Papillary carcinoma of the thyroid is the most common thyroid malignancy accounting for 80% of all thyroid cancers, and predominantly occurs in the third and fourth decades of life [1,2]. Papillary carcinomas have a propensity for lymphatic metastasis, and often, metastatic lymph nodes are palpable without the primary tumor being evident [3]. Although rare, cystic metastasis in the neck lymph node can occur, and papillary thyroid carcinoma may present as a lateral neck cyst mimicking a branchial cyst [4]. In differentiating a solitary cystic nodal metastasis from a branchial cleft cyst, radiographic evaluation by ultrasound or computed tomography (CT) may raise the suspicion of malignancy, but biopsy is the only way to confirm the diagnosis. Fine needle aspiration cytology (FNAC) is quick and easy to perform without any obvious complications, and thus should be arranged in such patients.

Although most lateral cervical cysts in young adult patients are found to be benign, lymphatic cystic metastasis of an occult thyroid papillary carcinoma should be considered, and, even if a true branchial cleft cyst has been diagnosed histopathologically, there may be concurrent metastatic thyroid papillary carcinoma. Our objective is to draw the reader’s attention to the possibility of metastasis from an unsuspected thyroid carcinoma in young patients presenting with cystic neck mass mimicking branchial cleft cyst.
Branchial cyst as first impression of thyroid papillary carcinoma

Case Presentations

Case 1
A 38-year-old man presented with a 1-month history of a painless right-sided neck mass. Clinical examination revealed a 4.5 × 5.5 cm smooth, round, non-tender, mobile mass at the anterior border of the middle third of the right sternocleidomastoid muscle. CT scans of the neck mass revealed a well-defined cystic lesion (Figure 1A). He was admitted for further treatment under the impression of branchial cleft cyst. At resection, no tract was discovered connecting the cyst to the pharynx or hyoid bone and it was removed intact. Grossly, the excised specimen revealed a thin-walled cyst with chocolate-brown fluid content suggestive of previous hemorrhage (Figure 2A). Pathologic examination showed the specimen to be a papillary carcinoma with a prominent cystic change in an enlarged lymph node (Figure 3A). Postoperative thyroid ultrasound demonstrated nodules in both thyroid lobes. FNAC of the thyroid nodules showed colloid stain and was negative for malignancy. On retrospective examination of the CT scans, a nodular mass was noted at the posterior aspect of the right lobe, next to the esophagus, which can be difficult to access. Total thyroidectomy with bilateral selective nodal dissection was performed. Pathologic examination confirmed a unifocal papillary thyroid carcinoma, 1 × 1 cm in size, in the right thyroid lobe, without vascular and capsular invasion. Bilateral lymph nodes showed metastatic papillary carcinomas. The patient was put on thyroid replacement therapy and remains well after 16 months.

Case 2
A 24-year-old man presented with a 3-month history of a painless right-sided neck mass. Clinical examination
revealed a 4 × 6 cm non-tender, oval, movable mass with a smooth surface at the posterior border of the inferior third of the right sternocleidomastoid muscle. After the experience of treating Case 1, thyroid ultrasound was arranged, which revealed the neck mass (Figure 1B); a single nodule in the right thyroid lobe was also noted. Cytologic examination by fine needle aspiration of the cyst revealed chocolate-brown fluid grossly, and foamy macrophages without malignant cells. At extirpation of the cystic mass, no tract was found connecting the cyst to the pharynx or hyoid bone. In addition, two adjacent enlarged lymph nodes, both measuring 1 × 1 cm with cystic change, were also found and were excised at the same time (Figure 2B). The gross appearance of the removed specimen showed a thin-walled cyst with chocolate-brown fluid, similar to that of Case 1. Histopathologic examination revealed a branchial cleft cyst lined with ciliated cuboidal epithelium with lymphoid stroma (Figure 3B). The two lymph nodes were found to contain metastatic papillary carcinomas. Neck CT identified a hypodense nodule in the right thyroid lobe, comparable with the findings of thyroid ultrasound. Total thyroidectomy was performed and no other pathologic lymph nodes were found. Pathologic examination confirmed a papillary carcinoma, 0.5 cm in largest diameter, in the left lobe, without extension beyond the thyroid gland, and a nodular goiter in the right lobe. The patient was put on thyroid replacement therapy and remains well 5 months later.

**DISCUSSION**

Branchial cysts most often appear in the second or third decades of life. In one review of 33 proven branchial cysts, it was noted that FNAC and CT or magnetic resonance imaging are useful for diagnosis [5]. In our two patients, the clinical pictures were those of typical branchial cysts without other palpable masses in the thyroid and neck during physical examination. Before extirpation of the cysts, CT of Case 1 showed a well-defined cystic mass; the final diagnosis was cystic change of a metastatic lymph node. FNAC was performed in Case 2 and revealed no malignant cells in the cyst; the pathologic diagnosis was branchial cleft cyst.

Cervical metastasis in patients with occult thyroid carcinoma has been stated to occur in 30% of all cases of thyroid carcinoma [6], and these metastatic lymph nodes usually present as palpable solid masses in the anterior and lateral aspects of the neck. Rarely, as in Case 1, metastatic lymph node liquefaction of papillary thyroid carcinoma may present as a solitary neck cyst, and there have been little more than 35 such cases reported in the literature [4,7]. In patients with lateral neck cysts, an incidence of occult thyroid malignancy of approximately 11%, with a mean age of 29 years, was reported in one setting [7].

In patients initially presenting with lateral neck cysts, it might be difficult to make a clinical differentiation between a cystic lymph node metastatic from...
an impalpable occult thyroid papillary carcinoma and a benign cervical cyst. Because treatment in such cases is very different from those for benign cervical cysts, it is of crucial importance that early detection of thyroid cancer in patients with a cervical cyst leads to improved mortality rate. In one analysis of patients with thyroid carcinoma, the mortality rate increased two- to three-fold with a 1 year delay in diagnosis [8]. In such a context, metastasis from papillary thyroid carcinoma should be considered in young patients who present with a branchial cyst. Ectopic thyroid papillary carcinoma may occur within a branchial cleft cyst, with several such cases having been reported [2,9–11].

The initial assessment of a patient who presents with a neck mass should include a thorough evaluation of the head and neck, a survey of the risk factors for malignancy, an FNAC analysis, and imaging with ultrasound or CT. Because of the cystic structure of the lesion, FNAC may not be diagnostic, as in Case 2. The accuracy of FNAC in the diagnosis of cystic neck masses varies, with a false-negative rate ranging from 50% to 67% [12]. Ultrasound or CT may be used to evaluate such a cystic mass, providing important structural information. Low-density, well-defined unilocular masses with thin uniform enhancing rims are typically seen on CT scans of branchial cleft cysts. However, one previous report suggested that cystic metastasis of occult thyroid papillary carcinoma must be considered when enhanced elements on CT images are demonstrated within a cervical cystic lesion [13], like that for Case 1. Similarly, on ultrasound images, some authors report that an irregularly thick wall, internal debris and the presence of solid echogenic components adherent to the wall were specific for cystic metastasis of occult thyroid papillary carcinoma [14]. On the other hand, FNAC, ultrasound and CT cannot take the place of a tissue diagnosis, and an excisional biopsy should be performed for both diagnostic and therapeutic purposes.

According to Sidhu et al [2], the cystic lesion in Case 2, which was lined with a ciliated cuboidal epithelium with lymphoid stroma, is a typical branchial cleft cyst. No evidence of intracystic malignancy was found, with the exclusion of ectopic thyroid papillary carcinoma. Thus, our second patient is a case of concurrent branchial cleft cyst and thyroid papillary carcinoma with metastatic lymph nodes. This is a very rare condition with only one previous case ever having been reported [13].

In summary, the presentation of a thyroid papillary carcinoma as a branchial cleft cyst has been reported in three situations: cystic lymph node metastasis of thyroid papillary carcinoma; ectopic thyroid papillary carcinoma within a branchial cleft cyst; and, most rarely, a true branchial cleft cyst with concurrent lymph node metastasis of thyroid papillary carcinoma.

REFERENCES
鰓裂囊腫為轉移性甲狀腺乳突癌的初期
表現：二病例報告

紀宏昇
王凌峰
江鴻祥
郭文烈
李家和

高雄醫學大學附設醫院 耳鼻喉科

高雄醫學大學 醫學院醫學 系 耳鼻喉學科

鰓裂囊腫是側頸部囊腫中最常見的病灶，常發生在三十多歲，無性別傾向，少數鰓裂囊腫會與從口、鼻、咽、及甲狀腺之轉移性惡性腫瘤有關；潛隱性甲狀腺乳突癌轉移常以側頸部實心腫塊表現，僅有很少的病例以鰓裂囊腫特徵為初期症狀。我們報告二例轉移性甲狀腺乳突癌的患者，以側頸部囊腫為表現的臨床病例，術前診斷皆為鰓裂囊腫，經由完整的手術切除及病理組織學檢查，一例為甲狀腺乳突癌淋巴轉移之囊性變化，另一例為鰓裂囊腫併同時存在之甲狀腺乳突癌淋巴轉移。對臨床上表現，或組織學上證明為鰓裂囊腫的患者，轉移性甲狀腺乳突癌應納入鑑別診斷。

關鍵詞：鰓裂囊腫，甲狀腺乳突癌

(高雄醫誌 2007;23:634－8)