1986. Effect of injuries to soft tissues and genital tract on the postpartum period and fertility incidences in cows. *Acta Academical Agricultura Actachnicae Olsteriensis Veterinarian*, 16: 79-84.
- Zemjanis, R., 1974. *Veterinarian and Animal Production in Nigeria*. 11th Ann. Conf. Nig. Vet. Med. Assoc., Prot Harcourt, Nigeria, pp: 28-31.