



Oral displeasure

how to report difficult oral biopsies



Dr Tim Bracey

MBCbB PhD MRCS FRCPath

TERA (Training Education Research Audit) 27/1/15

Introduction

- basic anatomy and histology of oral cavity
- what kind of lesions are biopsied
- Dysplasia and grading systems
- Benign things that look malignant
- Malignant things that look benign
- How do we get the message across to the geezer with the knife?

Papillary and verrucous lesions of the oral mucosa

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DIAGNOSTIC HISTOPATHOLOGY 15:6

MINI-SYMPOSIUM: ORAL AND MAXILLOFACIAL SURGERY

Introduction

There are few more diagnostically challenging areas of oral pathology than papillary and verrucous lesions. Not only is the terminology confusing (Table 1), but some normal oral mucosal structures, inflammatory polyps and viral papillomas as well as dysplastic and malignant lesions may share microscopic appearances. Clinical information and an adequate biopsy are essential for accurate diagnosis. The purpose of this review is to highlight the histological features which provide guidance in the assessment of this difficult group of lesions, paying particular attention to verrucous hyperplasia, papillary dysplasia, papillary and verrucous carcinoma.



School of Clinical Dentistry
University of Sheffield



BDIAP
London, November 2010

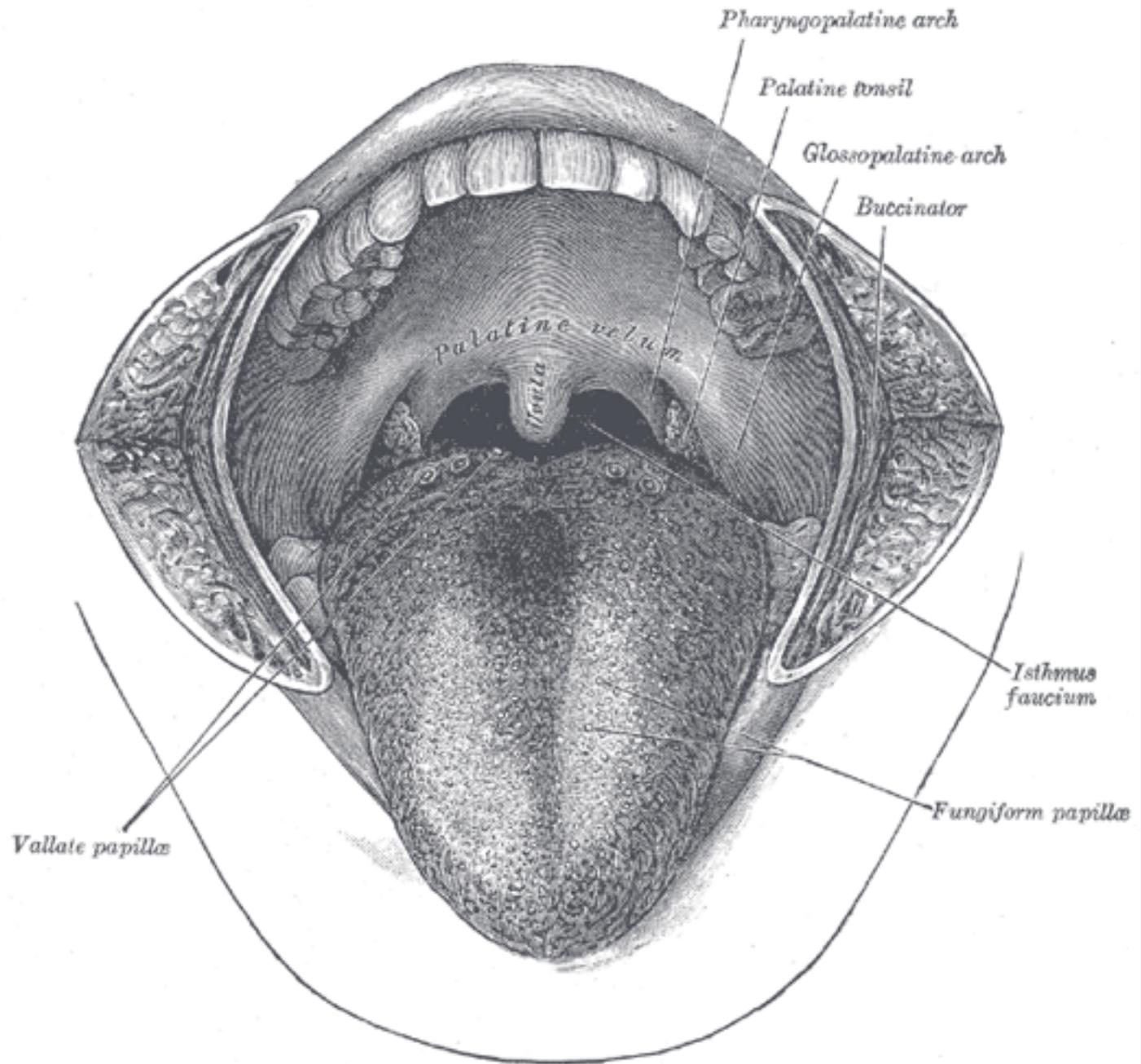
Diagnostic difficulties with lesions of the oral mucosa

Paul M Speight

Dept Oral & Maxillofacial Pathology
University of Sheffield

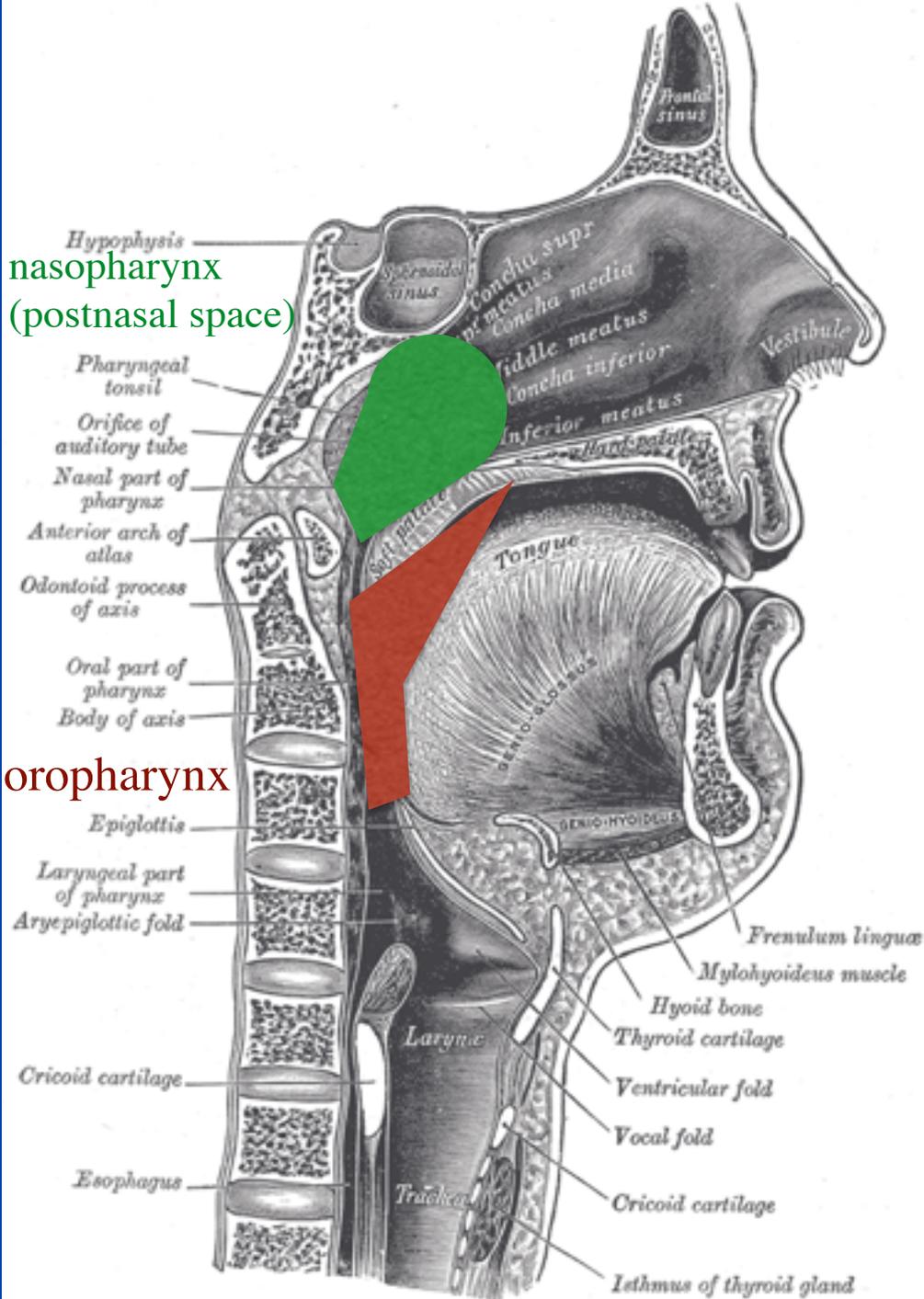


- Location, location, location

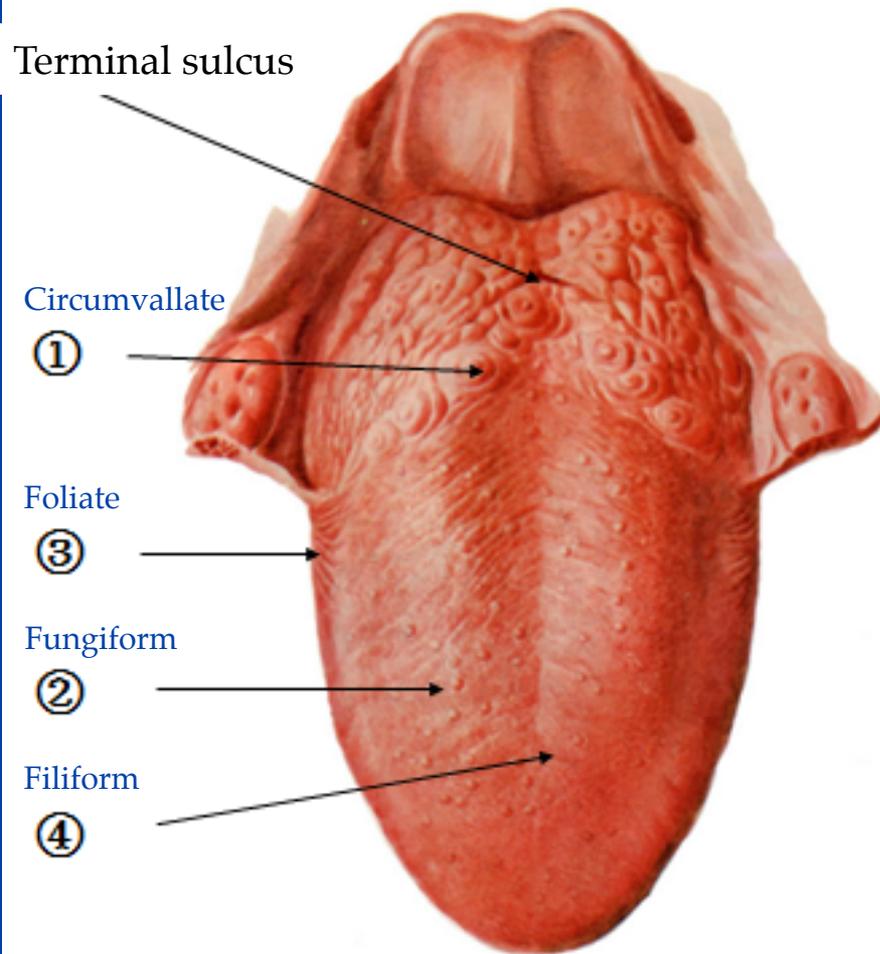


nasopharynx
(postnasal space)

oropharynx



Tongue anatomy and papillae



• Dorsal view



Figure 15.27 Dorsal surface of tongue. Filiform papillae have a connective tissue core beset with secondary papillae with pointed ends. The superficial squamous cells are keratinized. Note the slender, pointed rete ridges.

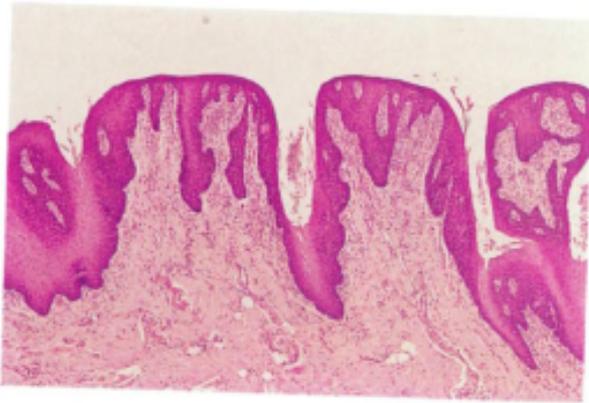
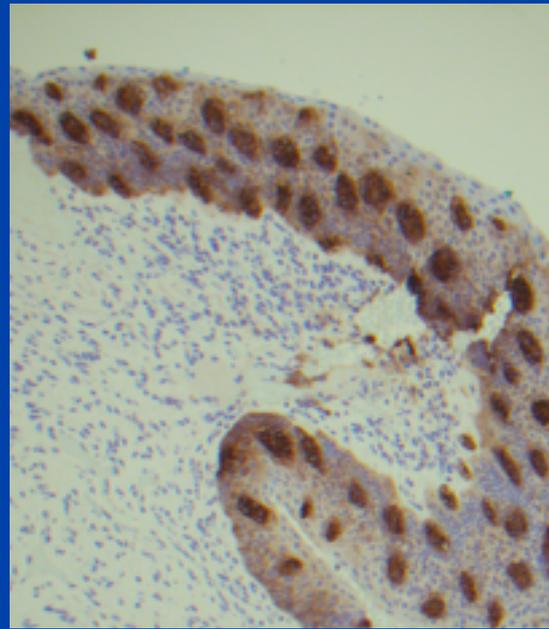


Figure 15.28 Fungiform papillae. Slightly rounded, elevated structures with a larger connective tissue core. Smaller connective tissue papillae project into the base of the surface epithelium.



CAM5.2

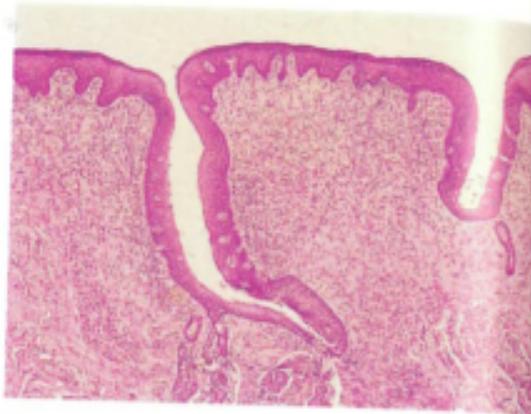
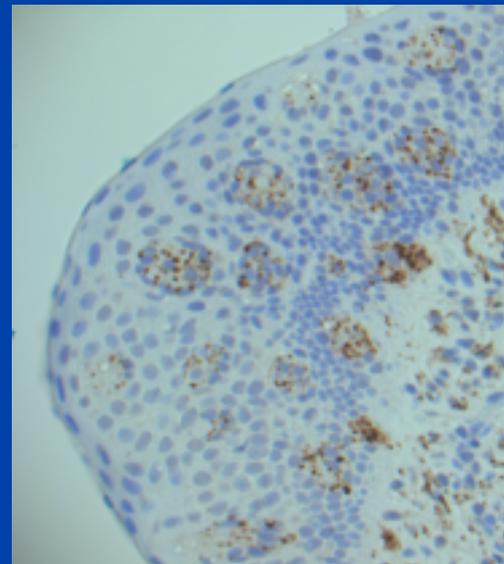


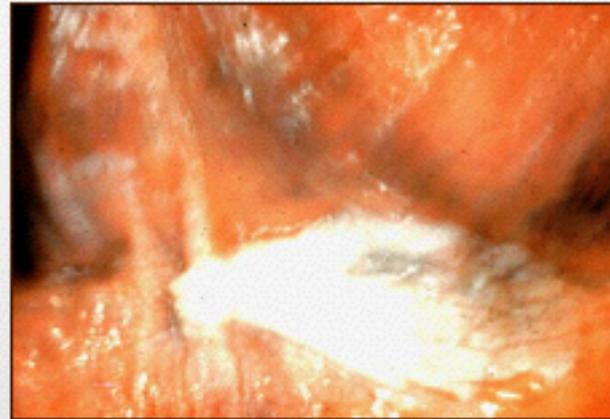
Figure 15.29 Circumvallate papilla. Numerous taste buds on the lateral walls of the papilla and on the epithelium of the papilla within the furrow. Ducts of serous glands open in a row surrounding the circumvallate papilla.



Neurofilament

What do “they” biopsy?

Leukoplakia



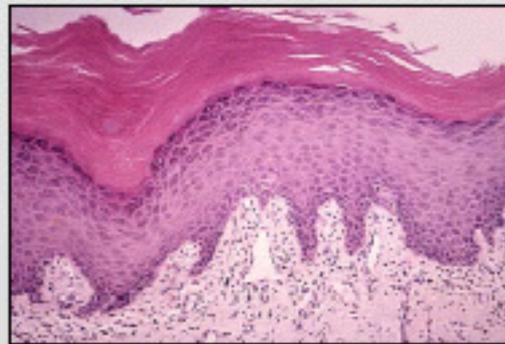
Erythroplakia



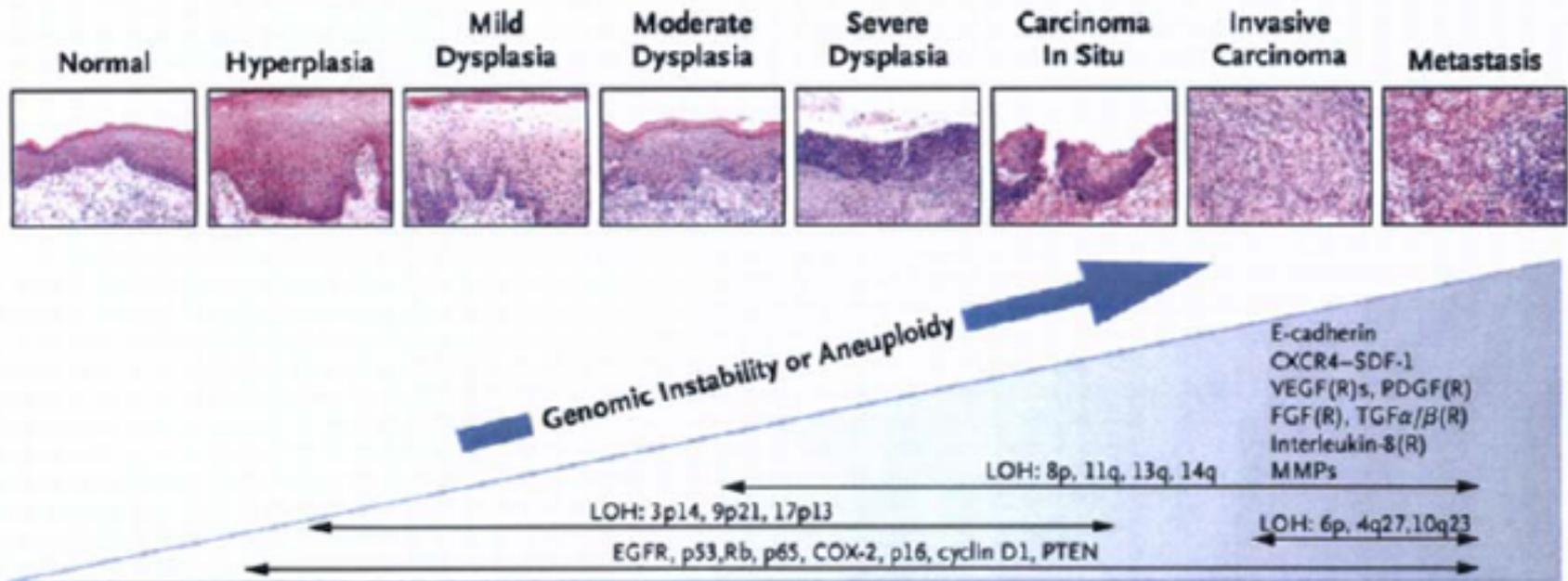
- Also expect biopsies from pigmented macules, plaques, striae, keratoses, polyps, ulcers and masses. Often no description!

Leukoplakia - Histology

- Up to 80% show no dysplasia
- 20% - 50% show dysplasia
- 5% show carcinoma-in-Situ
- 5% are squamous cell carcinoma



Hypothetical model for head and neck carcinogenesis



Haddad RI and Shin DM. N Engl J Med 2008; 359:1143-54

Dysplasia grading schemes

Oral epithelial dysplasia	Squamous intra-epithelial neoplasia	Ljubljana scheme	Classic larynx scheme
Hyperplasia	N/A	Simple hyperplasia	Laryngeal keratosis
Mild	SIN 1	Basal/parabasal hyperplasia	Hyperplasia
Moderate	SIN 2	Atypical hyperplasia	Keratosis with dysplasia
Severe	SIN 3		
Ca-in-situ		Ca-in-situ	Ca-in-situ

(Based on Barnes et al, 'WHO Blue Book' 2005, Bouquot et al, 2006)

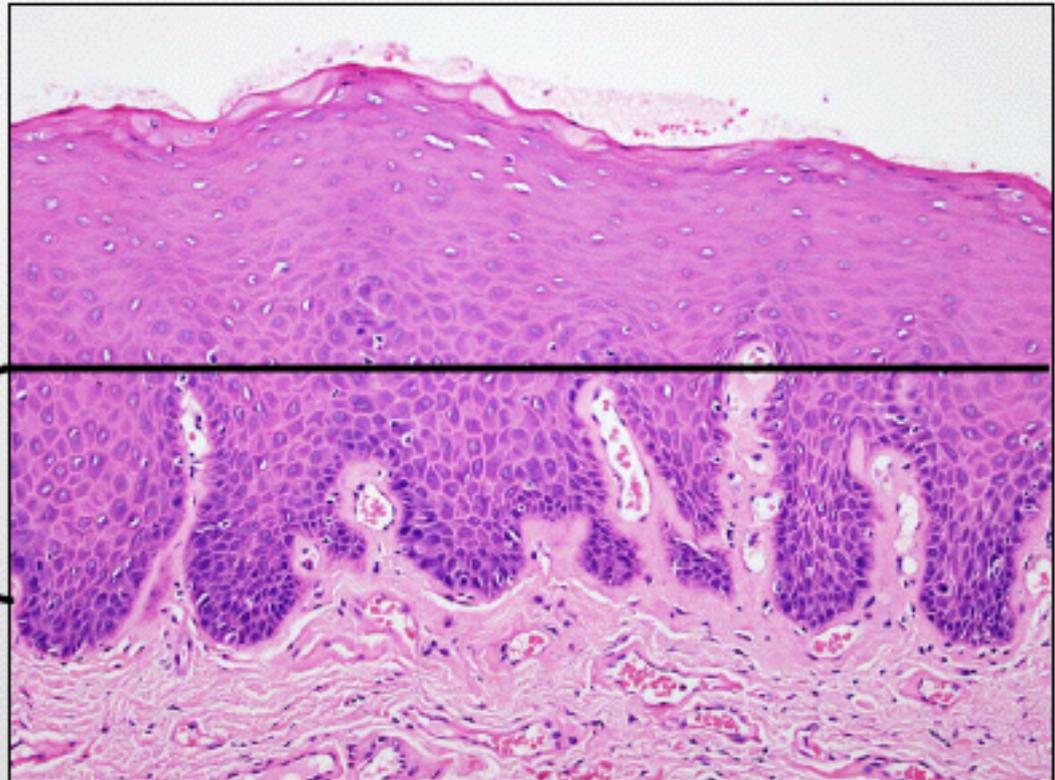
Barnes L et al. WHO Classification of Tumours. Pathology & Genetics of the Head and Neck Tumours (2005)

Table 3.6 Criteria used for diagnosing dysplasia

Architecture	Cytology
Irregular epithelial stratification	Abnormal variation in nuclear size (anisonucleosis)
Loss of polarity of basal cells	Abnormal variation in nuclear shape (nuclear pleomorphism)
Drop-shaped rete ridges	Abnormal variation in cell size (anisocytosis)
Increased number of mitotic figures	Abnormal variation in cell shape (cellular pleomorphism)
Abnormal superficial mitoses	Increased nuclear-cytoplasmic ratio
Premature keratinization in single cells (dyskeratosis)	Increased nuclear size
Keratin pearls within rete pegs	Atypical mitotic figures
	Increased number and size of nucleoli
	Hyperchromasia

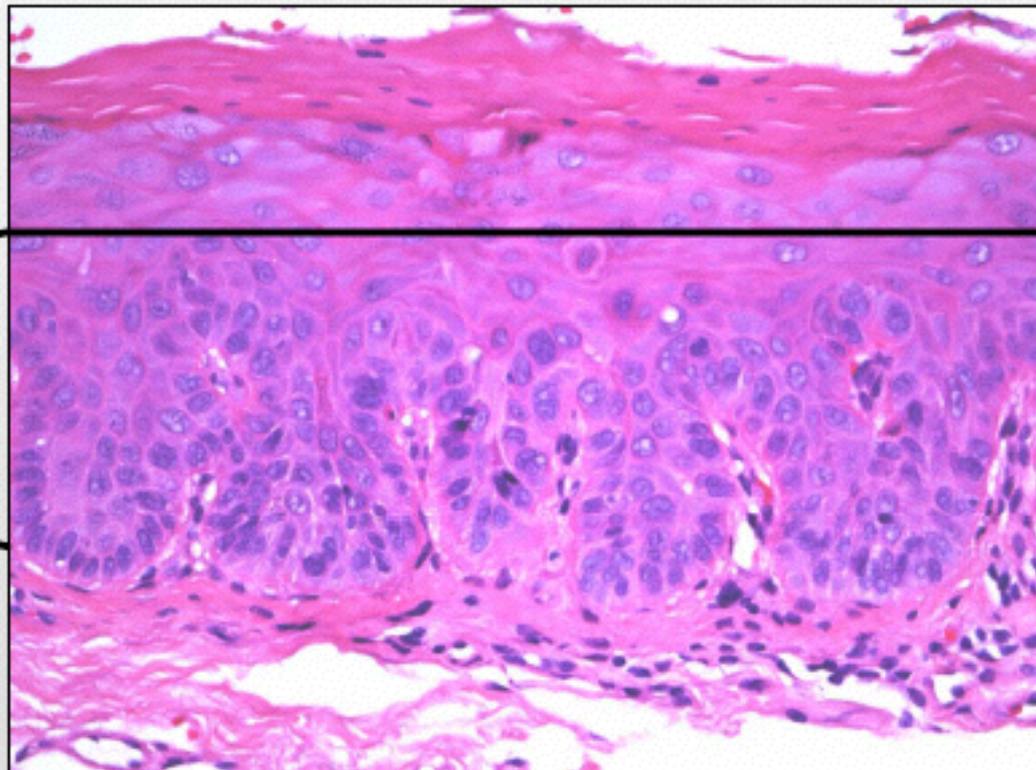
Mild epithelial dysplasia

Changes are limited to the lower 1/3 of the epithelium



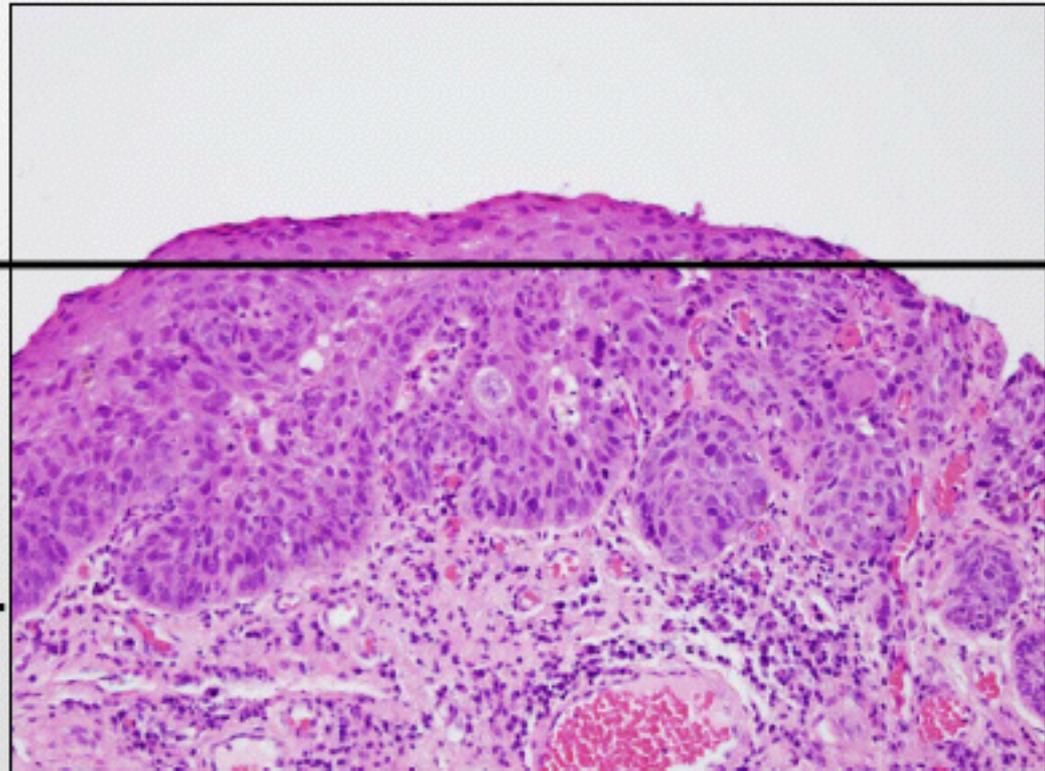
Moderate epithelial dysplasia

Changes extend in
to the middle 1/3 of
the epithelium



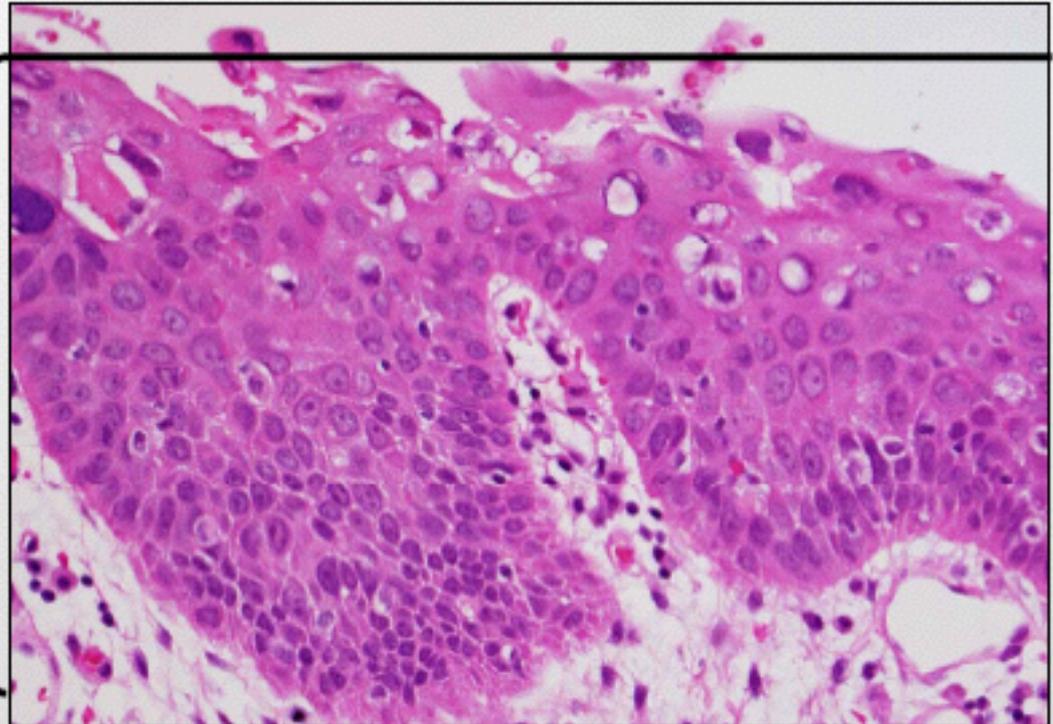
Severe epithelial dysplasia

Changes extend in to the upper 1/3 of the epithelium

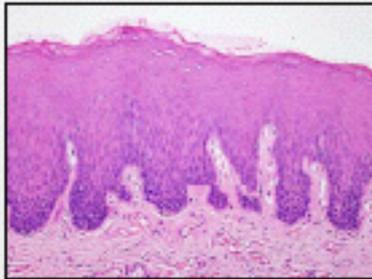


Carcinoma-in-situ

Changes extend through the full thickness of the epithelium

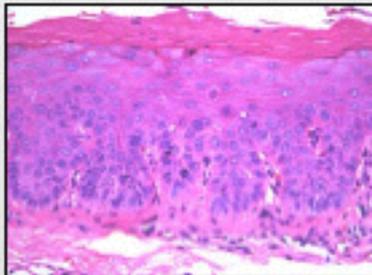


Progression of dysplastic lesions



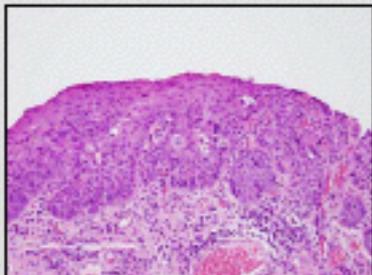
Mild

< 5%



Moderate

5% – 15%



Severe

10% - 50%



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journal homepage: <http://intl.elsevierhealth.com/journals/oron/>

ORAL
ONCOLOGY

Evaluation of a new binary system of grading oral epithelial dysplasia for prediction of malignant transformation

Omar Kujan ^a, Richard J. Oliver ^a, Ammar Khattab ^b,
Stephen A. Roberts ^c, Nalin Thakker ^a, Philip Sloan ^{a,*}

- **68 cases**
- **4 observers**
- **Calculated K_s and for the 5 point scale and for the binary scale**

Binary classification system

Low Risk

No dysplasia
Borderline
Mild

High Risk

Moderate
Severe
Ca-in-situ

Bernard Ackerman:

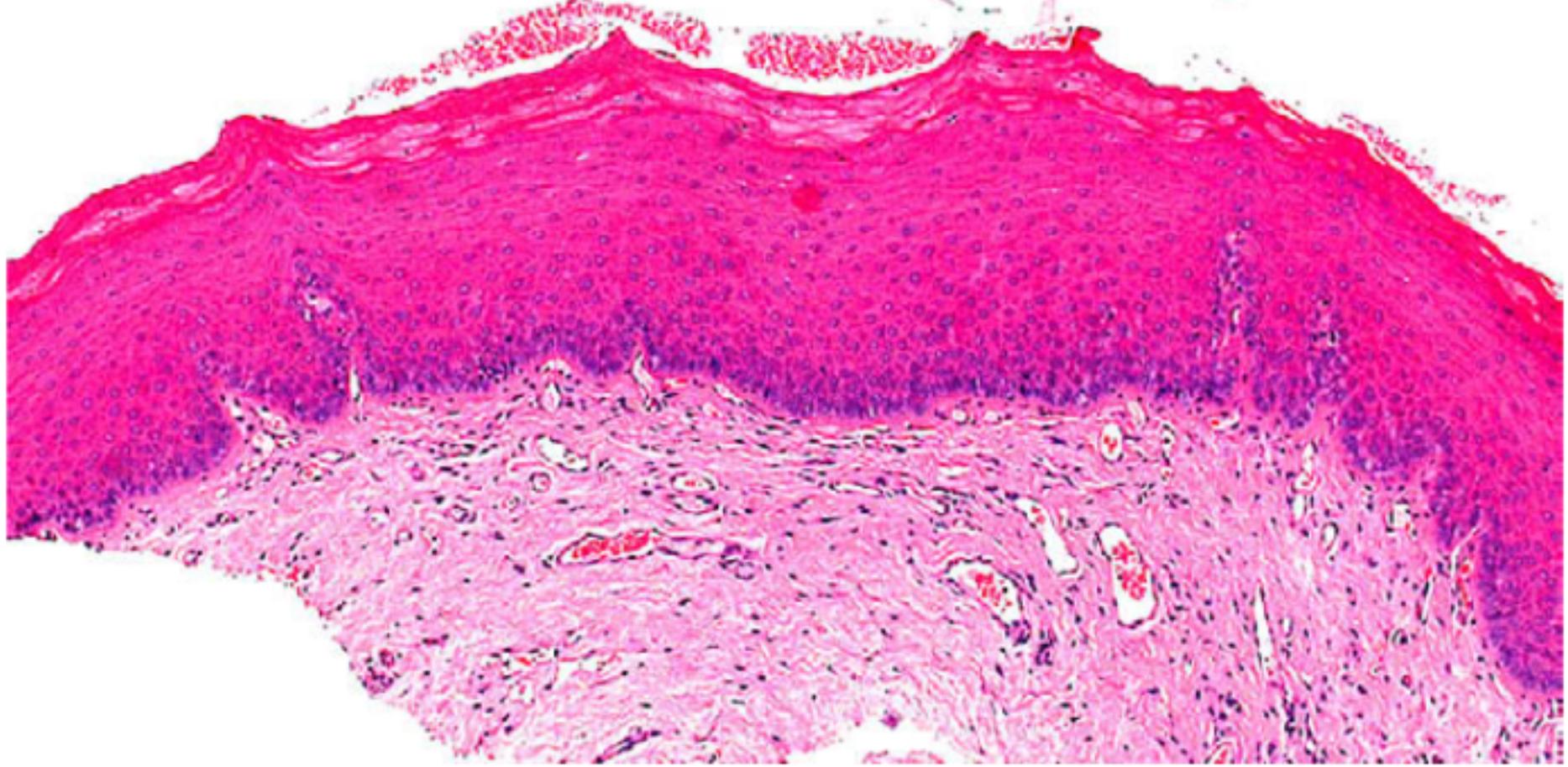
“ The term dysplasia has never been defined in a lucid, comprehensible, repeatable way and has **no place in the parlance of pathology**”

Conclusions

There is a consensus that better tools are needed for the prediction of malignant progression in oral potentially malignant lesions

- **Biomarkers**
- **DNA ploidy analysis**
- **Cytology**

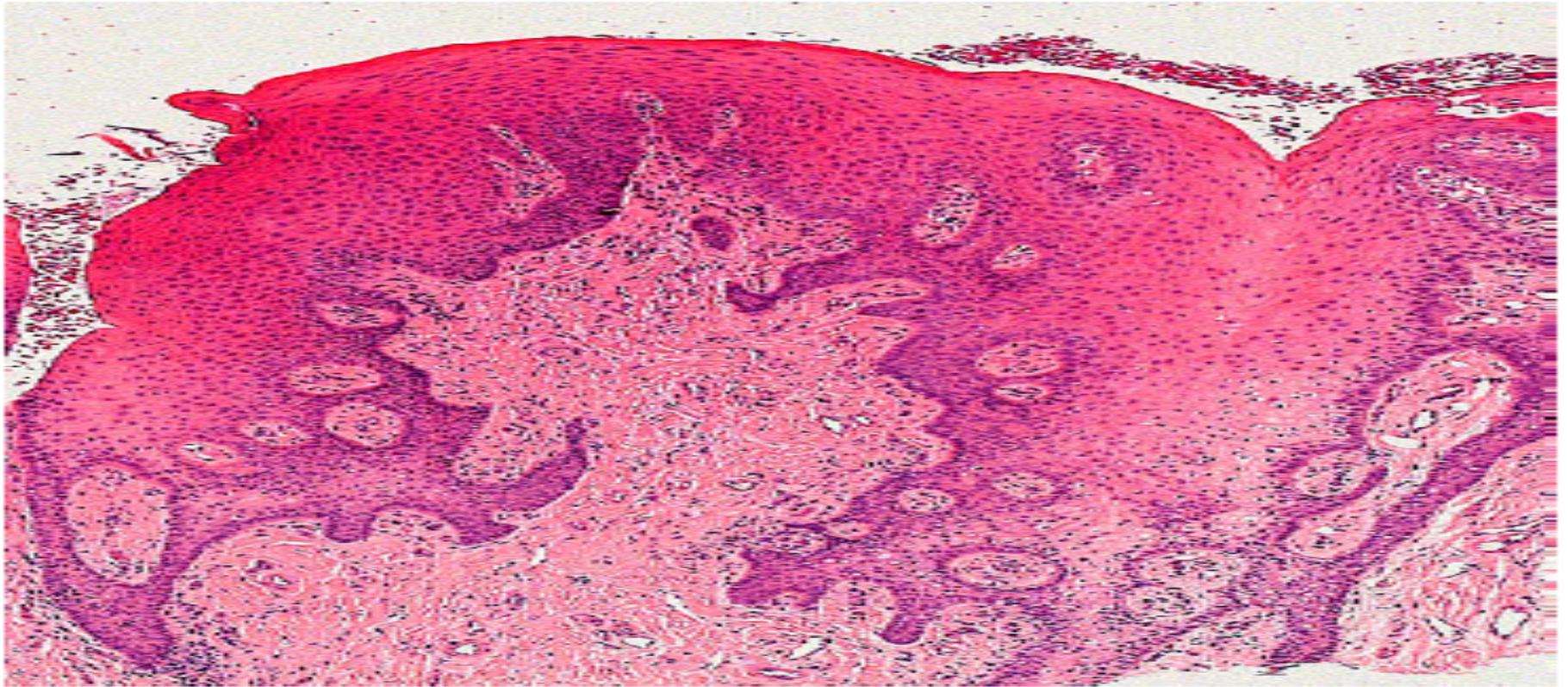
**Benign conditions that can
look neoplastic clinically and/
or histologically**



Smoking-induced hyperkeratosis

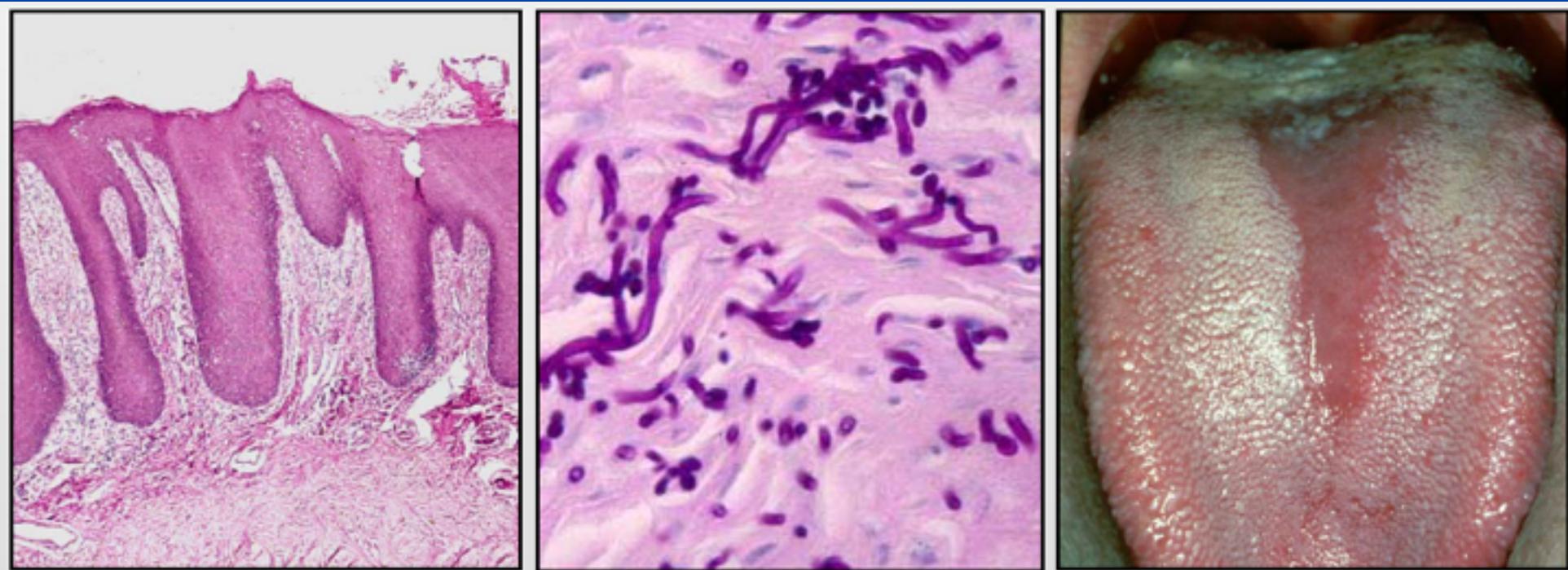
These may have a 'chevron' papillary surface pattern (Figure 1). Another clue to a smoking-associated lesion is hypermelanosis in the basal and parabasal strata, with associated pigmentary incontinence in the juxta-epithelial lamina propria.

Papillary hyperplasia

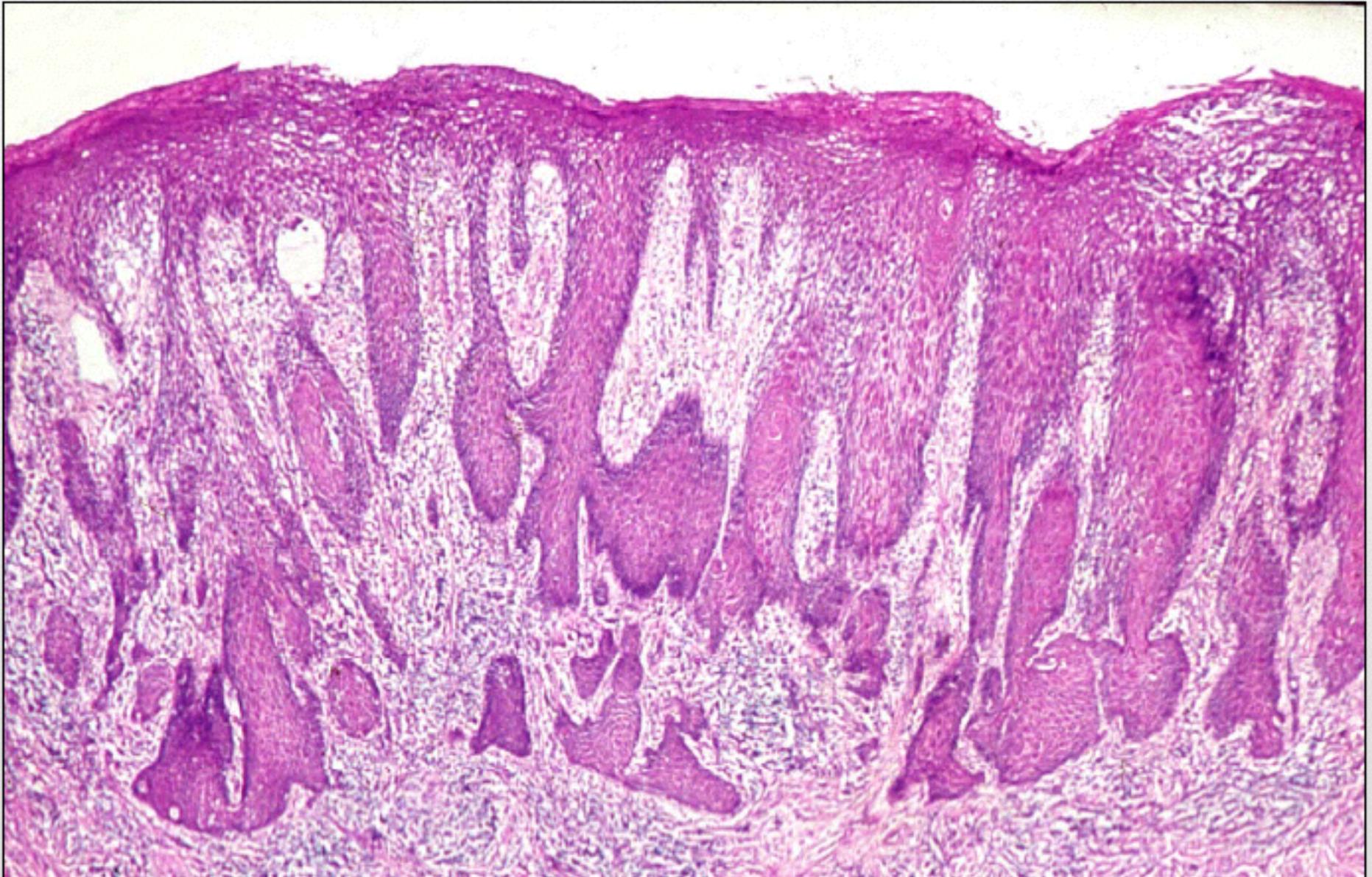


- Usually palate adjacent to a denture; candida typical but not always
- May be associated with Rhomboid glossitis
- Benign unlike verrucous hyperplasia

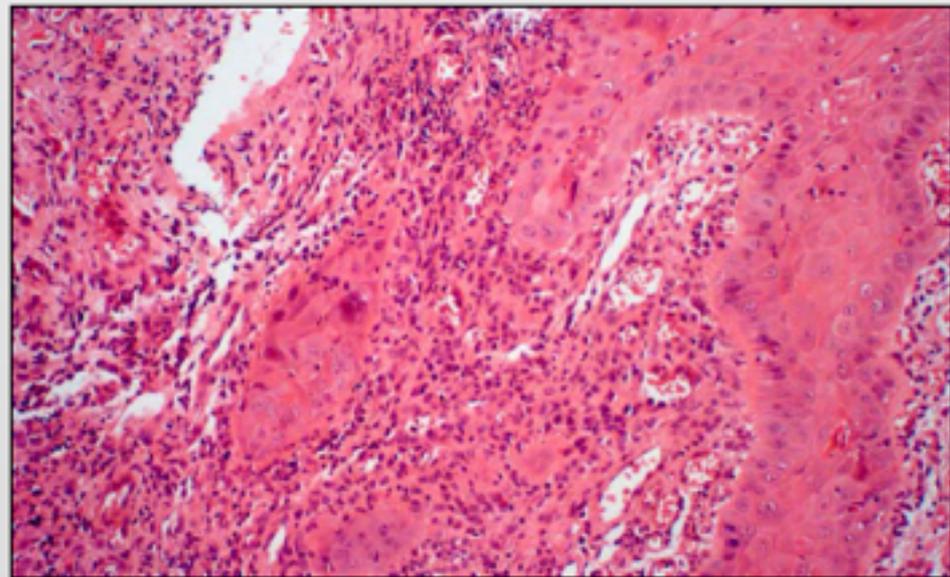
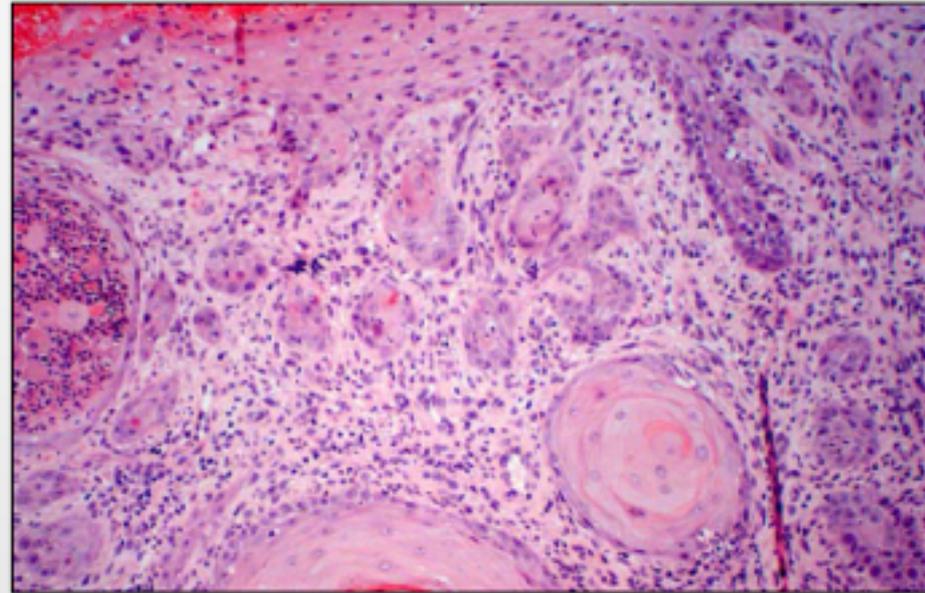
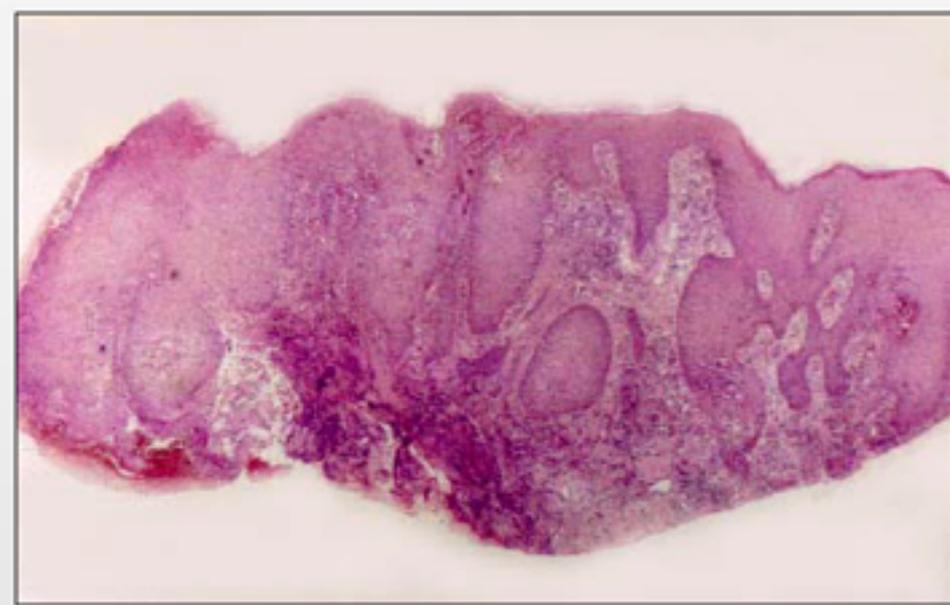
Median Rhomboid Glossitis



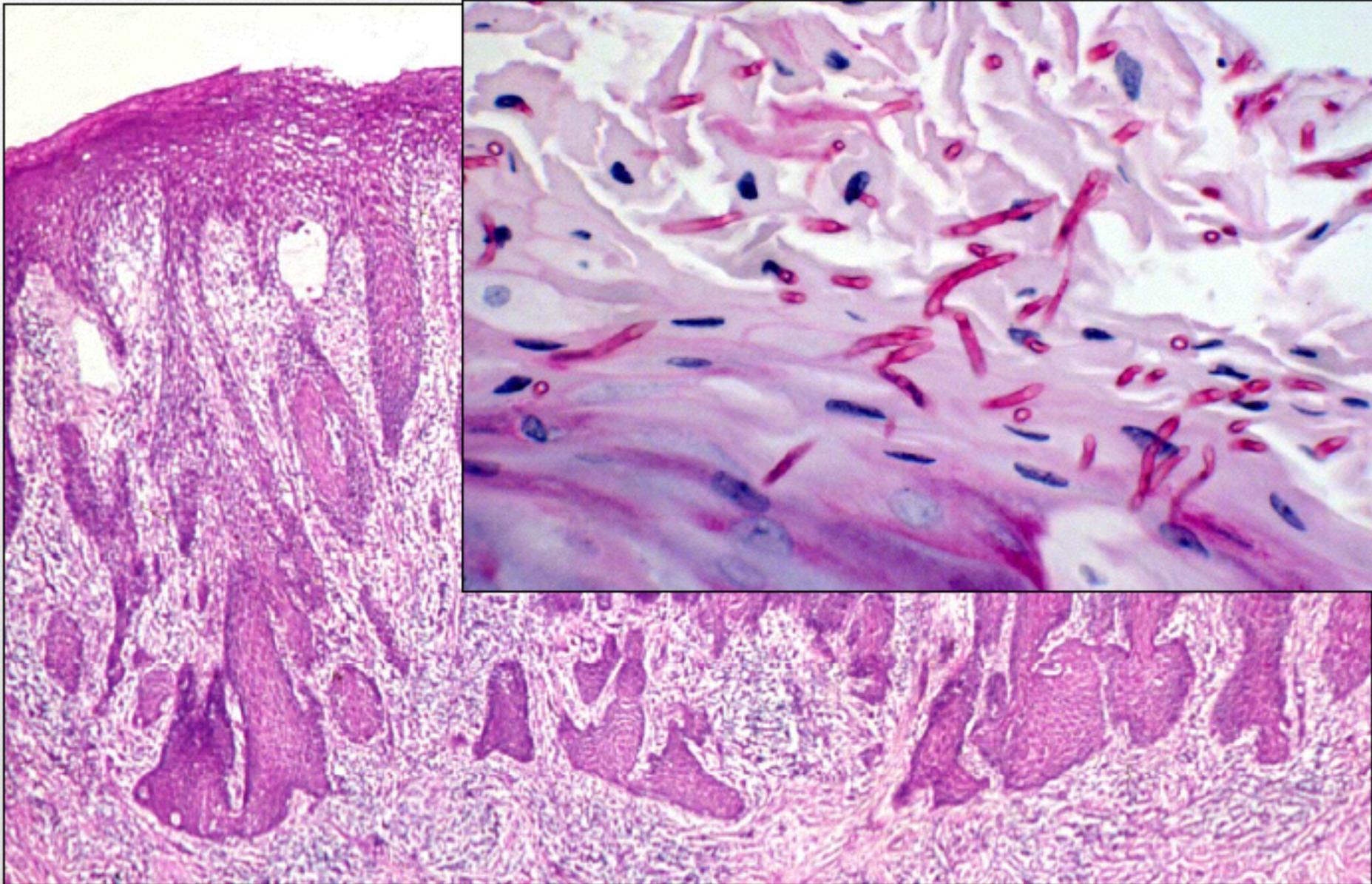
Pseudoepitheliomatous hyperplasia



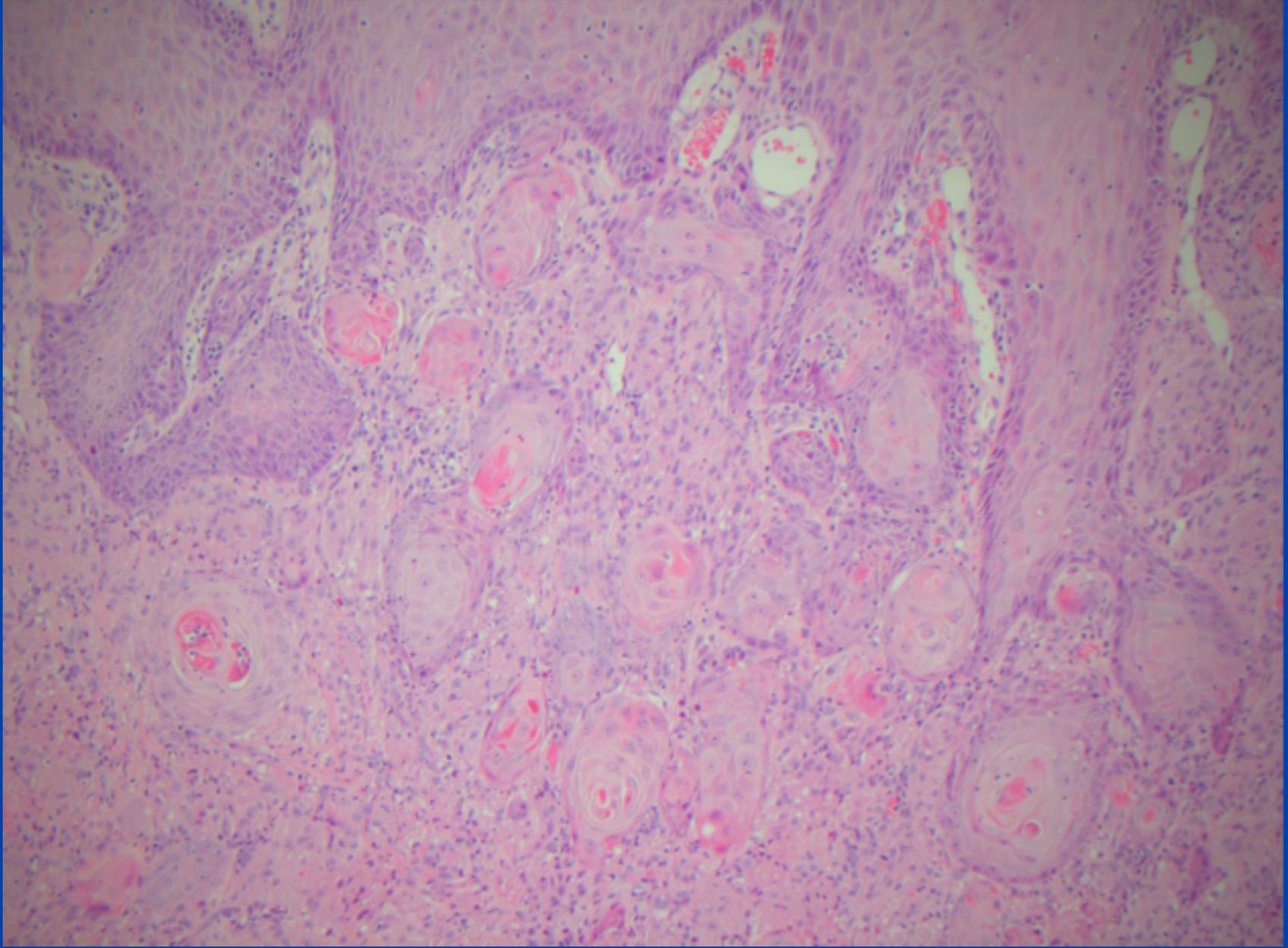
Pseudoepitheliomatous hyperplasia



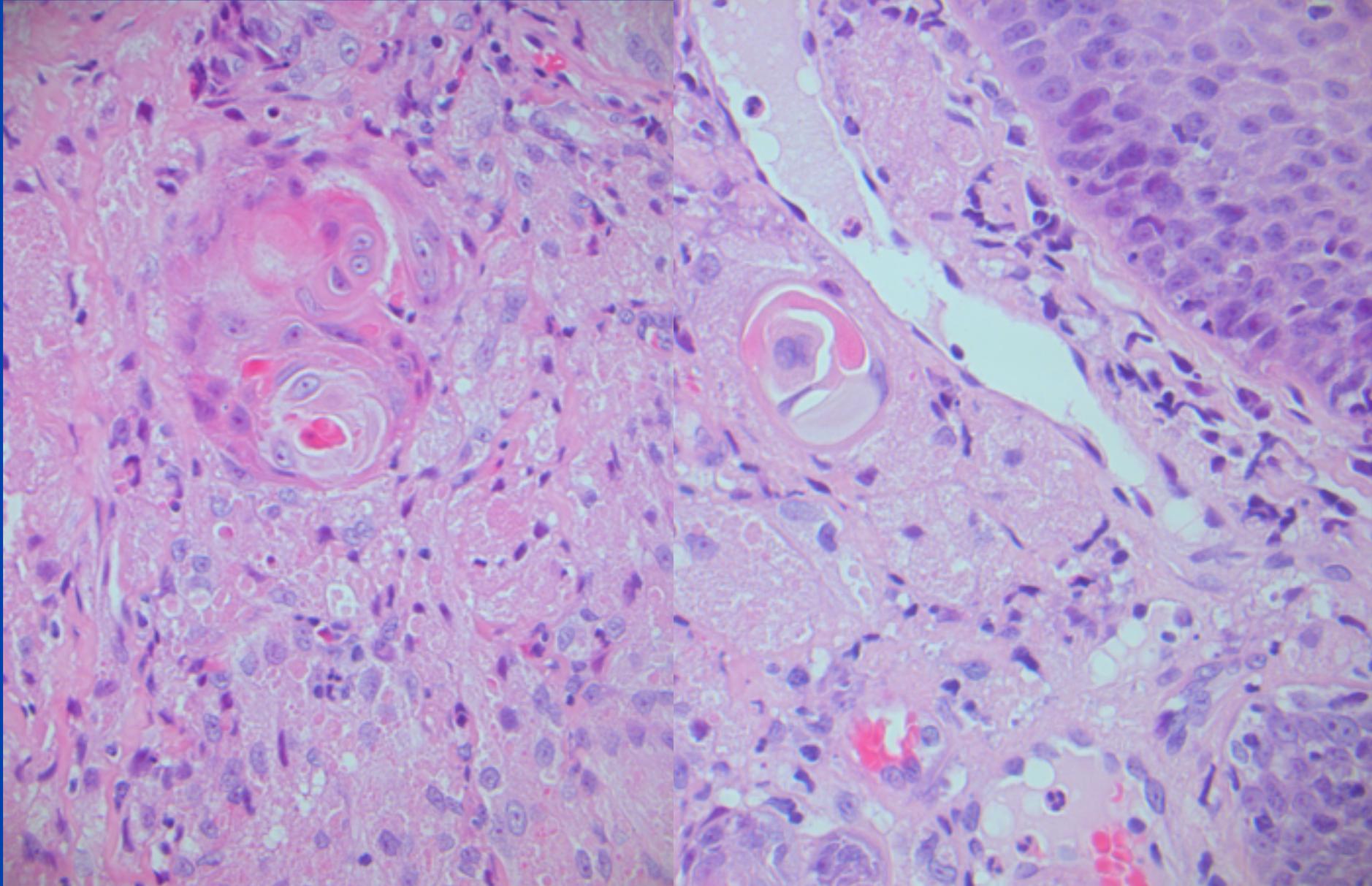
Pseudoepitheliomatous hyperplasia



Pseudoepitheliomatous hyperplasia



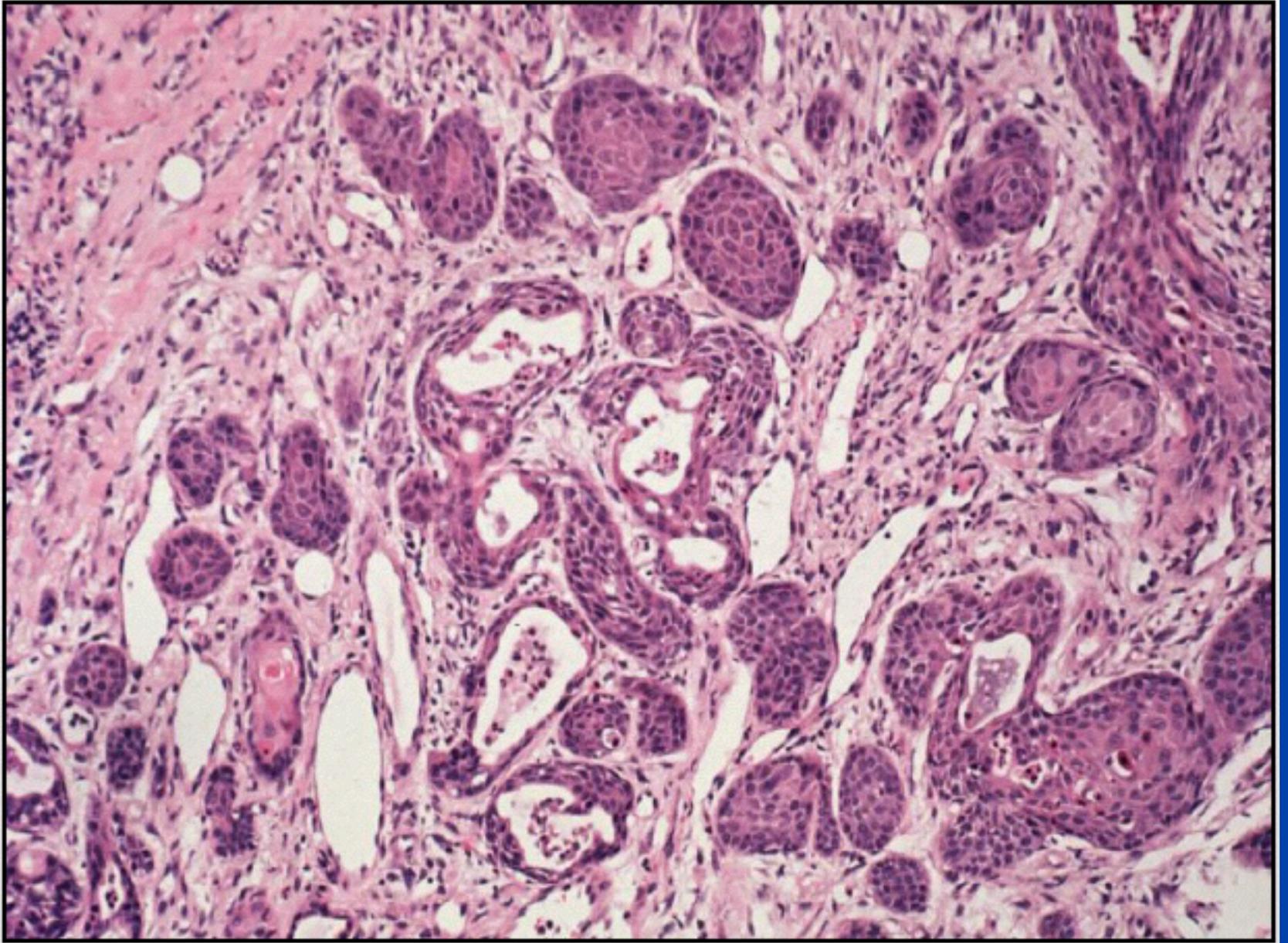
Granular cell tumour

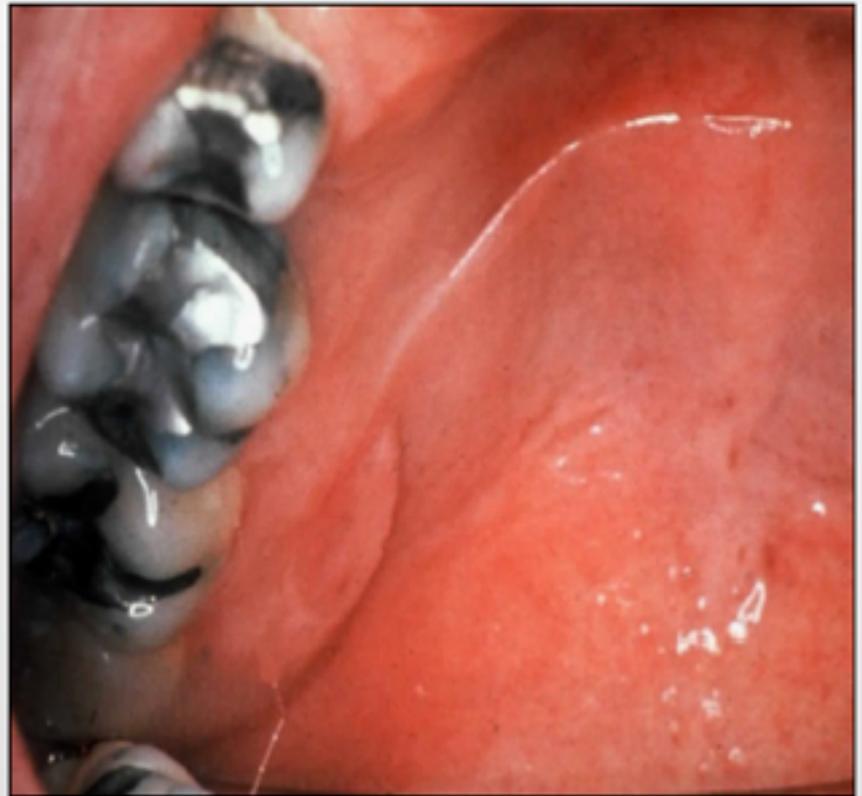
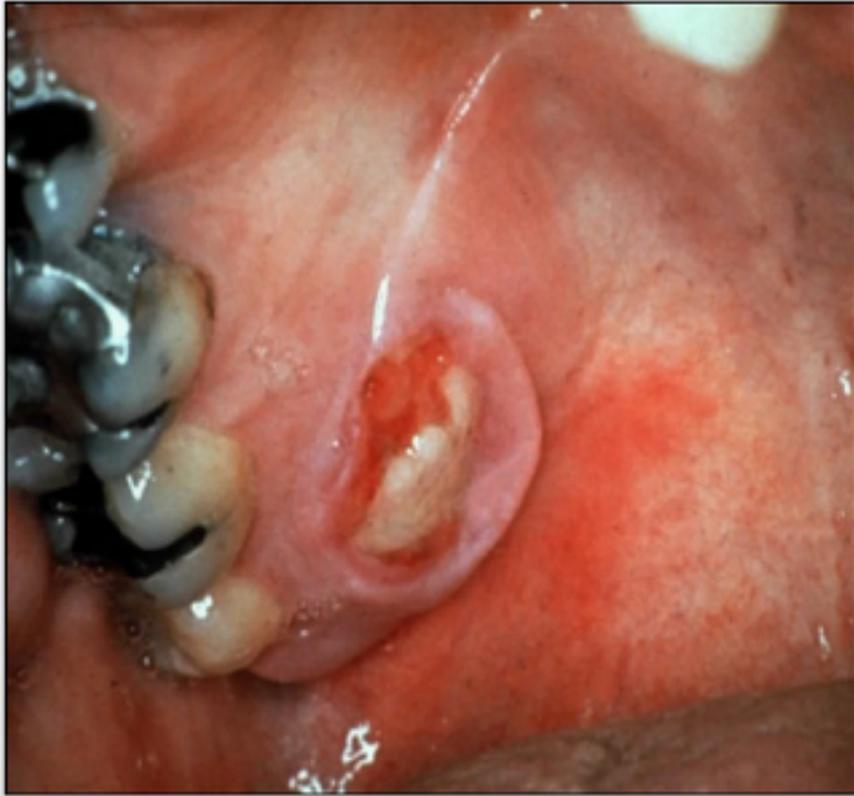


Granular cell tumour

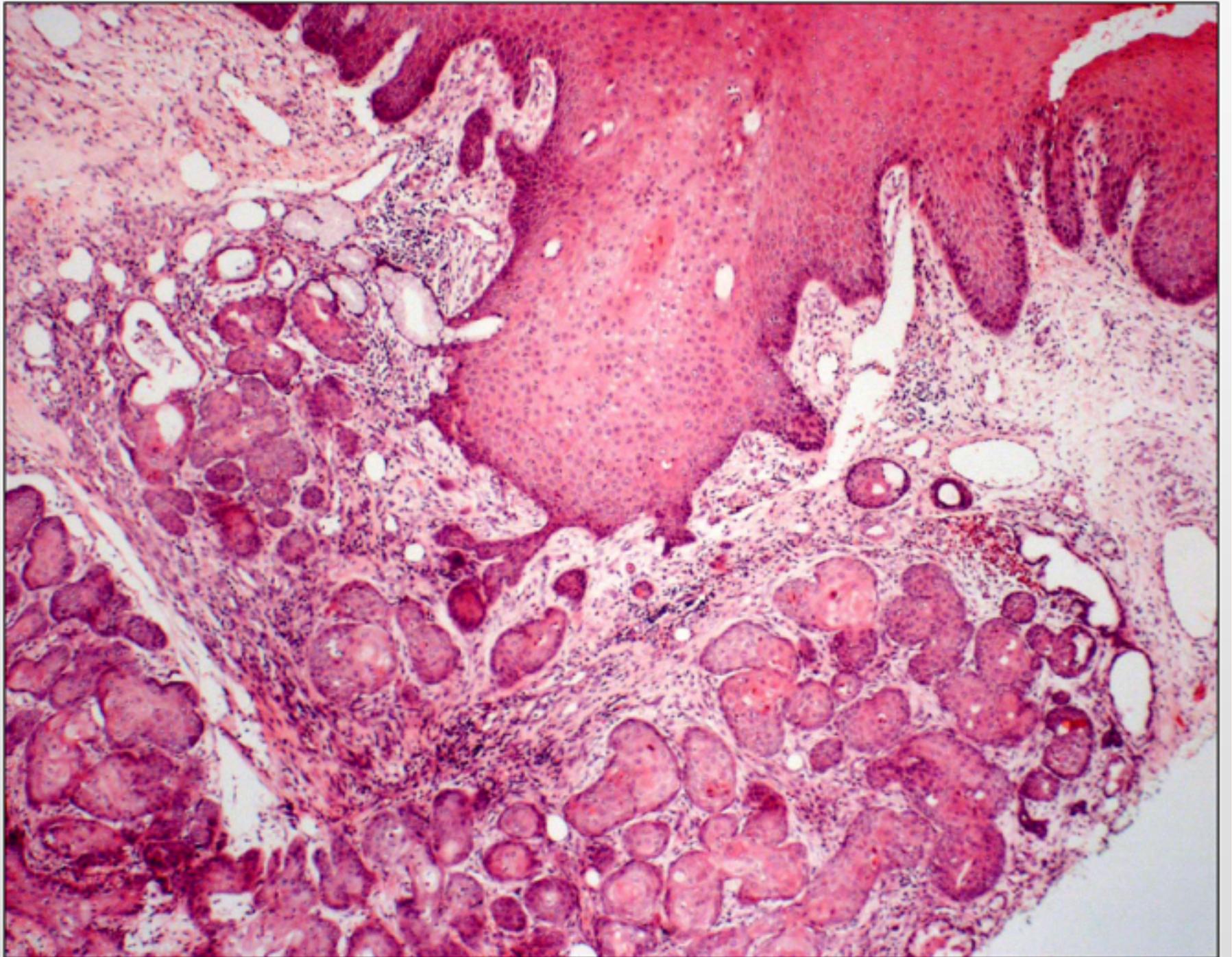
- Benign and rarely recurs
 - May be multifocal
 - Of neural origin
 - S-100 positive granular cells
-
- Often in tongue
 - May be multiple lesions
 - Associated with pseudoepitheliomatous hyperplasia

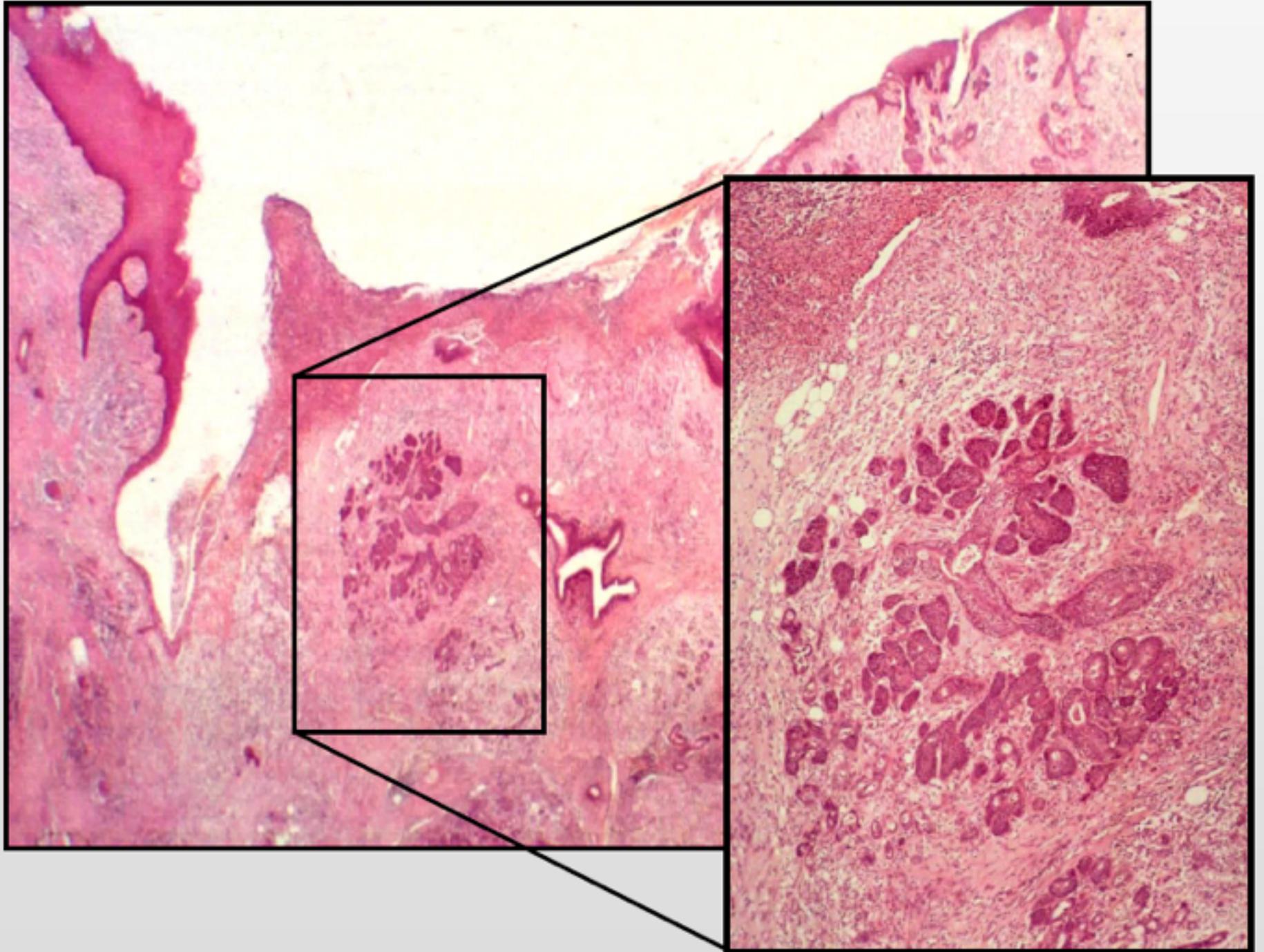






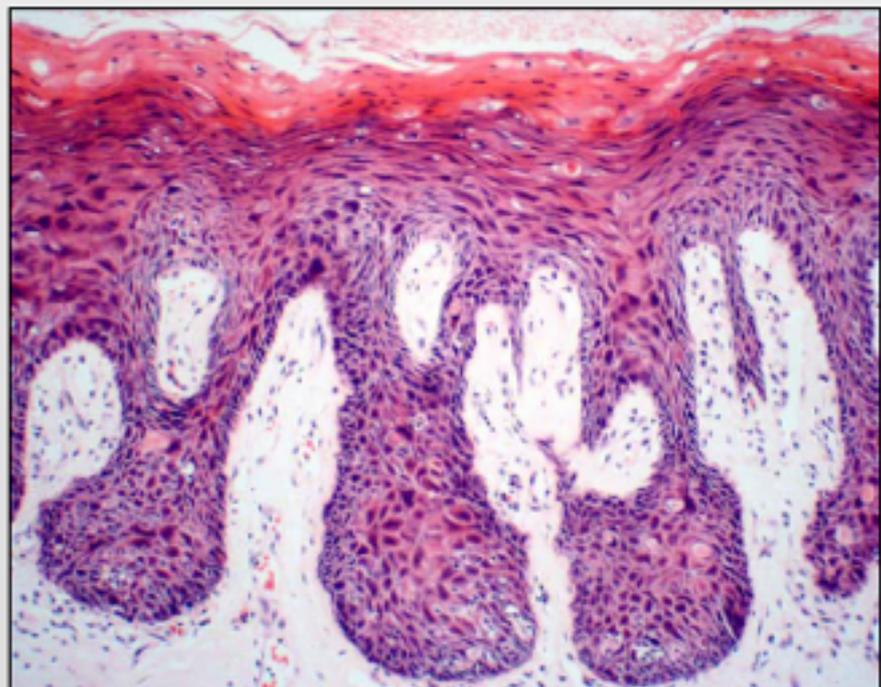
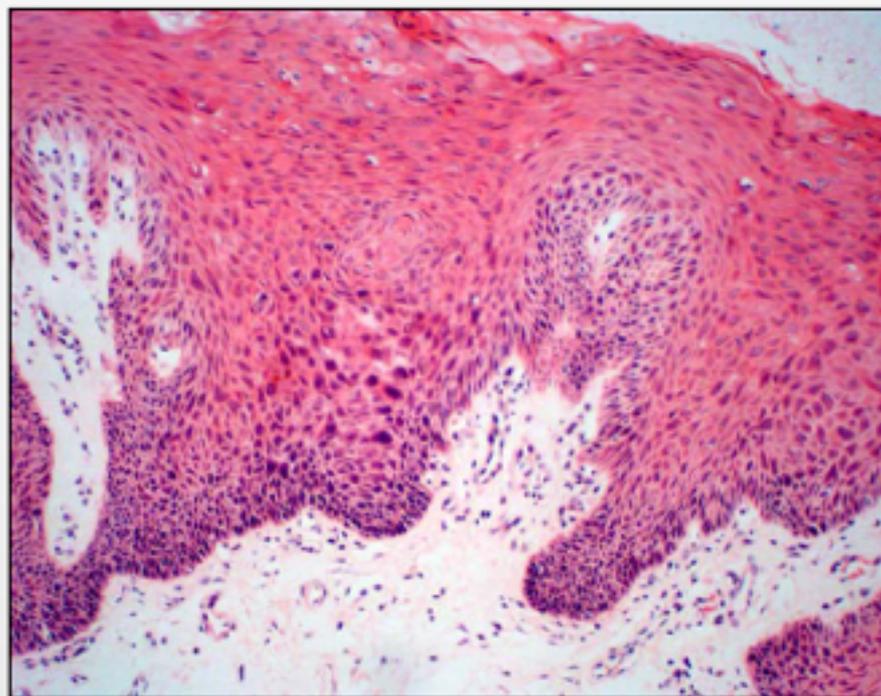
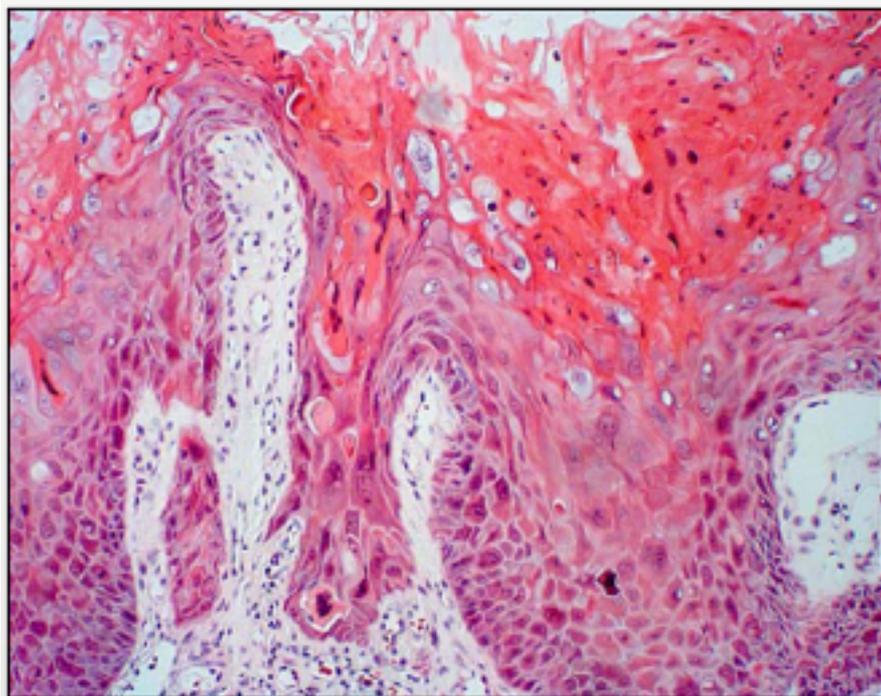
Pictures courtesy of Prof John Eveson





Necrotising sialometaplasia

- Usually arises on the palate
- Mean age 50 years
- M:F 3:1
- Appears as a 'malignant' ulcer
- Aetiology unclear – traumatic?
- Completely benign
- Heals spontaneously 4 -10 weeks
- Presents at a site which is rare for malignancy

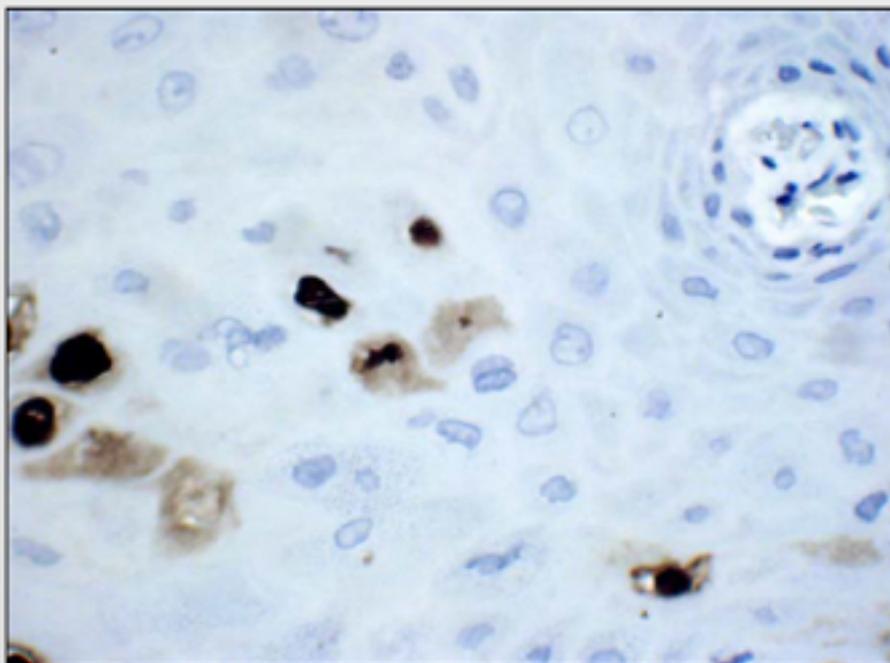
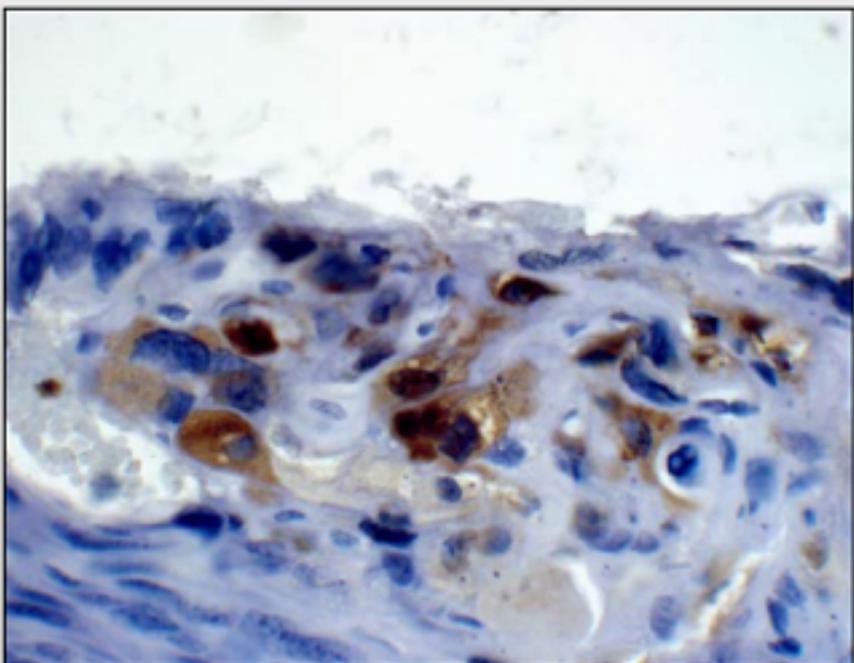
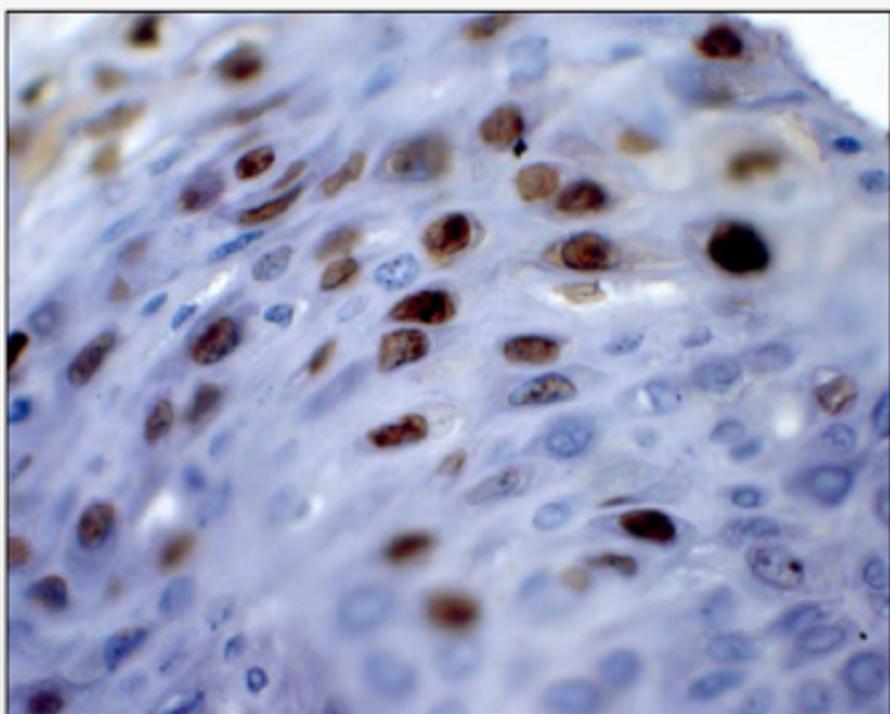
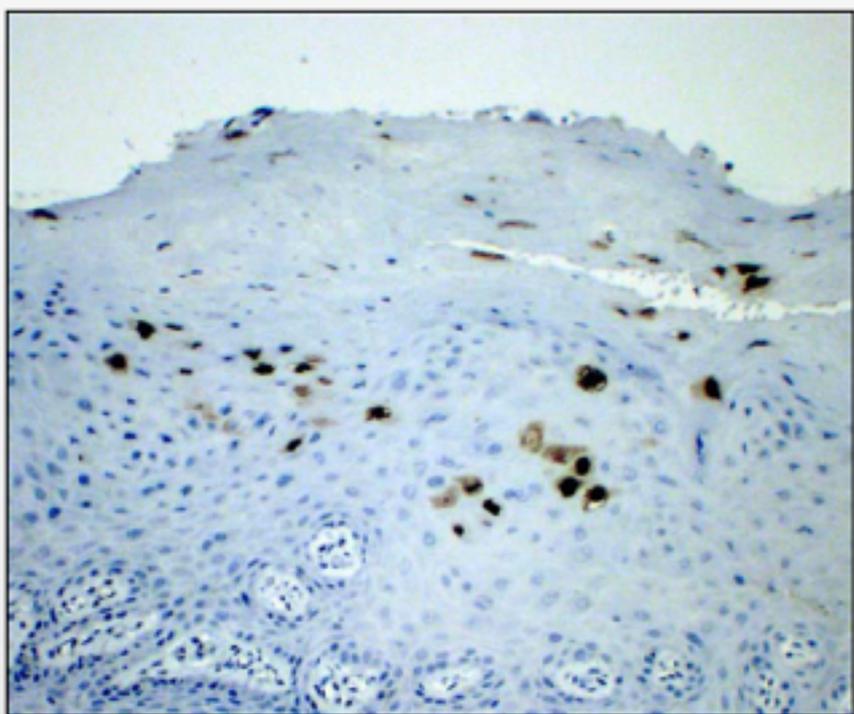


“Viral atypia”

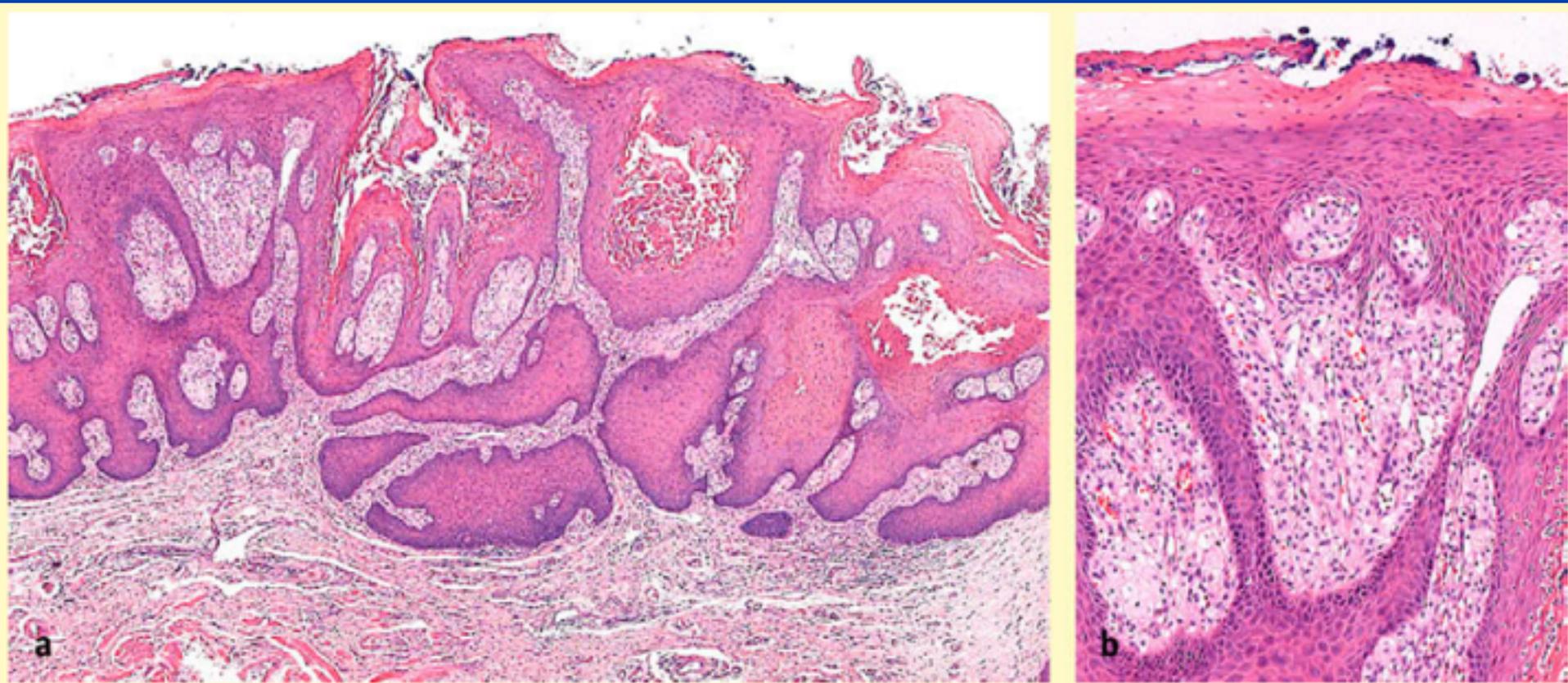
- Bizarre atypia
- HIV positive patients
- 80% HPV positive (IHC)



- Present as papillomas or condylomas
- Often multiple
- Not potentially malignant?

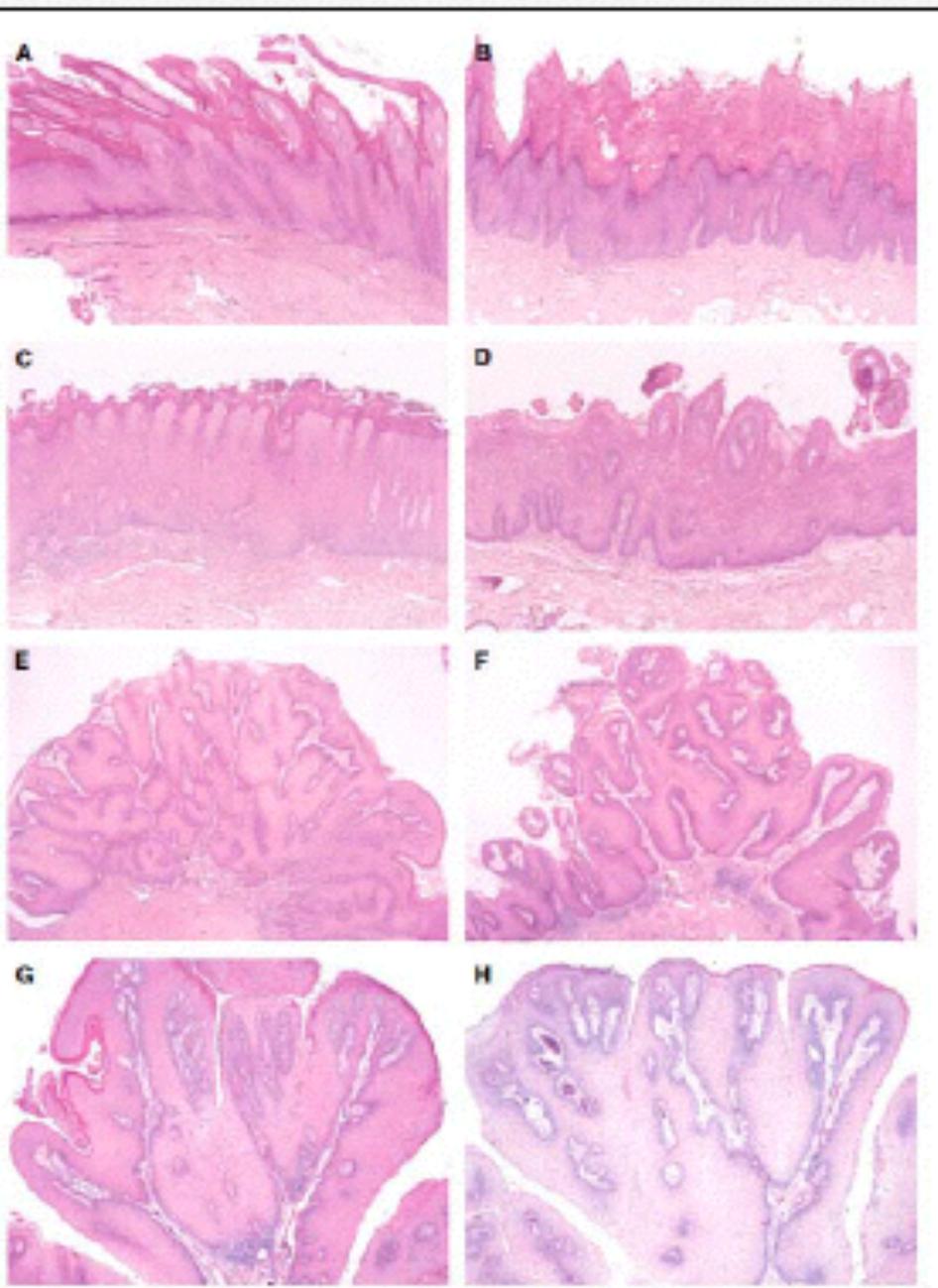


Verruciform xanthoma

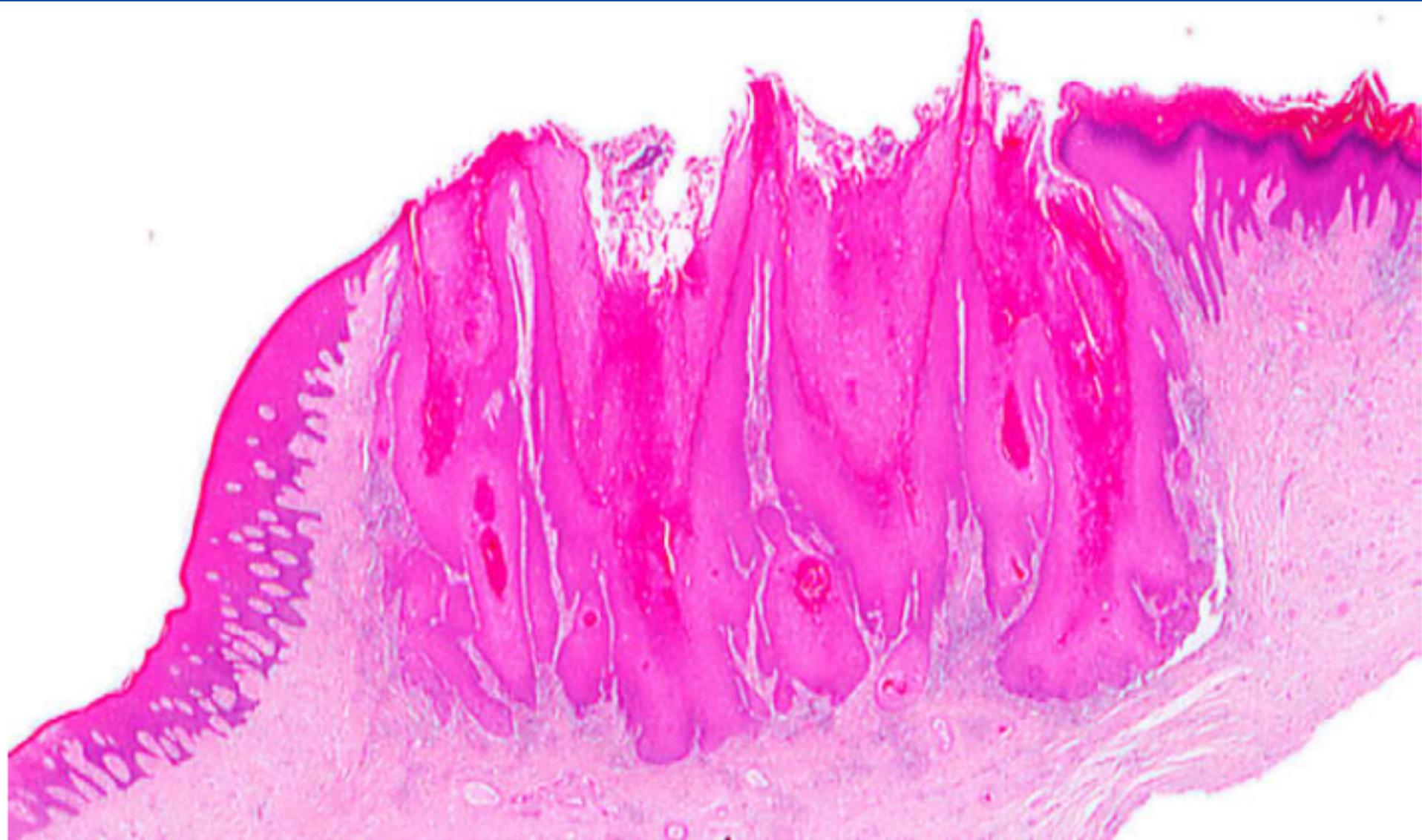


- Solitary, painless nodule on alveolar ridge or palate 5th-7th decade M or F unknown aetiology not HPV related
- Flat-topped occasionally spikey verrucous surface +/- candida
- Foamy histiocytes in vascular papillae

**Malignant conditions that can
look benign histologically**

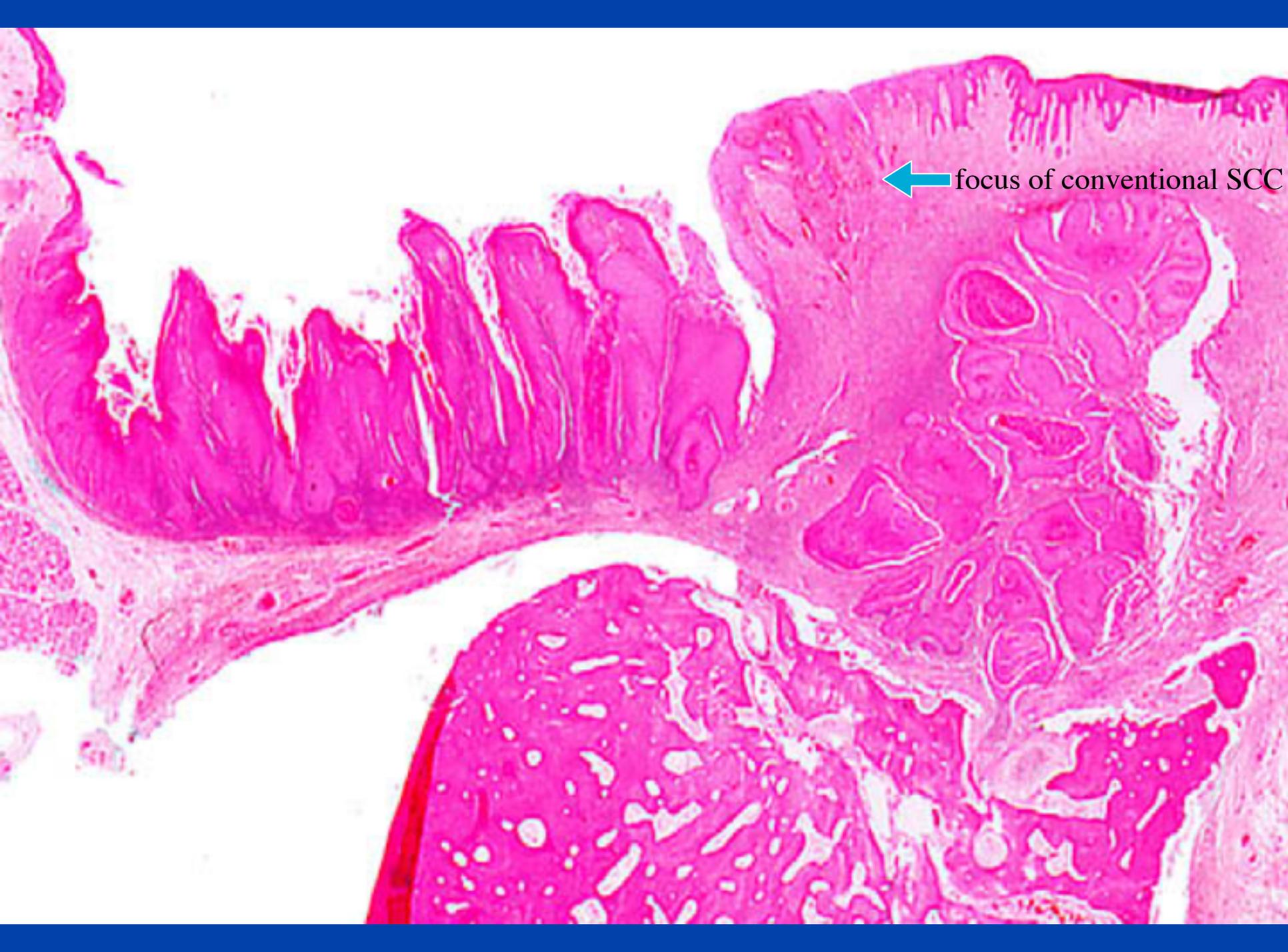


Verrucous carcinoma



Verrucous carcinoma

- First described by Ackerman (1948) demonstrated bone destruction
- Classically cheek / mandible gingiva
- Typical dysplasia or invasion and LN mets rule out this diagnosis
- Exo-endophytic growth, bulbous “elephant feet” rete processes +/- inflam
- Abrupt transition with adjacent epithelium is critically important
- Apparent “hybrid tumours” best described as conventional SCC

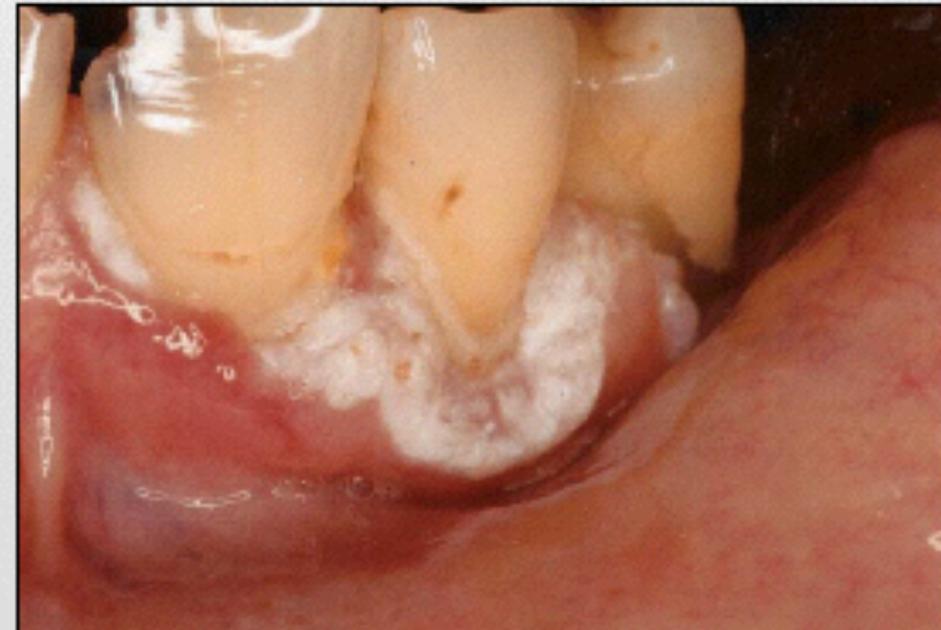


← focus of conventional SCC

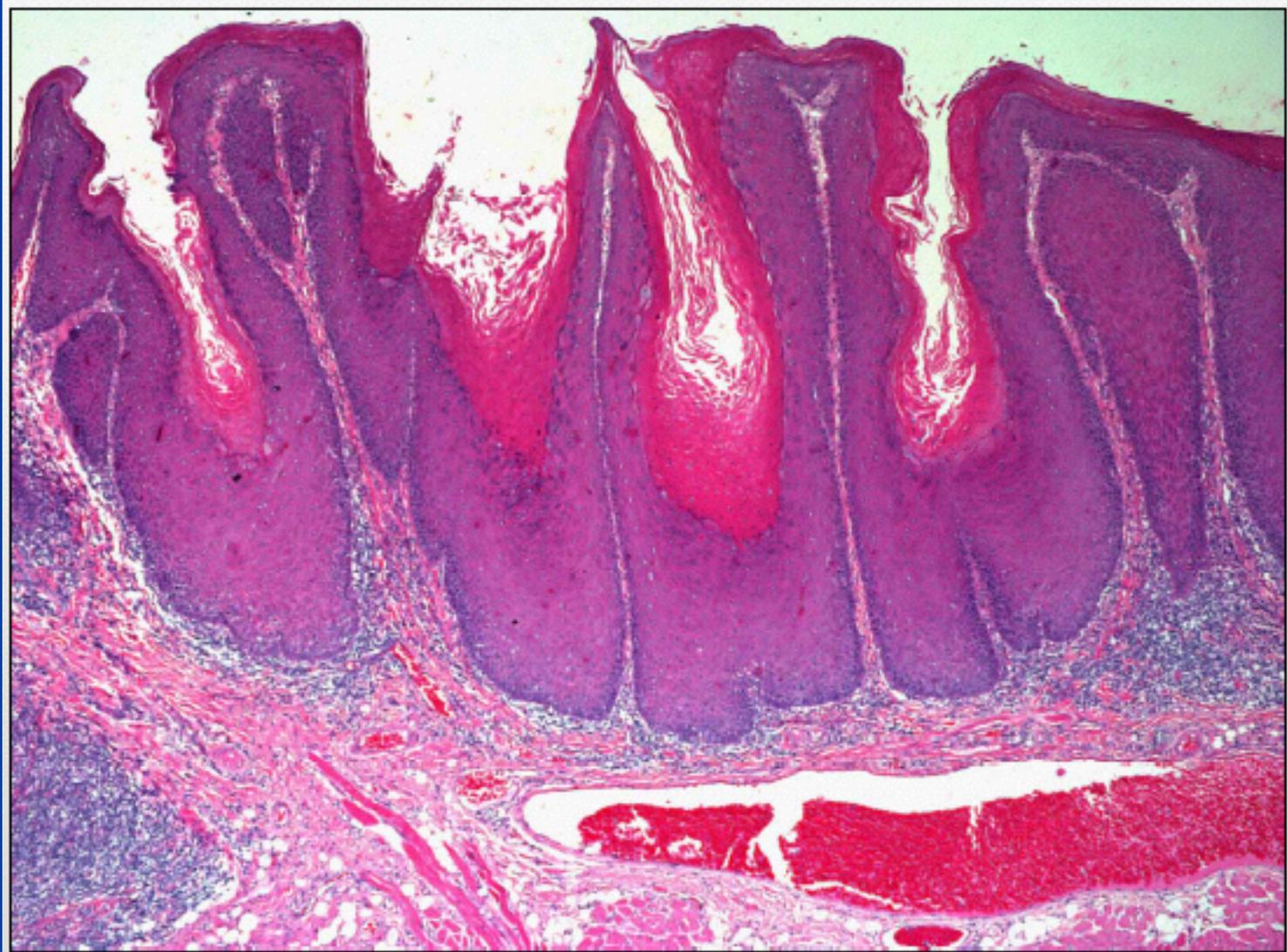
Verrucous hyperplasia

- Coined by Ackerman and later described in detail by Shear and Pindborg (1980)
- Variant or precursor of verrucous ca?
- No clear features that distinguish them!
- Same sites and clinical features although hyperplasia less common on palate and gingiva (easier to diagnose invasion here!)
- May be exophytic wrt to adjacent epithelium
- Must be clear that verrucous ca not excluded!

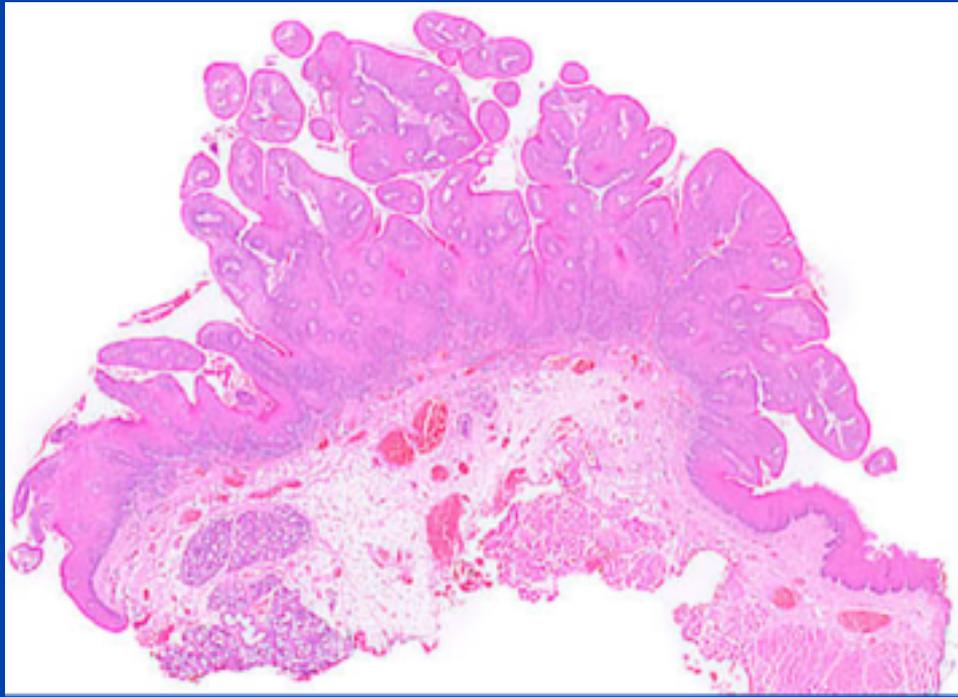
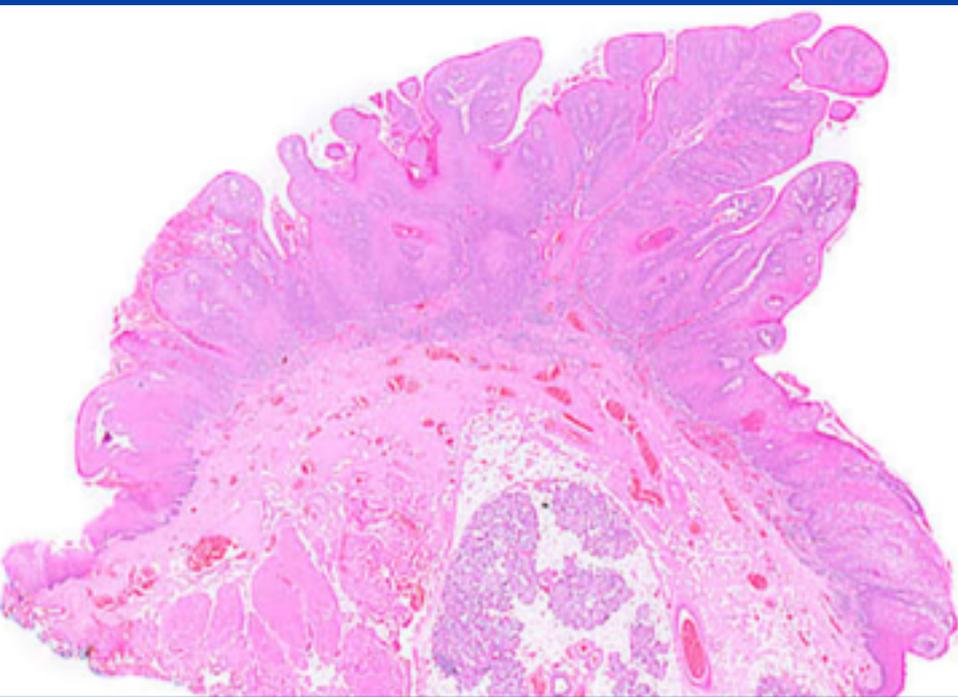
Verrucous hyperplasia or verr. ca?



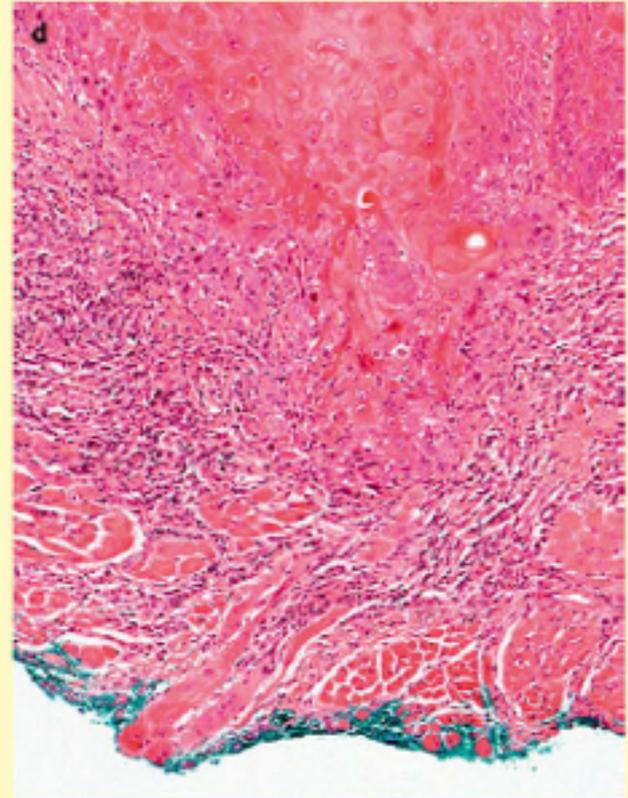
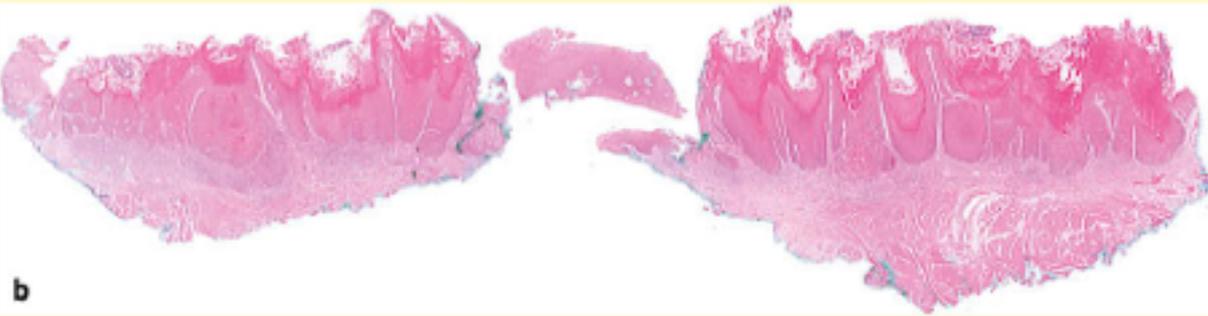
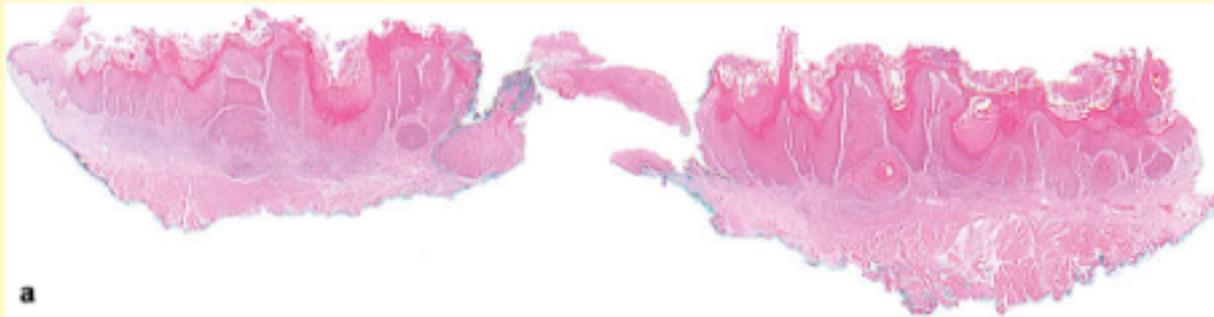
Verrucous hyperplasia with sharp exophytic processes



Verrucous hyperplasia with blunt exophytic processes



Section extensively to look for invasive carcinoma



'Sharp' verrucous hyperplasia with pointed, prominently hyperkeratinized surface projections. **a** There is an exophytic growth pattern with most rete ridges having a pointed or square deep aspect. **b,c** However, sectioning at multiple levels revealed there was also an endophytic growth pattern relative to the adjacent normal epithelium, with deeply probing rete ridges. **d** Furthermore, there is dyskeratosis at the deepest aspect of the elongated, widened, rounded rete ridge which probes into striated muscle. The final diagnosis in this case was 'severely dysplastic verrucous hyperplasia with evidence of early invasive squamous cell carcinoma'.

Verrucous hyperplasia and carcinoma are a spectrum of the same process and both require complete excision. Excision with a 5mm margin is likely to be curative and does not necessitate nodal dissection

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.....or extensive mapping biopsies?

When reporting neoplasms I think of the following categories

- Benign will probably not recur eg. Warthin tumour
- Benign will probably recur if not excised eg. PSA
- Lesions with a significant risk of progression / synchronous malignancy, eg. HGD, verruc hyp
- Capable of local destructive growth eg. Verr ca
- Expect regional spread eg. NK (HPV) SCC
- Expect distant metastasis e.g. SmCC, SDC



Don't forget the Edge (abruptness
of changes favours neoplasia)



Summary

- Benign things can look malignant and vice versa
- Clinical site and history vital in difficult cases
- Most are easy with an excision biopsy but must respect Hippocrates!

Questions?

