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PAPILLOMA VIRUS PARTICLES IN A FIBROMA OF THE TONGUE

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Abstract. Papilloma virus particles could be identified in material from a fibroma of the tongue. Histology revealed an irritated fibroma with a very high degree of intranuclear and cytoplasmic vacuolization.

Key words: Fibroma of the Tongue; Papilloma Virus

Papilloma viruses are known to induce benign epithelial or fibroepithelial proliferations of skin and mucosa (13). In the oropharyngeal region these viruses are found to be associated with tumours of uncertain dignity such as laryngeal papillomas, focal epithelial hyperplasia and oral papillomatosis (6). The etiology of laryngeal papillomas is well established by two lines of evidence: Typical papilloma virus particles could be demonstrated by electronmicroscopy (13) and an inoculation experiment with material from laryngeal papilloma led to flat-wart like lesions of the skin (1). Wart virus particles are detected even more easily in lesions of focal epithelial hyperplasia, a particular disease that seems to depend on still unknown genetic factors (8). Papillomas are quite common lesions in the mouth. Only in one case, however, could papilloma virus particles be identified (2).

Fibromas, the most frequent benign tumours of the oral cavity (12) have never been suspected to be related to a viral infection: There are a vast number of so-called fibromas which are actually fibrotic stages of inflammatory tumours. As results of chronic irritation they are also called irritated fibromas, or fibrogranulomas.

We report here one case of an irritated fibroma of the tongue from which papilloma virus particles could be isolated.

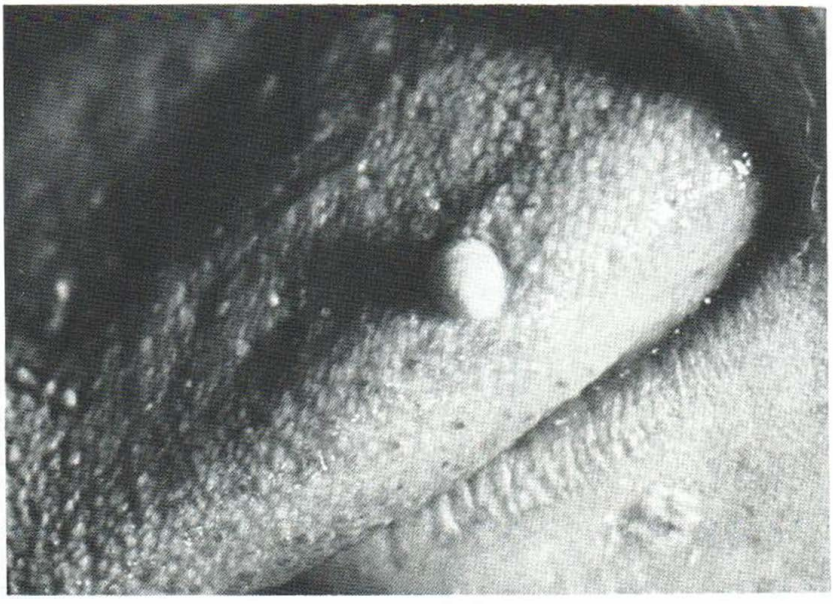

Fig. 1. Clinical appearance of the tumour situated on the left margin of the tongue.

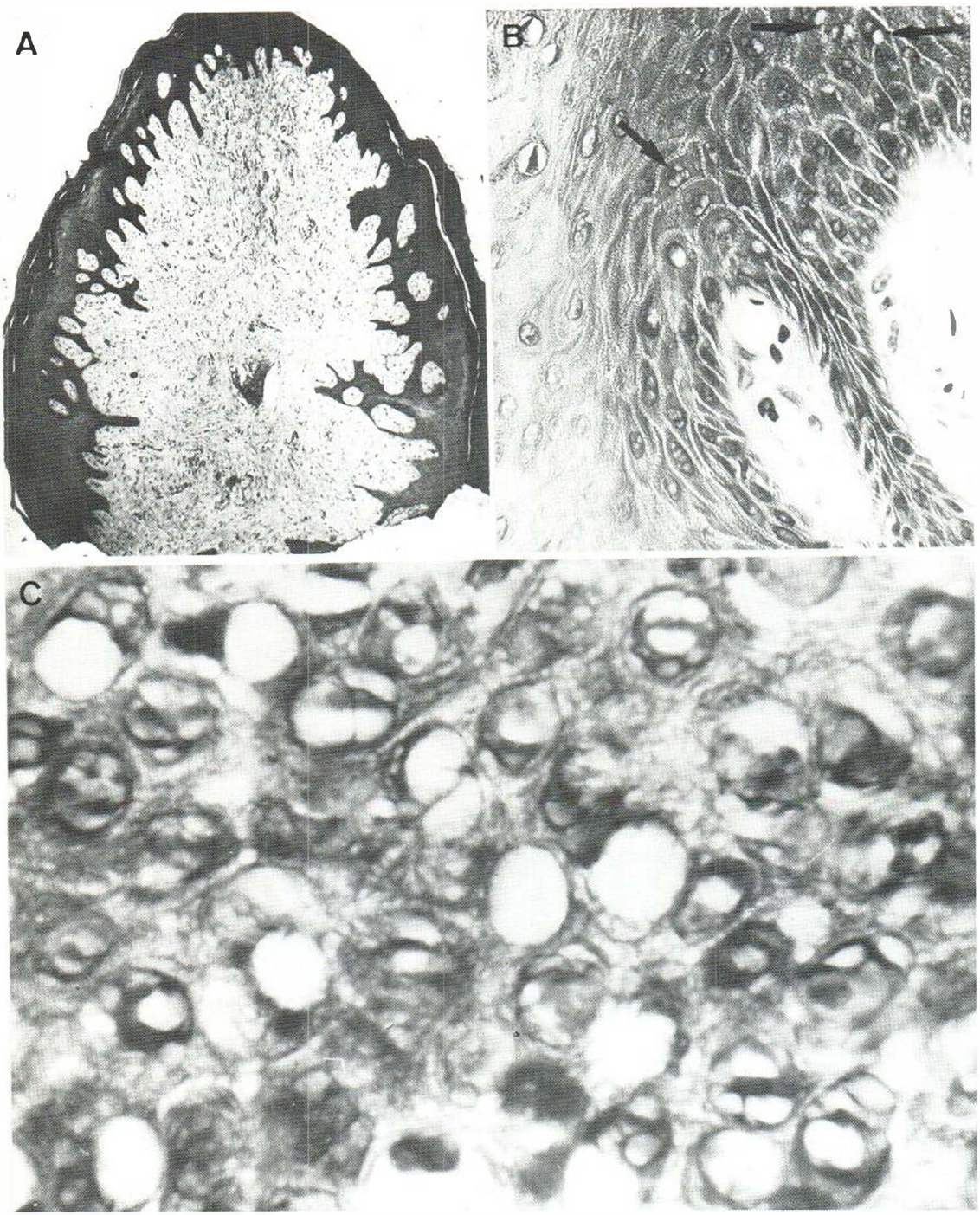

Fig. 2. (A) Histologic section of the tumour: Fibroma with orthokeratotic keratinization, slightly marked epithelial hyperplasia and a stroma rich of bundles of fibrous connective tissue and a great number of capillaries (Hematoxylin-eosin, ×40). (B, C) Higher magnification, showing peculiar nuclear and cytoplasmatic vacuolizations (arrows) in the stratum spinosum (Hematoxylin-eosin, ×225, ×900).

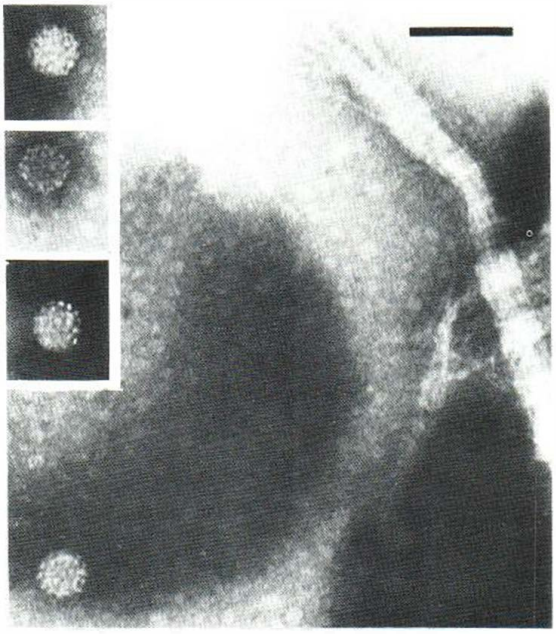

Fig. 3. Electron micrograph of collagen fibres and Papilloma Virus particles from G. H. fibroma. The bar corresponds to 100 nm. Negative staining with 2% sodium phosphotungstate solution.

CASE REPORT

G. H., a 15-year-old boy, was first presented in the Department of Dermatology, University of Freiburg (F.R.G.), in January, 1979 with a complaint of a slowly growing small indolent tumour of the tongue (Fig. 1). At this time the tumour had existed for about 2 years. During this period the patient developed a common wart on the right thumb which was removed by electrosurgery. It is worth mentioning that the patient used to bite his nails and that almost his whole family had a positive wart history. The mother and three of four children had warts, especially situated on the hands and arms.

Physical examination revealed a well-developed boy of pubertal age with no pathological findings in routine laboratory tests, chest X-ray, or laryngoscopy, which were performed for the exclusion of additional laryngeal papillomas.

Clinically the lesion consisted in a tumourous smooth-surfaced, pale-pink coloured mass of approximately 0.8 cm in diameter. It was situated on the left margin of the tongue and was attached to it by a narrow pedicle. Its consistency was quite hard. There was no sign of inflammation, edema or ulceration, either in the tumour itself or in the surrounding tissue. The tumour was removed by scissor under local anaesthesia. There was no postoperative problem such as bleeding or infection.

Histological examination of the biopsy revealed a so-called irritated fibroma (Fig. 2). The stroma consisted primarily of fibrous tissue with a small number of fibroblasts and fibrocytes and an extensive vascularization. Superficially the tumour showed some orthokeratotic keratinization, but there was no atypia, dysplasia or signs of malignancy throughout the squamous and basal cell layer. Most of the keratinocytes showed intranuclear vacuoles of low basophility and of a peculiar tent-like shape. Feulgen stainingfailed to reveal DNA in the vacuoles and no histone-protein could be identified by the Fast-green method. However, there was some reaction with PAS that indicates a low content of mucopolysaccharides.

In order to test for the presence of virus particles, a part of the tumour was minced and ground with sterile seasand in a mortar and suspended in a 0.05 M phosphate-buffer, pH 8, containing 1.0 M NaCl and 0.01 M EDTA (3). The preparation was purified by a low-speed centrifugation and the supernatant was prepared for the electron microscope by the negative staining technique (11). The examination revealed a small amount of papilloma virus particles with typical capsomeres and with a diameter of 55 nm (Fig. 3). Collagen bundles were rather frequent in the preparation.

DISCUSSION

The singular lesion in the current case is histologically a so-called irritated fibroma of the tongue, a benign neoplasm of the fibrous connective tissue. Little is known about the etiology of such lesions (12). This is the first case report on papilloma virus particles in such tumours.

Investigations during the last few years have revealed a considerable heterogeneity of human and bovine papilloma viruses (3, 5, 9, 10). Different virus types, which show no serological cross-reactivity, seem to correlate with distinct clinical and histological pictures. Most of the human wart viruses induce epithelial proliferations—except for HPV 6, which was isolated from fibroepithelial condylomata acuminata (4, 7). In contrast, infections of bovine papilloma viruses (BPV) types 1 and 2 lead to tumours with massive fibrous components (5).

In our case the identification of the papilloma virus type was impossible because of the very small amount of material. Moreover, more fibrotic tumours of the oropharyngeal mucosa must be analysed for papilloma viruses in order to decide whether there exists an association between papilloma virus infections and these tumours. If this should be true, it would be important to know which type(s) of papilloma virus primarily induce(s) such lesions.

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