ABOMASAL IMPACTION ASSOCIATED WITH ANOREXIA AND MORTALITY IN LAMBS

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ABSTRACT

Anorexia in forty-six (6.1%) out of 753 neonatal lambs was investigated. Thirty-five of these lambs (76.1%) died while eleven (23.9%) recovered after treatment. Coagulated rubber-like milk clots were found in fifteen (42.9%), phytobezoars in nine (25.7%) and trichophytobezoars and coarse straws in eleven (31.4%) of the dead lambs.

INTRODUCTION
Foreign material of plant and/or animal origin (bezoars) have been reported to cause impaction of the digestive tracts of domestic and wild animals (Bath & Bergh, 1979; Jones & Hunt, 1983). Trichobezoars (hairballs) are common in cats (Ryan & Wolfer, 1978) and young ruminants (Jubb & Kennedy, 1985). In cats their formation is associated with fur ingested during normal grooming or subsequent to skin irritation (Ryan & Wolfer, 1978). In young ruminants they result from a deficiency of natural food fibres in artificial diets or trichophagia in dairy calves resulting from persistent sucking of penmates (Drawer, 1978). These conditions cause hosts to lick themselves excessively and to swallow hair and other indigestible materials in an attempt to compensate for the deficiency.

Phytobezoars (plant fibreballs) of different shapes and composition, including tri-chophytobezoars (mixed plant-hair balls), have also been reported (Jepsen et al., 1977; Ryan & Wolfer, 1978). According to Louw and Steenkamp (1965) and Banting (1972), phytobezoars in sheep result from ingesting certain grasses which have seeds that cling together to form balls, while Siegmund (1967) ascribed their formation to poor quality fibrous feeds including certain plants and shrubs covered with fine hair.

Although some authors (Ryan & Wolfer, 1978) doubt the pathological importance of bezoars, others (Bath & Bergh, 1979; Schneider & Hugo, 1980; Sharma et al., 1983) have indicated that they cause abomasal impaction manifested by anorexia and heavy mortality in young ruminants. In the Ethiopian highlands around Debre Berhan, many lambs manifest anorexia and die without the cause being established (Njau et al., 1988). Furthermore in many traditional farming systems in Africa high neonatal lamb/kid losses occur and in most cases the aetiology has not been identified (Wiener et al., 1983; Wilson et al., 1985).

This study, which focused on loss of lambs with a prior history of anorexia and/or sudden death is part of an intensive surveillance programme on the causes of neonatal mortality in lambs at the International Livestock Centre for Africa (ILCA) highland sheep research station at Debre Berhan.

MATERIALS AND METHODS
The ILCA station is located 120 kilometres north of Addis Ababa at 2800 metres

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altitude. It has an average annual rainfall of 977.4 mm (1979–86) of which 70% falls in the heavy rainy season of July–September and the rest in small showers from March to June (Showamare, 1987). The station has about 800 sheep grouped in six flocks of between 100–200 animals which graze during the day on native pastures and some rye grass. At night the flocks are housed separately and offered supplementary feed comprising oats, vetch (100 kg) and concentrates (20–30 kg/flock/day).

The animals are drenched at 3 monthly intervals with fenbendazole (Panacur; Hoechst) and rafoxanide (Ranide; Merek Sharp and Dohme). Natural mating (one ram/flock) is practised in all the flocks. Lambings occur all year round with peaks in August–September and February–March.

An investigation into failure of lambs to suckle and subsequent death was conducted among 753 neonates at ILCA Debre Berhan Station. Postmortem examination was performed within 24 hours on lambs that died. Specimens (lungs, liver, spleen and abomasal walls) were taken and fixed in 10% formalin and processed for routine histopathology. Foreign materials encountered in the abomasum were recorded. Attempts to treat such cases orally with 5 ml sulphamethazine and polymerized methyl-silicone (Bioatex; E. T. Monks, Nairobi) were initiated and repeated as necessary towards the end of the study when data on the aetiology had been acquired.

**RESULTS**

Forty-six (6.1%) of 753 lambs born between July 1986 and October 1987 developed anorexia, dullness and reluctance to walk. Of these eleven were treated successfully, while thirty-five died. Deaths in lambs less than 10 days old occurred within 24 hours of showing clinical signs, while progressive loss of condition and dehydration preceded death in older lambs.

Abomasal phytobezoars, comprising balls of coarse grass ranging from intact to poorly chewed hairy leaves and stems, and trichophytobezoars, of animal hairs and fibrous plant material, were found at necropsy in 9 and 1 lambs, respectively (Table I). These bezoars occurred in lambs older than 15 days. Coagulated rubber-like milk clots of various shapes and sizes, including raw milk and straws of hay, were recorded in 15 and 5 lambs, respectively (Figure 1). Twenty-five bezoars, mostly of plant and milk origin, measuring approximately 1.5±1.3 cm in diameter were recorded in lambs less than 10 days old. Long straws projected from the oesophageal groove into the abomasum and shorter straws occurred within the lumen of this organ. In this case, the true stomach was either devoid of milk or contained putrefied milk.

The lungs, spleens, livers and abomasal and intestinal walls of the lambs were histologically normal. However, occasional lymphocytes and neutrophils infiltrating abomasal submucosa were encountered.

**DISCUSSION**

While abomasal impaction was confirmed at necropsy of the first thirty-five (76.1%) of forty-six lambs that died following anorexia, eleven similar subsequent lambs (23.9%) recovered after they were treated with sulphamethazine (33%) and polymerized methyl-silicone, administered orally. Sulphamethazine was administered in order to prevent secondary bacterial infection and the methyl-silicone for relief of fermentation and as a lubricant to assist in evacuation of impacted material.

Various types of bezoars (Table I) were found at necropsy, impacted in the abomasum of the lambs. This finding, therefore, associates anorexia with fatal abomasal impaction in