

PREVALENCE OF SUB CLINICAL MASTITIS IN BUFFALOES IN DISTRICT D.I.KHAN

A. Akhtar, Habibullah, M. Ameer* and Hidayatullah and M. Aeshad**

Gomal College of Veterinary Sciences, Gomal University, D.I.Khan, Pakistan

*Khyber Veterinary Clinic, D.I.Khan, Pakistan

**Veterinary Research Institute, Lahore

Corresponding author email: amandrdik@gmail.com

ABSTRACT: The present study was carried out to determine the animal-wise and quarter-wise prevalence of sub-clinical mastitis in buffaloes in three Tehsils of district Dera Ismail Khan, Khyber Pakhtunkhwa, Pakistan. Milk samples were collected from apparently mastitis free 1200 quarters of 300 buffaloes. The samples were subjected to Surf Field Mastitis Test (SFMT). The overall animal-wise prevalence was 53% and quarter-wise prevalence was 45.67%. The highest animal wise (50%) and quarter-wise (57%) prevalence was observed in tehsil Prowa. While the animal-wise and quarter-wise prevalence was 53% and 40% in tehsil Dera Ismail Khan and 47% and 49% in tehsil Paharpur, respectively.

Key words: Buffaloes, Sub-clinical mastitis, Surf Field Mastitis Test, D.I.Khan.

INTRODUCTION

Mastitis is an important disease of dairy animal and a threat for dairy farmers in most parts of the world including Pakistan (Cady et al., 1983; Roesch et al., 2006; Abebe et al., 2008; Getahun et al., 2008; Bachaya et al., 2011). The disease adversely affects the production, composition and quality of milk and subsequently results in economical losses (Dohoo et al., 1984; Fetrow, 2000; Philpot, 1984; Raza et al., 2000; Shook, 1989; Urech et al., 1999). Mastitis has two forms, the clinical mastitis that usually has all the five cardinal signs of udder inflammation (redness, heat, swelling, pain and loss of milk production) and hence can be detected without any laboratory test and even by the laymen. Whereas the subclinical form of mastitis is hidden and needs laboratory aid for diagnosis. Moreover, abnormal milk is readily detected in clinical mastitis but there is no apparent change in milk in sub-clinical mastitis. Among all the mastitis infections, sub-clinical mastitis has been reported to cause 60-70% of total economic losses in the advance country like USA (Merrill and Galton, 1989). These losses might be higher in Pakistan because of poor management and least prevention practices (Arshad, 1999) as prevalence of sub-clinical mastitis is influenced by many factors such as husbandry, management, genetics and nutrition (Elbers et al., 1998; Bielfeldt et al., 2004).

Buffalo is the major dairy animal in Pakistan with 31 million heads of buffaloes (Govt. Pakistan, 2012) and Pakistan is second among buffalo-milk producing countries in the world (Bilal et al., 2008). Pakistani buffaloes are called "Black Gold of Pakistan" due to their best milk production in addition to their importance as meat and draught purpose breeds (Khan and Isani, 1994; Bilal et al., 2006). In terms of total milk production buffaloes have contributed 66.1% during 2011-12 (Govt. Pakistan, 2012). Mostly, buffaloes are raised in small size herds; 85 percent of buffaloes are raised in herds of one to five animals. There are 0.5 million landless farmers keeping dairy animals and contributing 70 % share of the total milk production (Raza et al., 2000).

Livestock is significant part of the Khyber Pakhtunkhwa economy that contributes 57.5% towards provincial GNP. In Khyber Pakhtunkhwa total milk production during the year 2007-08 was 5.044 million tons while per capita availability was 141 kg per annum which is higher as compared to national level. Dera Ismail Khan is an agricultural district with the highest population of livestock and the major milk producing district of the province as well (Govt. Pakistan, 2005-2006). Buffalo farming has been described as a profitable enterprise in district D.I.Khan (Sajid et al., 2011). Mastitis has been reported a serious health problem of

livestock (Ahmad et al., 2001; Bachaya et al., 2011). Some studies have been conducted in different parts of country. However, no such study has been published for the area under study. The present study was conducted to determine the actual prevalence of sub-clinical mastitis in buffaloes in D.I.Khan District that would be helpful for future preventive and control measures against the disease.

MATERIALS AND METHODS

The study area, district D.I.Khan is situated at right bank of river Indus. Milk samples from apparently mastitis free 1200 quarters of 300 buffaloes were collected aseptically. The samples were collected from 100 buffaloes from each tehsil i.e D.I.Khan, Prowa and Paharpur. The samples were subjected to Surf Field Mastitis test (Bachaya et al., 2005). Three percent surf solution (pH = 10.3) was prepared by adding three grams of commonly used detergent powder (Surf Excell®, Lever Brothers, Pakistan) in 100 mL of water. Quarter milk samples and surf solution were then mixed in equal quantities in petri-dishes separately for each quarter. The change in consistency of milk (gel formation) indicated mastitis that was recorded as positive sample, while no change in consistency of milk indicated mastitis free that was recorded as negative samples. The severity of mastitis was graded into further four categories from lower to higher intensity as, + = moderate, ++ = severe, +++ = more severe, ++++ = very severe (Muhammad et al., 1995). The prevalence was calculated as described by Thrusfield (1986) and percent result was calculated.

RESULTS AND DISCUSSION

The study revealed that 53%, 57% and 49% buffaloes were affected with sub-clinical mastitis in Tehsils D.I.Khan, Prowa and Paharpur of District D.I.Khan respectively. Whereas quarter wise prevalence of sub-clinical mastitis was 40%, 50% and 47% in Tehsils D.I.Khan, Prowa and Paharpur of District D.I.Khan respectively (Table 1). In a previous studies, animal wise prevalence of sub-clinical mastitis in buffaloes has been reported ranging from 55% to 62% (Bachaya et al., 2005; Hameed et al., 2012). Quarter wise prevalence of sub-clinical mastitis was recorded as 64% in buffaloes (Fazal-ur-Rehman, 1995). Bachaya et al. (2005) have reported quarter wise prevalence of sub clinical mastitis in buffalo ranging from 51% to 67%. The lowest value (30%) has also been reported by Fazal-ur-Rehman, (1995). Prevalence of mastitis in buffaloes using different diagnostic tests has been published. Hashmi and Muneer (1981) used cultural examination and reported 44.9 % prevalence for buffaloes. Rehman et al. (1983) used direct, indirect and cultural examination

and reported 36.8% prevalence of sub-clinical mastitis in buffaloes. Said and Abd-el-Malik (1968) reported a prevalence of 38.07% in buffaloes on the basis of Whiteside test and California Mastitis Test. While Anwar and Chaudhry (1983) reported a prevalence of 47.5% in buffaloes after using Strip Cup test, pH test and Whiteside test. The difference in prevalence of sub-clinical mastitis observed in the present and the previous studies may be due to differences in management practices, methods of detection, breeds of the animals, immune response of animals and climatic conditions.

Surf field mastitis test (SFMT) was used in the present study and severity of sub-clinical mastitis was determined on the basis of gel formation after (Muhammad et al., 1995; Bachaya et al., 2011). Previously, Surf field mastitis test (SFMT), California mastitis test (CMT), Whiteside test (WST), Strip Cup test, pH test and Somatic cell counts (SCC) have been used to diagnose the subclinical mastitis (Said and Abd-el-Malik, 1968; Anwar and Chaudhry, 1983; Muhammad et al., 2010). SFMT has been suggested a cheaper, user-friendly alternative animal-side subclinical mastitis diagnostic test for poor countries like Pakistan (Muhammad et al., 2010). The severity of sub-clinical mastitis was recorded and results revealed the severity as moderate (+) and sever (++). The more sever (+++) and very sever (+++++) were sub-clinical mastitis were not observed throughout the study. The similar results have

been reported earlier (Farooq et al., 2008; Bachaya et al., 2011).

Dera Ismail Khan is the major milk producing district of the province where buffaloes contribute more than cows in overall milk production. The large number of buffaloes is kept throughout the district. However, from Chashma, tehsil Paharpur to Ramak, tehsil Prowa all the villages on the bank of river Indus play pivotal role for buffalo husbandry. Milk from these villages is marketed to other surrounding districts of the province. The results of the study revealed the prevalence of subclinical mastitis throughout the District which is alarming and needs to be addressed. The sub-clinical mastitis causes heavy economical due to decreased milk yield, increased costs for udder treatment, milk withholding times and discarded milk (Dohoo and Martin, 1984; Fetrow et al., 1991; Yousaf et al., 2012). Only decreased milk production due to mastitis may lead for up to 75% of the total losses (Fetrow et al., 1991). Results of this study reveals the need for establishment of an efficient mastitis control programme in the area and Surf field mastitis test can be used as an effective diagnostic method. It is also suggested that Vets and Veterinary Institutes should launch an awareness campaign against the sub-clinical mastitis. The farmers should be trained and convinced to the use of Surf field mastitis test frequently to diagnose the disease at very early stage.

Table 1: Quarter wise prevalence of sub clinical mastitis in buffaloes in D.I.Khan

Area	Total quarters tested	Affected quarters		One positive quarters		Two positive quarters	
		No.	% age	No.	% age	No.	% age
D.I.Khan	400	160	40	120	30	40	10
Prowa	400	200	50	140	35	60	15
Paharpur	400	188	47	144	36	44	11

Overall affected quarters =45.67%

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