原文題目(出處)：	Incidental detection of an occult oral malignancy with autofluorescence imaging: a case report. Head & Neck Oncology 2009;1:37
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內文：

Abstract

a. Background:

1. **Autofluorescence** is used for diagnostic evaluation of various epithelial malignancies.
2. **Cancerous lesions** display **loss of autofluorescence** due to malignant changes in epithelium and subepithelial stroma.
3. **We use of autofluorescence imaging for detecting** a clinically innocuous appearing occult malignancy of the palate which upon pathological examination was consistent with a metastatic squamous cell carcinoma.

b. Case Description:

1. A **submucosal nodule** was noted on the **right posterior hard palate** of a 59 year-old white female during clinical examination.
2. Four years ago, this patient was diagnosed with **metastatic squamous cell carcinoma** of the right mid-jugular lymph node of **unknown primary**.
3. She was **treated with external beam irradiation** and remained disease free until current presentation.
4. Examination of this lesion using **autofluorescence at 405 nm illumination and excisional biopsy.**

c. Conclusion:

This case illustrates the **important role played by autofluorescence** tissue imaging in diagnosing a metastatic palatal tumour that appeared clinically innocuous and otherwise would not have been biopsied.

Background

1. Light-induced tissue autofluorescence examination is currently considered as a standard of care for screening and diagnostic evaluation of **early neoplastic changes of the skin**, **cervix, lung, bladder, gastrointestinal tract and oral cavity .**

2. **Dysplastic and cancerous tissues** often exhibit decreased blue-green autofluorescence and **appear darker** compared to uninvolved mucosa.

3. Most of this reduction in perceived fluorescence is attributed to diminished signal (detectable from the surface) that emanates from collagen crosslink within the **subepithelial stroma**.

4. Recently the U.S. Food and Drug Administration has approved autofluorescence-based oral mucosal screening devises which are marketed as **VELscope and Identafi™ 3000** for early detection of potentially malignant oral lesions.

5. Here we report of a case to highlight the value of tissue autofluorescence visualization in diagnosing a squamous cell carcinoma, metastatic to the palate, which **clinically presented as an innocuous appearing submucosal nodule.**

Case Report

1.Oral examination:
A **59-year-old white female** noticed a **submucosal nodule** on her **posterior hard palate** during routine oral examination.

2.Personal habits:
The patient had a **10-pack-year history of smoking** and **social consumption of alcohol**. The patient's family history was unremarkable.

3.Lesion size:
The patient was unaware of this lesion. This lesion was **covered by intact mucosa**, was non-fluctuant and had the consistency of an irritation fibroma. This submucosal nodule measured **0.8 cm** in greatest diameter and palpation of this nodule elicited **no tenderness or blanching**.

4.Past medical history:

Her medical history is significant for **cervical lymph node metastasis of squamous cell carcinoma from unknown primary**, hypertension, chronic obstructive pulmonary disease, hypothyroidism and depression.
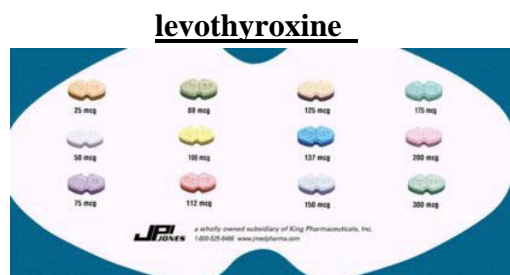
5.Diagnosis

The patient was diagnosed with **squamous cell carcinoma of unknown primary, metastatic to the right mid jugular lymph nodes** approximately **four years ago**. Various imaging studies were performed at the time which failed to identify the primary site of this tumour.

6.Treatment

The patient was treated with a course of **external beam radiation therapy to the pharyngeal axis and the neck.** Her oral mucosa and teeth were shielded from the direct radiation therapy beams.

7.Medications

Her current medications include **levothyroxine, enalapril malate and fluoxetine.**

| **levothyroxine**	**enalapril malate**	**fluoxetine**
甲狀腺低下用藥	高血壓用藥	憂鬱症用藥 From 奇美

醫院藥劑部網頁

8.Differential diagnosis:

Our clinical differential diagnosis for this palatal nodule included **traumatic fibroma and epidermoid cyst.**

9.Method:

However, because of her past medical history of metastatic disease, we examined this nodule using a multispectral oral cancer screening device (**Identafi™ 3000**).
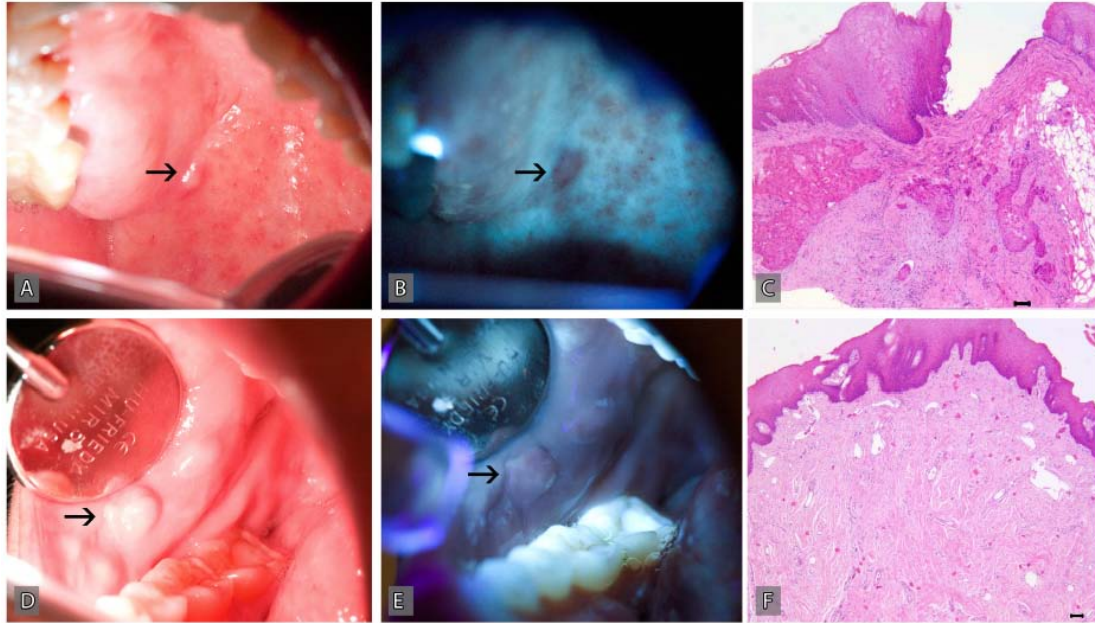
Patient was referred for **further evaluation and treatment**.

Discussion

1.Increasing need for additional non-invasive tests

→light-induced fluorescence visualization devices

→for detection and delineation of potentially malignant oral lesions

→The U.S. Food and Drug administration has approved two oral cancer
    screening devices namely, **VELscope®**   and **Identafi 3000™**

2.light-induced fluorescence visualization of oral mucosa

VELscope

→uses a **blue/violet light (400-460 nm)**

→illuminate oral mucosa and a specific filter allows the clinician to visualize tissue autofluorescence.

Identafi 3000

→**white, amber (560 nm)** to visualize the oral mucosal reflectance

→**violet (405 nm)** to visualize fluorescence.

3.Light-induced tissue fluorescence visualization technologies

→used increasingly as **non-invasive diagnostic**

→**biochemical and structural changes** associated with neoplastic
　transformation

4.The type of fluorophores being visualized:

→1) endogenous fluorophores (**autofluorescence**)

→2) fluorophores synthesized in tissue after administration of a
　　　precursor drug

→3) fluorophores injected as **exogenous drug**

5.The major fluorophores of oral mucosa

→flavin adenine dinucleotide **(FAD)**

→nicotinamide adenine dinucleotide **(NADH)**

Subepithelial stromal collagen fibers are the predominant source of
autofluorescence in oral mucosa

6.Normal mucosa V.S Specific components of mucosa

violet (405 nm Identafi™ 3000 system)

blue light (436 nm VELscope system)

→**normal mucosa** is illuminated by **high-intensity**

→**specific components of mucosa** (fluorophores) emit **low-energy light**

Reason：

malignant transformation

→ thickening of the epithelium

→ increased nuclear cytoplasmic ratio

→ enhanced cellular density

→ **decrease in collagen autofluorescence**

7.Recent studies

[a.]Roblyer et al. examined light-induced tissue autofluorescence at multiple
excitation wave lengths at **365, 380, 405 and 450 nm** could **differentiate** the
dysplastic epithelia and **carcinoma** from histologically **normal mucosa** with **95.9%
sensitivity** and **96.2% specificity**

[b.]Subclinical premalignant and malignant lesions that are **not visible on routine white light** oral examination become noticeable with direct autofluorescence visualization

[c.]Recent studies reported that **autofluorescence tissue imaging is more sensitive than routine white light examination** to determine surgical margins at the primary site that are free of histologic and molecular features of malignancy or dysplasia

8.Carcinoma of unknown primary site (CUP)

defined as **metastatic carcinoma present in the lymph nodes with no identifiable primary tumour** despite thorough clinical and radiographic evaluations.

The incidence of CUP, which represents up to **7% of all head and neck carcinomas**, has **reduced** in recent years due to the **use of multimodal imaging studies** to identify occult primary tumours.

Approximately **75% of CUP** occurring in the **cervical lymph nodes** in which the primary tumours were subsequently identified originated from the **head and neck area**,most frequently from the <u>**peritonsillar area and base of the tongue**</u>.

9.Our case

The patient in our case had no clinical evidence of primary tumour or recurrence for 4 years until she presented with the described palatal tumour. We **believe that this tumour represents a <u>second metastasis</u> and not a primary tumour**

because **the surface epithelium overlying** this submucosal tumour was not directly connected to the tumour island and did **not exhibit histologic features of dysplasia or malignancy** as noted with primary oral squamous cell carcinomas.

10.Conclusion

multispectral tissue autofluorescence is a new and powerful technology that can be used for multiple diagnostic applications.

題號	題目
1	**Which is not symptom of epithelial dysplasia ?** **(A) Abnormal mitosis** **(B) Pleomorphism** **(C) Keratin pearl** **(D) Hyperkeratosis**
答案 (D)	**出處：Oral and Maxillofacial Pathology,Neville 2nd p.343**
題號	題目
2	**Which item about Squamous cell carcinoma is right?** **(A) Associate with smoking** **(B) Most metastasis of breast** **(C) Most predilection of female** **(D) Decrease with age**
答案 (A)	**出處：Oral and Maxillofacial Pathology,Neville 2nd p.321**