Synchronous thyroid carcinoma and squamous cell carcinoma. A case report

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ABSTRACT

Thyroid carcinoma occuring as a second primary associated with head and neck squamous cell carcinoma (SCC) is unusual. This report presents a synchronous thyroid carcinoma and squamous cell carcinoma in the anterior palate region of a 41-year-old man. The clinical, radiologic, and histologic features are described. At 10-month follow-up after operation, no evidence of recurrence and metastasis was present. ***(Korean J Oral Maxillofac Radiol 2006; 36 : 221-6)***

KEY WORDS : Carcinoma, Thyroid; Squamous Cell, Second Primary

The occurrence of multiple primary cancers in the head and neck squamous cell carcinoma (SCC) populations is not uncommon.[1] Lung and oral cavity are the most common second primary sites, and the pathology of these second primaries is usually SCC.[1-2] The incidence of differentiated thyroid carcinoma occuring as a second primary associated with head and neck SCC is unusual and can be discovered in one of several ways: as a focus of occult carcinoma discovered in the thyroid lobe removed during laryngoectomy, as a palpable thyroid mass, or as thyroid tissue or thyroid cancer that is found in the lymph nodes of the neck dissection specifimen.[1,3-5] Among 2,855 patients treated for squamous cell carcinoma of the tongue at the University of Texas M.D. Anderson Cancer Center, eight patients had coexisting differentiated thyroid cancer metastatic to cervical lymph nodes which was found incidentally during regional lymph node dissection.[5]

Earlier studies have demonstrated that up to 5% of patients with cancer of the head and neck may harbor clinically unsuspected thyroid cancer.[3]

We report a case of synchronous thyroid cancer and SCC in a 41-year-old man, and review the literature.

Case report

A 41-year-old man was referred to the Chonnam National University Hospital (CNUH) by a local dental clinic for evaluation of localized swelling in the anterior palate in December 9, 2005. The patient had a thyroid cancer. He noticed neck mass about 1.5month ago, it was diagnosed thyroid cancer from local hospital. Also, he noticed mobility of upper anterior teeth and slightly swelling of the anterior palate about 1 month ago.

The intraoral examination revealed 4 cm sized swelling of the anterior palate. The mucosa ovelying the lesion was normal (Fig. 1).

Cervical examination revealed palpable lymphadenopathies in both upper necks, more marked on the right. Panoramic radiograph and intraoral radiograph examination showed that destroyed the alveolar bone supporting from the right first premolar to the left premolar area (Figs. 2, 3). In intraoral radiograph, destroyed the lamina dura of adjacent teeth (Fig. 3). Computerized tomography (CT) revealed an about 4 cm

Fig. 1. The intraoral examination shows 4 cm sized swelling of the anterior palate.

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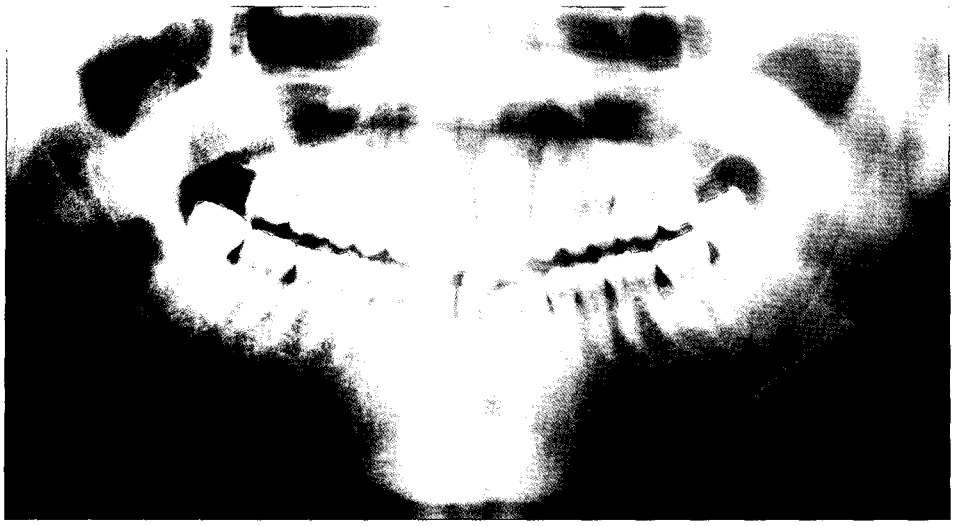

Fig. 2. Panoramic radiograph shows destroyed the alveolar bone supporting from the right first premolar to the left premolar area.

Fig. 3. Intraoral radiographs show destroyed the lamina dura of adjacent teeth.

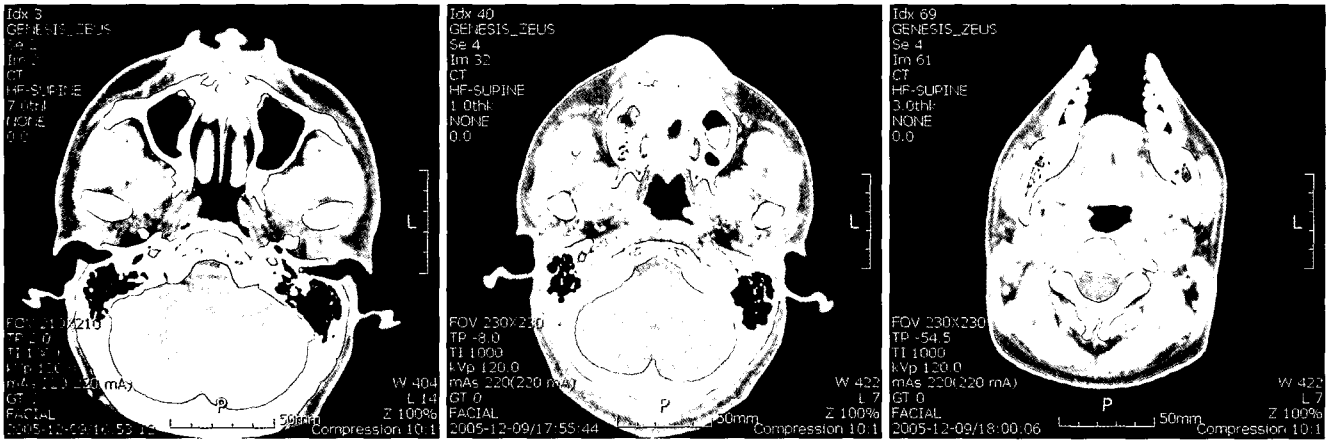

Fig. 4. CT scans shows irregular bony destructive change in hard palate with extraosseous mass formation and multiple homogeneous lymphadenopathies in both upper necks.

sized irregular bony destructive change in hard palate with extraosseous mass formation and there were multiple homogeneous lymphadenopathies in both upper necks, more marked on the right (Fig. 4). Radiographic impression was concluded as metastatic malignant bony tumor involved hard palate and metastatic lymphadenopathies in both upper neck. Because the patient had a known thyroid cancer. Preoperatively, the patients were imaged with a Discovery ST PET/CT SYSTEM (General Electric Medical Systems, Milwaukee, WI) which provides three-demensional acquisition, processing

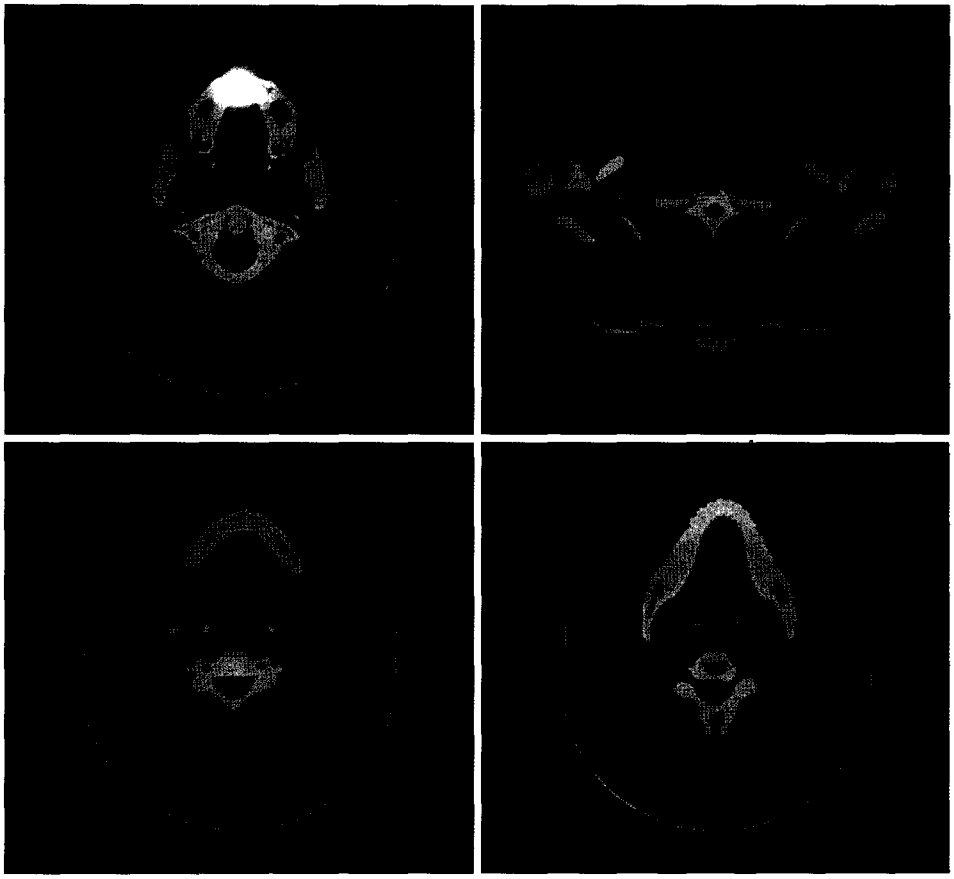

Fig. 5. PET/CT scans show increased FDG uptake in the hard palate, both thyroid glands and cervical lymph nodes.

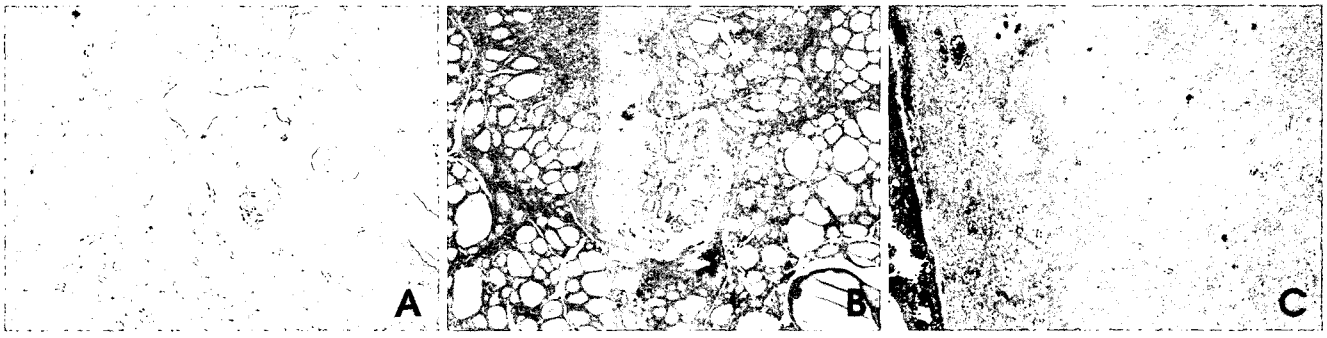

Fig. 6. Photomicrographs show well differentiated SCC of maxillary segments (A. H & E stain, ×40), papillary carcinoma of right thyroid lobe (B. H & E stain, ×40), and SCC of right lymph node (C. H & E stain, ×40).

and display of CT, PET and PET/CT images with 3.27 mm PET spatial resolution and a 8 slice CT scanner. Whole body PET/CT imaging was performed in fasting patients (6 h) following i.v. administration of 370 MBq (10 mCi) of 18F-FDG. Neither oral nor intravenous contrasts were administered. After a 60-min uptake period, during which patients were instructed to rest silently, images were acquired. Increased FDG uptake were noted in the hard palate (max SUV=17.4), both cervical lymph nodes (right IB=6.2, II=6.8, left=3.9, II=4.7), and both tyroid glands (right tyroid lobe=3.2) (Fig. 5). Subtotal maxillectomy and both modified neck dissection were performed. Also, total tyroidectomy and tracheostomy were performed.

Histologically, surgical specimen consisted of a well differentiated SCC of maxillary segments and papillary carcinoma of right tyroid lobe. The tumor tissue consisted of irregular nests of abundant keratinization. Sections from right submandibular and upper jugulodiagastic regional lymph nodes

revealed SCC invasion but left side were not invaded by SCC (Fig. 6). At 10-month follow-up after operation, no any evidence of a recurrence and metastasis.

Discussion

Papillary carcinoma (PC) belongs to well-differentiated thyroid cancers. It is most common of all thyroid cancers and is among the most curable cancers. The annual incidence rate of PC in different parts of the world varies from 0.5-10 per 100,000 populations.[6] Clinically, PC presents as asymptomatic thyroid nodules, it is usally single, firm, freely moveable during swallowing. and it is not distinguishable from benign nodule.[6-7] A thyroid nodule should be suspected of being a carcinoma when it is found in children or adolescents or in patients above 60 years, and when there is a history of progressive increase in size.[6]

Occasionally the first signs of the disease are lymph node metastases and rarely lung metastases. Hoarsenes, dysphagia, cough and dyspnea are suggestive of advanced stages of the disease.[6-7]

Not infrequently in adults an especially in children, the initial manifestation of thyroid carcinoma may be a palpable lymph node in the neck. Palpable metastatic adenopathy is most often found along the middle and lower portions of the jugular vein.[7] Ultrasound examination is relatively inexpensive and easy to perform, but the interpretation is very dependent on the experience of the imaging expert. Ultrasound is extremely sensitive and can establish the consistency of the nodule, the presence of calcification, multicentricity, and the presence of lymph node enlargement.[7]

About 1 month ago, ultrasound examination of both cervical lymph node was performed in local hospital, and multiple globular enlarged lymph nodes were found. Because of drying artifact, fine needle aspiration cytology of lymph nodes were failed.

SCC is the most common malignant tumor of the head and neck and represents 93% of all malignant tumor of the oral cavity.[8] It is characterized initially by invasion of malignant epithelial cells into the underlying connective tissue with subsequent spread into deeper soft tissues adjacent bone local-regional lymph nodes and ultimately to distant sites such as the lung, liver, and skeleton.[9] Totalling 3-4% of all carcinomas, it is the 11th most frequent cause of cancer deaths, with a tendency to dominate the 50-to 60-year old male population, particularly heavy smokers and drinkers.[10]

SCC appears initially as white or red (sometimes mixed) irregular patchy lesions of the affected epithelium. With time, these lesions exhibit central ulceration; a rolled or indurated border, which represents peripheral invasion of malignant cells; and palpable infiltration into adjacent muscle or bone. Pain may be variable, and regional lymphadenopathy characterized by rubbery-hard lymph nodes that may be tethered to underlying structures may be present. Other clinical features include a soft tissue mass, paresthesia, anesthesia, dysesthesia, pain, foul smell, trismus, grossly loosened teeth, or hemorrage. SCC commonly involves the lateral border of the tongue. Therefore a common site to observe bone invasion is the posterior mandible. Lesions of the lip and floor of the mouth may invade the anterior mandible. Lesions involving attached gingiva and underlying alveolar bone may mimic inflammatory disease such as periodontal disease.[9]

The patient thought mobility of upper anterior teeth and swelling of anterior palate as periodontal disease, so he delayed an evaluation of loosened teeth and swelling of anterior palate.

Early diagnosis is crucial to an improved survival rate.[11] It is important to have any inflammatory apperance of mouth persists for more than 14 days, looked at by a professional. And a biopsy is mandatory.[12]

The important role of general dental practitioners in the prevention and detection of oral cancer is undeniable. Examination of the oral mucosa for benign and malignant lesions as well as oral manifestations of systemic disease should be a part of the dentist's routine clinical examniation.[13]

SCC is also seen on the tonsils, soft palate, and buccal vestibule.[9] In the hard palate, squamous cell carcinomas are relatively uncommon.[9,14] The hard palate has a plethora of minor salivary glands which are capable of transforming into neoplams. Carcinomas of the hard palate are thus often of salivary gland origin rather than squamous cell.[14]

SCC may erode into underlying bone from any direction, producing a radiolucency that is polymorphous and irregular in outline. Invasion occurs in one half of cases and is characterized most commonly by an ill-defined, non cortical border.[9]

Our case showed this features (Figs. 2-4).

We used the PET-CT scans to identify the presence of malignancy and the metastases.

Routine interpretation of 18F-FDG PET scans may reveal incidental hyermetabolic foci that are probably unrelated to the neoplasms for which these patients are initally scanned.[15]

PET-CT images showed hard palate malignancy with metastases to both cervical lymph nodes and known thyroid cancer. But, the left cervical lymph nodes were not invaded by

a carcinoma histologically.

The presence of metastatic disease in the cervical lymph nodes in head and neck malignacy is crucial for treatment planning and evaluating the prognosis.[16,17]

In 1998, the Radiological Diagnostic Oncology Group compared CT and MR imaging in the staging of neck metastases and found that CT performed better for all interpretive criteria, especially if both nodal size and internal abnormalities were considered. However, a high negative predicative value was achieved only when small nodal size was considered, and this was associated with a low positive predicative value. 16% of the patients with negative imaging would actually have metastases, while 50% of the patients with positive imaging would not have metastases.[18]

At present, neck dissection with histologic examination is the most reliable staging procedure that provides important prognostic information, but is does involve the resection of a large amount of non diseased tissue from neck.[16] False positive ^{18}F-FDG PET findings were mainly due to its inherent inability to discriminate inflammatory processes from tumor infiltration since high level matabolic changes occur in both instances.[16]

The occurrence of multiple primary malignancies is a well-known fact in oncology. Rates between 2% and 10% have been described in autopsy cases.[19]

Thyroid carcinoma occuring as a second primary associated with head and neck SCC is unusal.[1,3-5,20] In the cases reported in the literature, all patients initially presented signs and symptoms strictly related to SCC.[21-23]

94% of patients were men, with mean age of 60 years.[20] Similar figures were reported by Pacheco-ojeda et al.[21] and Ansari-Lari, et al.,[22] while in the series form the The University of Texas M.D Anderson Cancer Center,[5] 63% of the patients were male with a mean age of 50 years. The associated with thyroid carcinoma was always detected as a consequence of the surgical treatment of head and neck SCC.[5,21-23] But we observed the inverse situation in which head and neck SCC has been detected during the follow-up for thyroid cancer.

Thyroid cancer was more frequently found in patients with head and neck SCC having an unfavorable outcome. The 5-year ouverall survival was only 41%.[20]

Larson JT et al. reported that the recognition of a second primary carcinoma in a patient with known head and neck cancer is considered a poor prognostic sign. The incidence of second primary tumors diagnosed within 1 month of the head and neck carcinoma was 5.8%. Each patient with a newly diagnosed head and neck cancer has a one in four chance of developing a second malignant tumor. Therefore the original treatment plan must make provisions of adjustments for an expected second primary malignancy. After a patient has undergone treatment of his of her first head and neck tumour, he or she will require careful follow-up.[2]

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