



An unusual presentation of locally invasive squamous cell carcinoma in the fatty tail of Awassi sheep

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Abstract

This report describes a squamous cell carcinoma (SCC) in the inner surface of a fatty tail of a 2.5-year-old male Awassi sheep. The tumor started as a small ulcerated mass failed to respond to antibiotics treatment and reached 15 cm in diameter. The mass was removed surgically and histopathologically diagnosed as a squamous cell carcinoma. To the best of our knowledge, this is the first report of a SCC in the fatty tail of an Awassi sheep in Jordan in the veterinary literature.

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Introduction

Cutaneous Squamous cell carcinoma in sheep has been reported in different countries throughout the world (Hawkins *et al.*, 1981, TiLbrook, 1992, Foreyt *et al.*, 1991, Tustin *et al.*, 1982; Ramadan *et al.*, 1991). This neoplasm has been described in different breeds of sheep and in different locations throughout the body (Foreyt *et al.*, 1991, Mendez *et al.*, 1997 and Ramadan *et al.*, 1991). There are different factors associated with the induction of the

neoplasm such as, solar radiation, papillomavirus, genetics and other undetermined factors (Vanselow and Spradbrow, 1982, Hawkins et al., 1981 and Uzal *et al.*, 2000). In this report, clinical and pathological findings of the SCC in Awassi sheep are described.

Case history and case handling

A 2.5-year-old male Awassi sheep with adequate nutritional body condition was presented to the Veterinary Health Centre (VHC) at Jordan University of Science and Technology. The animal had a 15 cm ulcerated mass at the base of the inner aspect of the fatty tail. As per owner statement, the mass was small and firm 2 months prior to presentation and continued to grow despite of antibiotic treatments and disinfection. The mass then was surgically removed, fixed in a 10% formalin solution before being routinely processed and paraffin-wax embedded. Sections (4-5µm) were stained with haematoxylin and eosin (H&E).

RESULTS AND DISCUSSION

Microscopically, the mass was unencapsulated and composed of highly infiltrative neoplastic squamous cells encompassing mainly the epidermis, dermis and lesser extent the subcutaneous adipose tissue. The neoplastic cells formed sheets, cords and islands with or without keratin pearls and were embedded within a dense connective tissue (desmoplasia) in the underneath dermis (Figure. 1). Clusters of neoplastic cells were seen infiltrating the subcutaneous adipose tissue (Figure. 2). The neoplastic cells ranged from well differentiated squamous cell with prominent desmosomes to poorly differentiated cells with often distinct cytoplasmic boundaries, moderate to large amount of eosinophilic cytoplasm and variable shaped; round, oval to irregular shaped nuclei with one or more prominent nucleoli. Mitotic figures were 1-2 per high power field. No vascular invasion was observed and the surgical margins were clean.

Extensive diffuse full thickness epidermal necrosis that was covered with a thick serocellular crust was present. The desmoplastic dermis was moderately infiltrated with mixed, predominantly neutrophils, inflammatory cells.

The clinical and pathological findings of the examined mass were consistent with SCC. Squamous cell carcinoma in sheep usually occurs in depigmented skin and in areas deprived of wool (Del Fava *et al.*, 2001). Also this neoplasm occurs frequently in adult animals exposed to high solar radiation (Lagadic *et al.*, 1982 and Lloyd, 1961). The majority of reported SCC cases in sheep involved eyelids, vulva, mucocutaneous junctions, nose and perineum (Tustin *et al.*, 1982, Lloyd, 1961 and TiLbrook *et al.*, 1992). In our case, SCC occurred in the skin of the inner surface of the fatty tail with local subcutaneous invasion. Awassi is a breed of sheep that is characterized by a huge fat tail. The ventral aspect of the tail lacks of wool; however, this area is not exposed to ultraviolet light or a solar radiation. Hence, it is less likely to develop SCC in this area secondary to solar radiation. Papilloma virus infection has a close relation with SCC development in sheep (Del Faval *et al.*, 2001).

Neither intranuclear nor intracytoplasmic inclusion bodies were seen microscopically in this case, however, the possibility of papilloma virus infection cannot be completely rule out.

In our report, the definite cause for SCC was undetermined. Squamous cell carcinoma has not been reported previously in the fatty tail of Awassi sheep despite more than 3000 different cases of Awassi sheep had been received by the VHC during previous years.

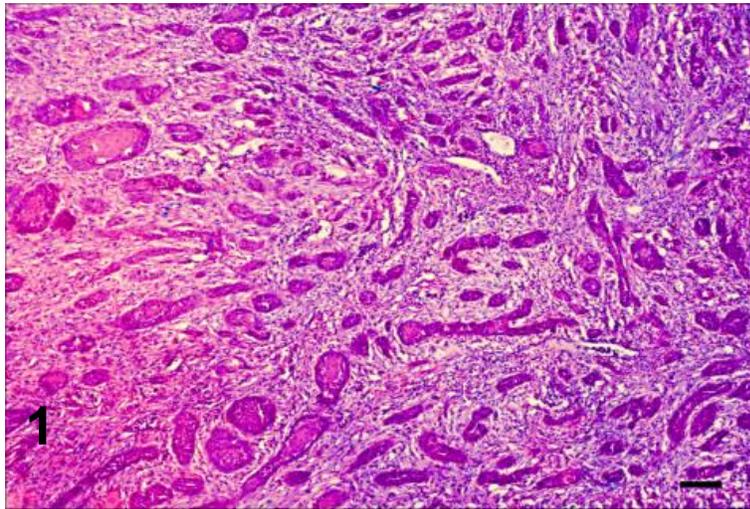


Figure.1: Shows highly infiltrative neoplastic squamous cells embedded in marked connective tissue matrix. H&E. Bar = 50 μ m.

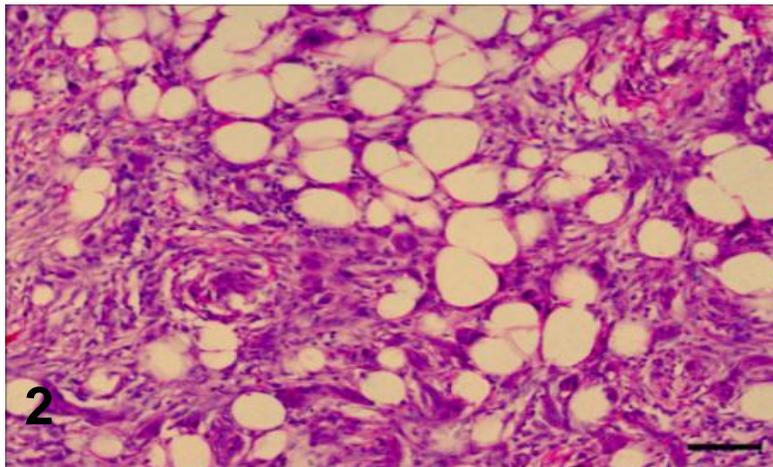


Figure (1) Shows highly infiltrative neoplastic squamous cells infiltrated deeply into the underlying fat tissue. H&E. Bar = 20 μ m.

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