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Short communication

Abattoir evidence on association between uterine and ovarian abnormalities in Ethiopian highland ewes

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Abstract

A study was conducted on 3275 non-pregnant Ethiopian highland ewes slaughtered at the Addis Ababa municipal abattoir to determine whether uterine and ovarian abnormalities were associated. Each reproductive tract was examined for the presence of ovarian cysts, ovarobursal adhesions and gross uterine abnormalities. The percentage of ewes with ovarian cysts, ovarobursal adhesions and combination of both on the same ovary was 4.3%, 7.6% and 1.7%, respectively. The percentage of uterine abnormalities in tracts with ovarian cysts, ovarobursal adhesions, combined ovarian cysts and ovarobursal adhesions and those with normal ovaries was 46.1%, 31.9%, 46.3% and 4.3%, respectively. The prevalence of uterine abnormalities including hydro/mucometra, endometritis and pyometra was significantly higher ($P < 0.001$) in ewes with abnormal ovarian conditions than in those with normal ovaries. Also, the prevalence of uterine abnormalities was higher ($P < 0.01$) in ewes with ovarian cysts than in those with ovarobursal adhesions alone while in those ewes with co-existing ovarian cysts and ovarobursal adhesions it did not differ ($P > 0.05$) from those with either of these ovarian conditions. Among uterine abnormalities hydro/mucometra was higher ($P < 0.01$) in ewes with abnormal ovaries. In both groups of ewes with and without ovarian abnormalities pyometra was the least prevalent uterine disorder. These results indicate a direct strong association between uterine and ovarian abnormalities in the Ethiopian highland ewes.

Keywords: Ewes; Ovarian cysts; Ovarobursal adhesions; Uterine abnormalities

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1. Introduction

Among acquired reproductive abnormalities cystic ovaries, ovarobursal adhesions and different uterine pathologies have been reported in ewes (Alosta et al., 1998; Winter and Dobson, 1992; Emady, 1976). Cystic ovaries arise as a result of anovulation whereby instead of regression follicles continue to increase in size and persist (Arthur et al., 1989). Follicular and luteinized ovarian cysts are the two pathologic forms in cows (Kesler and Garverick, 1982) and in ewes (Alosta et al., 1998). Previously, it has been suggested that cystic ovarian degeneration is a result of a neuroendocrine imbalance involving the hypothalamus-pituitary-gonadal axis (DeSilva and Reeves, 1988; Eyestone and Ax, 1984). Rubianes et al. (1997) reported that inadequate concentration of LH receptors in aged follicles could lead to the formation of ovarian cysts in the ewe. Although the significance of ovarian cysts in the ewe is not very well known it has been a common finding in different breeds of ewes (Alosta et al., 1998; Rubianes et al., 1997; Winter and Dobson, 1992). However, it is likely that ewes with cystic ovaries could have higher prevalence of uterine abnormalities than ewes with normal ovarian conditions since ovarian cysts in ewes have been associated with increased plasma progesterone concentrations (Rubianes et al., 1997) that can reduce uterine resistance to bacterial infection (Lewis, 2003; Seals et al., 2003). Therefore, the objective of this study was to determine whether cystic ovaries and/or ovarobursal adhesions were associated with uterine pathological changes such as hydro/mucometra, endometeritis and pyometra in Ethiopian highland ewes.

2. Materials and methods

2.1. Study animals

This study was conducted at the Addis Ababa municipal abattoir for 3 years during October 2002–May 2005 on the flock of slaughter ewes. The data collection was carried out from October to May each year i.e. during dry season. The origins of the study animals were the Ethiopian highlands of Wello, Fiche, Arsi and Debrebrhan lying within 200 km radius surrounding Addis Ababa, the capital. The ewes were managed on natural pasture under smallholder settings. The rainfall pattern in the highlands is bimodal with heavy rains from mid June to September and small rains during March–April. In these areas there have been efforts to classify sheep into different broad types, but except in a few locations several types have interbred to produce the Ethiopian highland sheep (Mukassa Mugerwa and Tekley, 1988). The reproductive tracts from the whole flock were examined when the number of ewes was small and ewes were randomly selected when the slaughter flock was large.

2.2. Examination of the genital tracts

During the routine course of slaughter each reproductive tract was removed immediately and examined within 4 h after slaughter. Each tract was incised along the long axis through cervix, uterine body into the horns and closely examined for the presence of conceptus. Those pregnant tracts were excluded and all non-pregnant *uteri* and ovaries were carefully examined for any gross abnormalities as described by Winter and Dobson (1992). The size of the largest follicle on the ovary was measured using vernier caliper as described by Restall (1964) and Alosta et al. (1998). Ovaries with follicles $\geq$10 mm in diameter were considered cystic (Alosta et al., 1998; Winter and Dobson, 1992; Rubianes et al., 1997). Based on the appearance the cysts were classified into