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Carcinoma of the Reticulum of a Sheep

G. GEORGSSON

Institute for Experimental Pathology, University of Iceland,
Keldur, Reykjavík

Abstract. A squamous cell carcinoma was found in the reticulum of a sheep slaughtered at an abattoir. This is the first report of such a tumour in this organ.

Carcinomas arising in the squamous epithelium of the upper digestive tract of sheep, including the forestomachs, are very rare. There has been one report of a carcinoma of the omasum of sheep [8] and another of oesophageal tumours of sheep [14], but in the latter case histological identification was not made.

Case Report

A fungating tumour, 7 cm in diameter, with a broad base was found in the wall of the reticulum of a sheep killed at an abattoir. The tumour extended through the submucosa to the muscular layer. The surface was ulcerated and blood-stained (fig. 1). The cut surface was granular, soft and grey-white. No information was available on the age of the sheep or clinical signs.

Specimens of the tumour and adjacent normal mucosa were fixed in 10% formalin, embedded in paraffin, cut at 5 μ m and stained with haematoxylin and eosin.

Microscopic examination showed a squamous cell carcinoma, growing in solid cords separated by delicate connective tissue septa (fig. 2). It was mostly composed of large polyhedral cells with either lightly stained or clear cytoplasm. The nuclei were vesicular and round to oval. At the periphery of the cords a single layer of cuboidal or columnar cells was present (fig. 2). Distinct keratinization was not seen, but occasionally there was whorling resembling epithelial pearls. In some areas the tumour was more anaplastic with pleomorphic nuclei, and in some cellular clumps spindle-shaped cells dominated. Mitosis was frequent in these areas. Necrosis was found especially on the surface and in the center of the larger cords. Invasion into lymph vessels was occasionally noted. Beneath the tumour there was an intense stromal reaction with dense infiltration of inflammatory cells, especially lymphocytes and plasma cells.

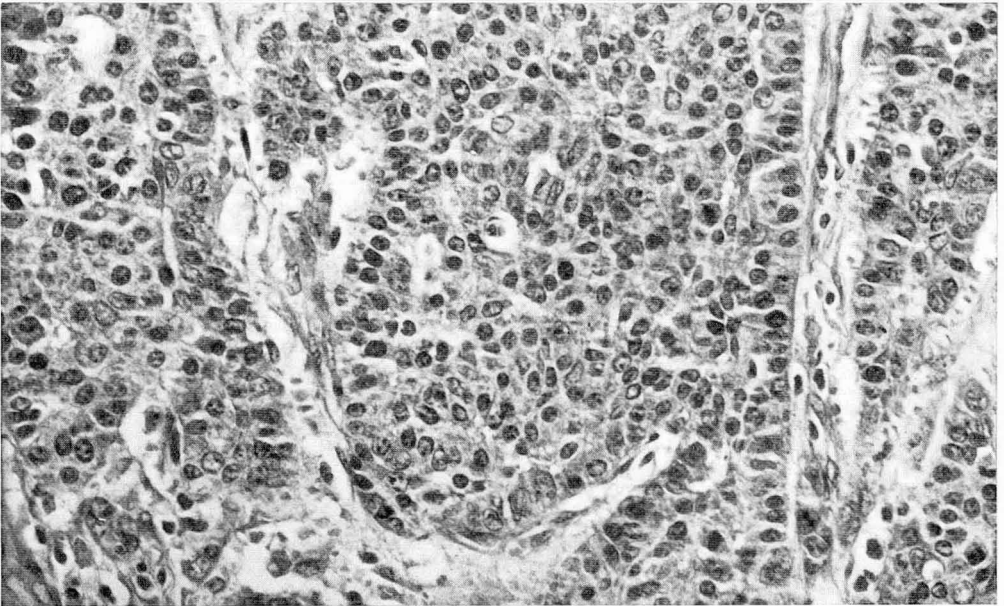


Fig. 1. Fungating tumour in the reticulum with ulcerated and blood-stained surface.

Fig. 2. Solid cords of pleomorphic tumour cells separated by delicate connective tissue septa. At the periphery of the cords, mainly on the right, is a single layer of columnar cells. HE.

Discussion

Carcinoma of the gastrointestinal tract of sheep is very rare in most parts of the world [4, 12]. The only exceptions are reports of a high incidence of carcinoma of the small intestine of sheep, first reported by DODD [6] in New Zealand and later confirmed by WEBSTER [15, 16] and CORDES and SHORTRIDGE [3]. A limited outbreak has also been reported in Australia [9]. Recently a similar incidence of small intestinal carcinoma of sheep in Iceland was reported [7]. The high prevalence of small intestinal carcinoma in these countries is not accompanied by carcinoma of other parts of the digestive tract of sheep. The only cases of carcinoma originating in the squamous epithelium of the upper digestive tract reported in the above series are two squamous cell carcinomas of the oral cavity [3], but squamous cell carcinoma of the forestomachs or oesophagus was not found.

Although diseased organs are sent from the abattoirs to our institute, there is no record over a 35-year period of carcinoma of the forestomachs of sheep. Extensive surveys of tumours at abattoirs in Great Britain [1], the United States [2, 11] and the Netherlands [10] did not show any carcinomas of the upper digestive tract and forestomachs of sheep but did yield two cases of ruminal carcinoma of cattle. In Kenya a high incidence of ruminal carcinoma of cattle has been reported [13], and in Brazil squamous cell carcinoma in pharynx and oesophagus of cattle is frequent [5], but reticular carcinoma has been reported in neither sheep nor cattle in these countries.

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Request reprints from: Dr. G. GEORGISSON, Institute for Experimental Pathology, University of Iceland, *Keldur, Reykjavik* (Iceland)