

SALMONELLOSIS IN NEWBORN CALVES IN A CLOSED DAIRY FARM

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SUMMARY

An acute outbreak of calf salmonellosis occurred in a cow dairy farm during June, 1991, where 7 calves died in acute course.

Dead calves showed symptoms of diarrhoea and enteritis and P.M. lesions of distended gall bladder, necrotic foci in the liver and swollen lymph nodes. Salmonella organisms were isolated from 5 cases.

Faecal sample from (194) calves less than 3 month of ages were collected and examined. In calves ranged between 9-27 days old salmonella was recovered from 14 cases with an incidence of 7.2%.

Serologically, all isolated strains proved to be Salmonella carrau.

INTRODUCTION

Salmonellae are known to have a world wide distribution. Cattle of all ages are susceptible to infection with various salmonella organisms. In calves the infection spreads more rapidly (Robinson and Loken, 1968). Calves could be infected at the time of parturition or soon after.

Different salmonella serovars could be encountered in newborn calves salmonellosis; Sojka et al. (1977) noted that the incidence of bovine salmonellosis due to serovars other than *S. dublin* and *S. typhimurium* has increased in recent years.

The present work was carried out to report the recovery of salmonella organisms that were the only pathogenic bacteria that were isolated from an outbreak which occurred in newborn calves in a closed dairy cow farm and to throw some light on their public health importance. This study was encountered during carrying out an investigation for the causes of newborn calf diseases and mortality. Taylor and Davies (1979) recorded an out-

break of *S. saintpaul* infection. Kaura and Sharma (1981) studies some ecological aspects of salmonella infection in young calves. The identified serovars were *S. adelaide*, *S. anatum*, *S. butanaton*, *S. hvitingfoss*, *S. london*, *S. newport*, *S. richmond* and *S. weltevreden*.

MATERIAL AND METHODS

A total of 194 faecal samples were subjected for examination. These samples were collected from calves at the age less than 3 months suffering from enteritis and diarrhoea. Faecal samples were separately collected using disposal plastic gloves.

The indirect method for salmonella isolation was used (Edwards and Ewing, 1972 and Kauffmann, 1966) using selenite F. broth (Difco) for 16-18 hours incubation at 37°C. A loopful was streaked onto Mac-Conkey's (oxid) and SS. (oxid) agar plates which were, incubated at 37°C for 48 hours.

Suspected salmonella colonies were picked on

triple sugar iron (TSI) agar tubes and isolated strains were then subjected for biochemical reactions (Kauffman, 1966 and Cowan, 1974). Strains that proved to be salmonellae were serologically typed according to Kauffman White scheme (Kauffman, 1972) using poly-valent and single factor sera of salmonellae and H sera (Wellcome reagents limited).

RESULTS

Table (1): Incidence of mortalities in newborn calves in closed dairy cow farm during investigation period (1991)

Month	No. of		Death percentage
	born	dead	
April	41	1	2.4
May	36	2	5.6
June	39	7	18.0
July	47	2	4.3
August	60	3	5.0

Seven newborn calves died due to diarrhoea and enteritis during June, 1991, and this showed increased number of mortalities when compared with previous months. The number of calves born, number of dead calves less than 3 months of age and the death percentage during the investigated time are shown in Table (1).

The P.M. examination showed oedematous swelling of the mesenteric lymph nodes, profuse enteritis with few necrotic foci and nodules in the liver and distended gallbladder. Salmonella organism were recovered from the intestinal contents and internal organs (liver, gall bladder and mesenteric lymph glands) of 5 out of the 7 cases.

Salmonella organisms were also recovered from 14 out of 194 faecal samples that were collected from calves (88 cases) less than 3 months of age which were found in the farm during June and calves (106 cases) that were born during July and August. The general incidence of salmonella in

living calves was found to be 7.2%. The age of positive salmonella calves ranged between 9 and 27 days old. The five calves which died during July and August were negative for salmonella isolation.

Serological identification revealed that all isolating strains gave the antigenic formula 6, 14, 24: 1,7, which according to Kauffman-white scheme was defined as *Salmonella carrau*.

DISCUSSION

An outbreak of calf salmonellosis occurred in an intensive dairy farm during June (1991), where incidence of mortalities was sharply increased (Table 1). Five calves died within an acute course with symptoms of enteritis and diarrhoea. The P.M. examination showed typical lesions of oedematous swelling of mesenteric L.N. with necrotic foci in the liver and distended gall bladder. These lesions agreed with that reported by different investigators (Blood et al., 1983 and Bak et al., 1987).

Salmonella was recovered in an incidence of 7.2% in this study. This incidence is lower than that reported in other dairy farms in upper Egypt (Khalil, 1988) which mouted 26.5 %. Salmonella in newborn calves in closed dairy farms, can be caused by more than one salmonella serovars (kaura and Sharma, 1981). More frequently only one serovar was encountered in each outbreak (Joes et al.,

1963, vema et al ., 1984, Bak et al ., 1987 and Sobhi, 1992) . In this study only one salmoella serovar was idetified which caused acute outbreak of calf salmoellosis.

Dealing with the serovars of salmonella, *S. typhimurium* and *S. dublin* were usually incrimiated to cause disease or acute outbreaks (Becher, 1988 and Bak et al ., 1987, respectively). In this outbreak another serovar was incorporated viz. *S. carrau*. To the best of the authors knowledge this serovar was not isolated before (Ramadan and Sadek, 1971; Khalil, 1988 ad Sobhi, 1992), thus it could be considered as a first record from cow calves in Egypt.

From the zoonotic point of view, the importance of controlling the disease should not be neglected. The quick diagnosis of salmoella infection, the antibiotic treatment and the good hygiens in calf housing as well as the strick isolation of sick calves are of out most importance and is greatly emphasized.

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