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CASE REPORT

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Sebaceous gland metaplasia in cardiac-type mucosa of the oesophago-gastric junction

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Abstract The first case of sebaceous gland metaplasia arising in cardiac-type mucosa of the oesophago-gastric junction of 71-year-old man is reported. Within cardiac glands, small nests composed of clear cells closely resembling sebaceous glands of the skin were found. Immunohistochemically, the cell nests stained positively for a monoclonal antibody 115D8 against milk-fat globule membrane (MAM-6). These cells were sometimes covered by cylindrical cells positive for foveolar-type mucin of the stomach (M1), and basal marginal cells of these nests expressed high molecular weight cytokeratins (34BE12). This study documents a new type of metaplasia of the gastric mucosa.

Key words Sebaceous gland · Stomach · Oesophagus · Metaplasia

Introduction

Ectopic sebaceous glands have been detected in many tissues of ectodermal origin. Although rare, their presence in the oesophagus, an entodermal organ, has also been reported. This lesion is usually found to be close to the squamous epithelium of the oesophagus and in recent reviews it has been described in 20 living individuals [2, 6]. We describe such a lesion in gastric mucosa of cardiac type, which was confirmed by immunohistochemical study with monoclonal antibodies (mAbs) against gastric mucins (M1, M2), human milk-fat globule membrane (MAM-6) and high molecular weight cytokeratins. The possible histogenesis is discussed.

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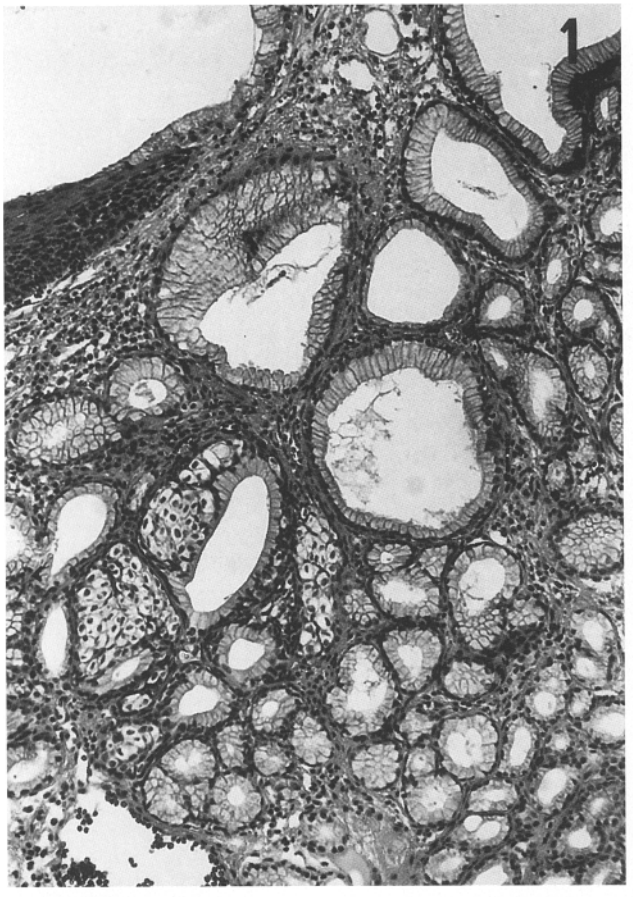
Case report

In November 1995, a 71-year-old man presented with epigastric pain. Upper gastrointestinal endoscopy revealed yellow flat lesions scattered and the oesophago-gastric junction, from which three forceps biopsies were obtained. There was no clinical evidence of gastritis or gastro-oesophageal reflux disease.

Pathological findings

The biopsy material was fixed in formalin and embedded in paraffin. Paraffin sections were stained with haematoxylin and eosin and stained immunohistochemically with mAbs using the avidin-biotin-peroxidase complex method.

Within cardiac glands of the stomach, there were small nests composed of clear cells with slightly cleaved nuclei. The nuclei were small and situated in the centre of the cells. These clear cells were demonstrated to be of epithelial origin based on the positivity with mAbs against human epithelial membrane antigen (EMA, E26, DAKO, Glostrup, Denmark; dilution 1:100) and human cytokeratin (AE1/AE3, DAKO, Carpinteria, USA; dilution 1:200). However, they were negative for alcian blue and periodic acid-Schiff staining. The lesion could thus be distinguished from xanthelasma or signet-ring cell carcinoma. The nests closely resembled sebaceous glands of the skin and were covered by foveolar cells (Fig. 1). Since such a lesion in cardiac glands has not been previously reported, it was necessary to confirm whether the cell nests displayed properties of sebaceous glands and to distinguish their origin from either Barrett's oesophagus or oesophageal glands. We employed mAbs against the mucin moieties M1 (mAb R3C4; dilution 1:5) and M2 (mAb 2B5; dilution 1:5) by the classification of Bara et al. [1]. M1 recognizes foveolar mucin and no other type of mucin in the mature oesophago-gastro-intestinal mucosa. M2 specifically stains cardiac and pyloric glands of the stomach and Brunner's glands of the duodenum [4]. A mAb against high molecular weight cytokeratins (34ßE12, Enzo Diagnostics, New York, USA; dilution 1:4,000) was also used to observe the relation to squamous epithelium [3]. Furthermore, we used the mAb 115D8 against milk-fat globule membrane (MAM-6; dilution 1:100), which reacts with normal mammary glands, sweat glands and sebaceous glands but not with other normal tissues [8]. M1 and M2 mAbs were produced in our laboratories. MAM-6 mAb was provided by Prof. Koldovsky (Düsseldorf).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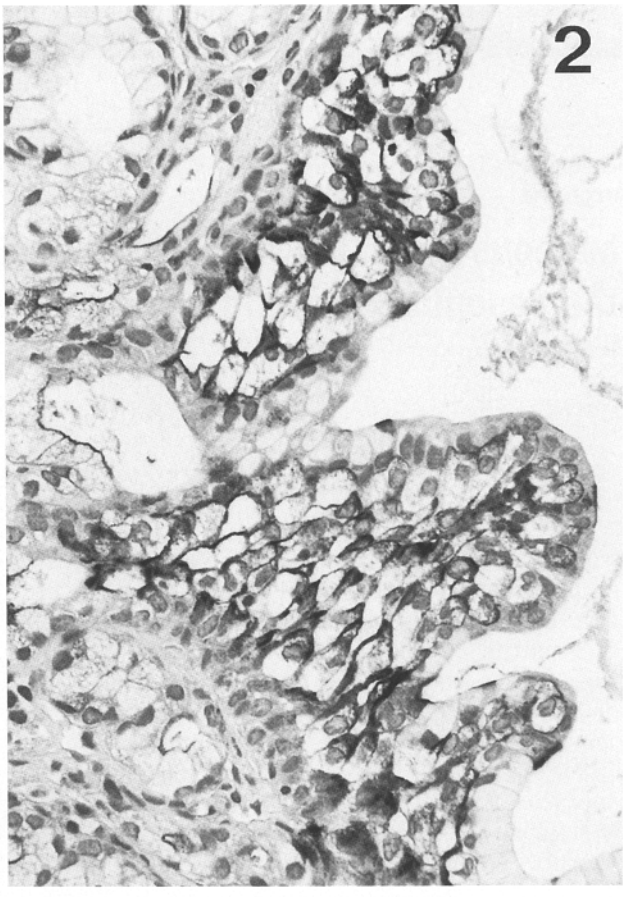
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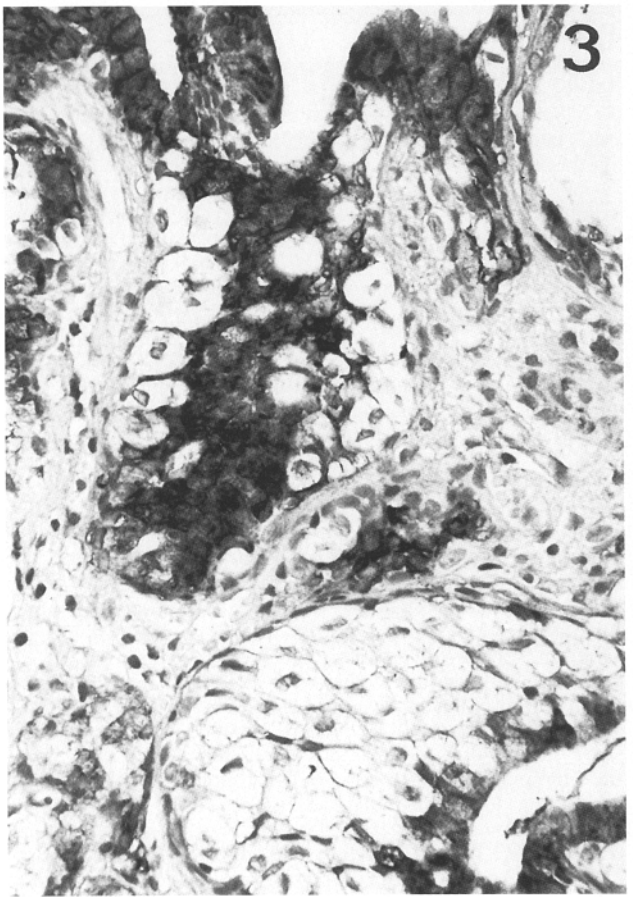
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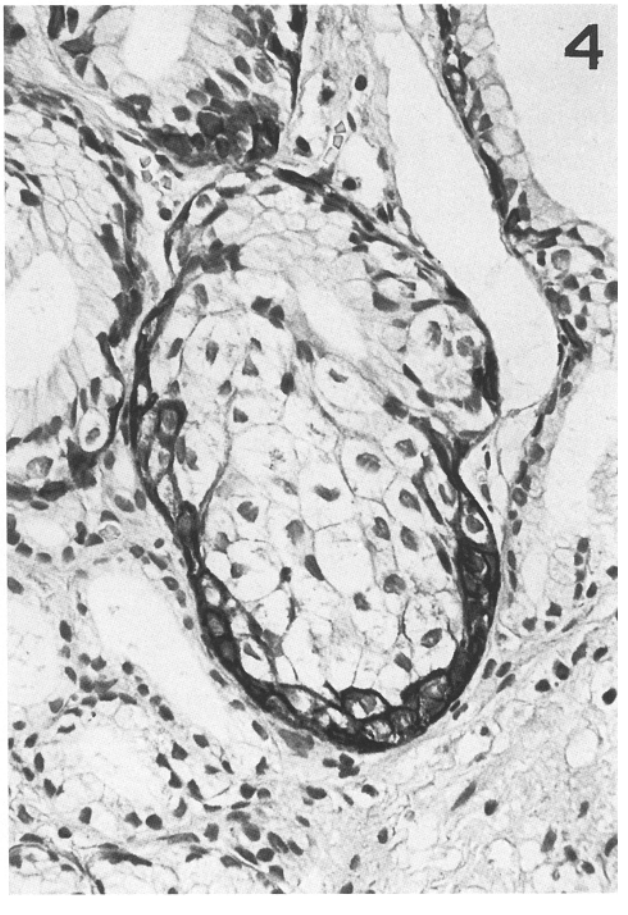
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Fig. 1 Histological findings at the oesophago-gastric junction. Cell nests closely resembling sebaceous glands are seen in cardiac glands. Haematoxylin and eosin, ×50

Fig. 2 The cell nests are positive for MAM-6. Avidin-biotin-peroxidase complex (ABC) method, ×120

Fig. 3 Sebaceous gland cells appear to bud from the base of M1-positive foveolae. ABC method, ×120

Fig. 4 Basal marginal cells of the nests show high molecular weight cytokeratins. ABC method, ×120

There were M1-positive foveolae accompanied by M2-positive glands. No intestinal type cells were found and the superficial epithelium was not elongated. Several foveolae and glands were cystically dilated. For these reasons, and also on endoscopic grounds, the localization was described as cardiac glands rather than Barrett's oesophagus or oesophageal glands. The cell nests stained positively for MAM-6 (Fig. 2). Sebaceous gland cells appeared to bud from the base of M1-positive foveolae (Fig. 3). Basal marginal cells of these nests and squamous epithelium of the oesophagus were strongly positive for 34ßE12 (Fig. 4).

Discussion

In the first half of this century, ectopic sebaceous glands were observed at a variety of ectodermally derived sites, but later also in the oesophagus, an endodermally derived organ. From observation of autopsy cases, the oesophageal lesion had been believed to be a congenital embryological anomaly (ectopia). Rector and Connerly [7] performed a large necropsy study in infants and children but failed to detect even one case of sebaceous glands in the oesophagus. Merio et al. [5] first described a living patient with sebaceous glands found in the middle and lower oesophagus, who had symtoms of chronic oesophagitis. Nakada et al. [6] reviewed cases of living individuals and found the patients' ages to range from 28 to 76 years, and some patients of reported cases showed gastro-oesophageal reflux. It is thus reasonable to consider this lesion to be an acquired or metaplastic change. Zak and Lawson [9] pointed out that ectopia explains the presence of sebaceous glands in ectodermal cutaneous sites but that metaplastic differentiation of pluripotent cells is more likely in endodermally derived tissues. The findings in the present case support this hypothesis.

This report identifies a new type of metaplasia of the gastric mucosa, besides intestinal, (pseudo)pyloric and pancreatic metaplasia, which have been well documented. Stem cells of the gastric mucosa of cardiac type may rarely differentiate to sebaceous gland cells in this type of metaplasia. From the findings with high molecular weight cytokeratins, this metaplasia seems to be associated with squamous metaplasia of the gastric mucosa, which we have rarely seen in the cardiac region (unpublished). Therefore, sebaceous gland metaplasia of the gastric mucosa may be a variant of squamous metaplasia.

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