

## 초음파에서 낭성 결절로 보인 갑상선 수질암: 증례 보고

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## Medullary Thyroid Carcinoma Presenting as a Predominantly Cystic Mass on Ultrasonography: A Case Report

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Most medullary thyroid carcinomas show suspicious malignant features such as hypoechogenicity, a spiculated margin and/or intranodular calcifications, which are well known features of papillary carcinoma. We report here on a case of medullary carcinoma that was seen as a predominantly cystic thyroid mass on ultrasonography. This type of case is not common in the literature and we discuss the way to diagnose a medullary thyroid carcinoma.

**Key words :** Medullary thyroid carcinoma; Ultrasonography; Neck

## Introduction

Although thyroid nodule is now a common disease entity due to the widespread use of ultrasonography (US), the reported malignancy rate for this lesion is relatively low [1]. The US features are important to distinguish malignant nodules from benign nodules as well as to decide whether or not to perform biopsy [1]. Most medullary thyroid carcinomas (MTCs) are seen as solid nodule with suspicious US features such as hypoechogenicity, a spiculated margin and/or intranodular calcifications, and these are well known features of papillary carcinoma [2]. Here we report on a case of MTC that was seen as a predominantly cystic thyroid mass on ultrasonography and we discuss the

way to diagnose a medullary thyroid carcinoma.

## Case Report

A 50-year-old man was referred to our hospital for US-guided fine needle aspiration biopsy (FNAB) of a palpable neck mass. US was performed with a 5- to 12-MHz linear array transducer (iU22; Philips Medical Systems). The initial US showed a 3.6 cm predominantly cystic mass in the left entire thyroid lobe, and this was interpreted as being a probably benign lesion (Fig. 1). The FNAB was performed at the peripheral solid portion after 6 cc of brownish fluid was aspirated and the result was a smear with a paucity of cells. Due to the initial inadequate cytological result, follow-up FNAB was performed

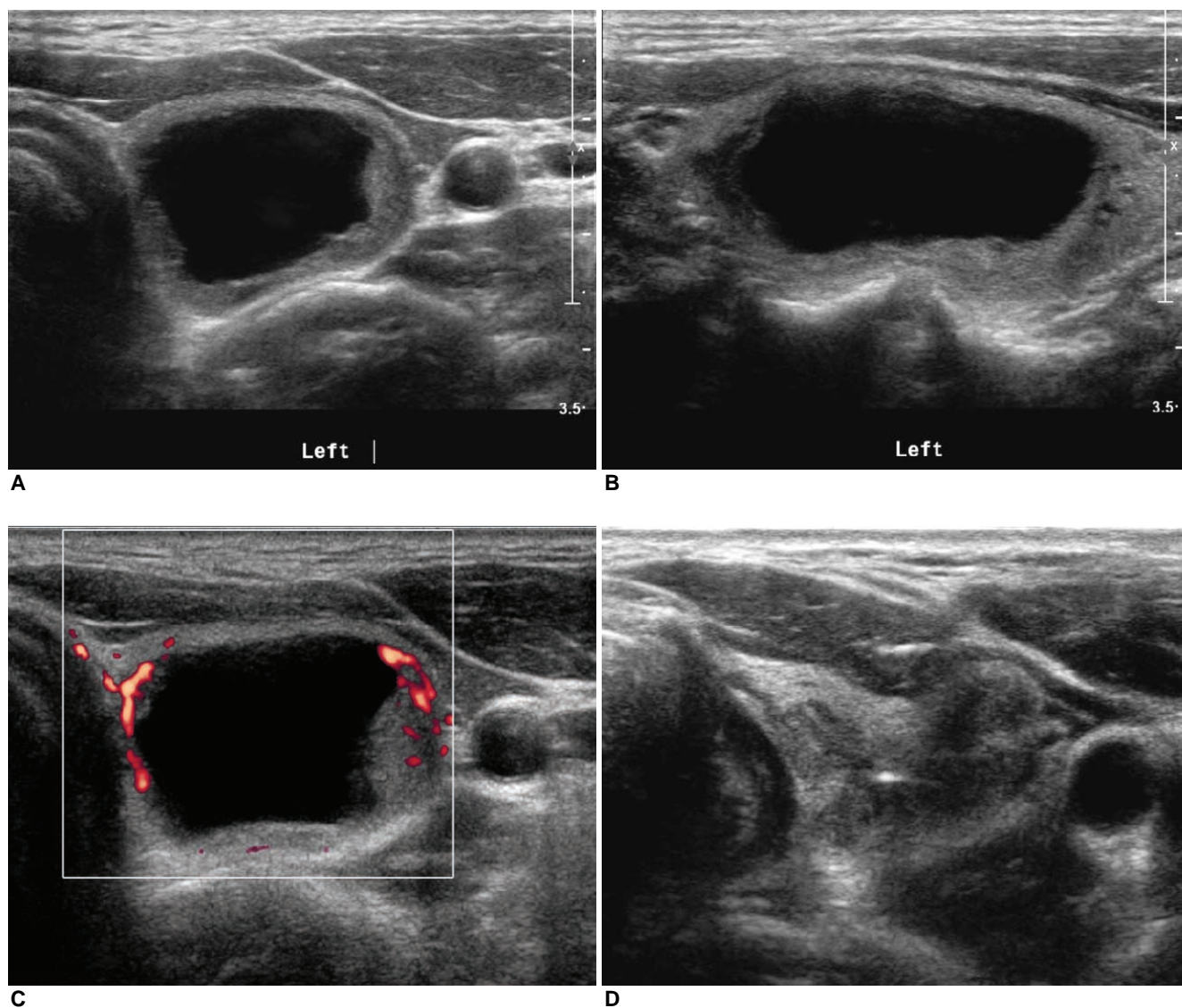
after 19 months. On the follow-up US, fluid was again accumulated in this lesion. A second FNAB was performed after aspiration of the cystic portion. The cytological result was suspicious for MTC (Fig. 2). The following laboratory tests showed increased serum calcitonin (464 pg/mL) and mildly increased serum carcinoembryonic antigen (CEA) (18.73 ng/mL). The patient underwent total thyroidectomy and central compartment neck dissection. The gross pathology was a 2.5 × 3.0 cm cystic mass, which was confirmed to be MTC (Fig. 3). There was no lymph node metastasis. The serum calcitonin was normalized after

surgery (2.3 pg/mL).

## Discussion

Medullary thyroid carcinoma is a relatively uncommon neoplasm that accounts for 3.5–10% of all thyroid malignancies [3]. Medullary thyroid carcinoma has no predilection for race or gender and it occurs most commonly in the fourth to sixth decades of life [3].

MTC may occur as a sporadic form or a familial form with or without associated endocrinopathies [4].



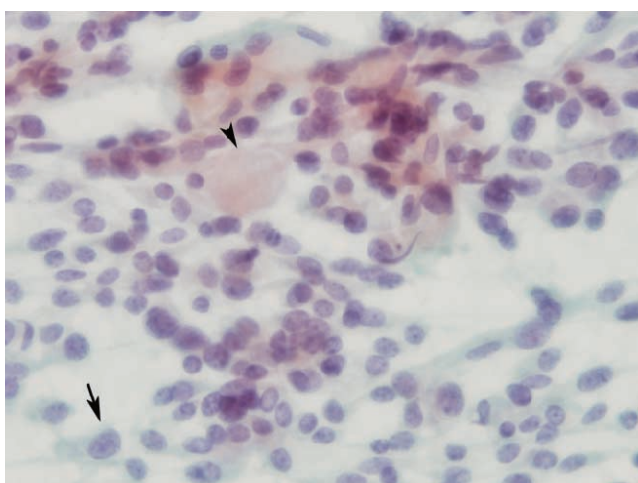
**Fig. 1.** The initial transverse (A), longitudinal (B), and color Doppler (C) ultrasound images show a 3.6 cm predominantly cystic mass with peripheral vascularity in the left thyroid lobe, which was interpreted as a probably benign lesion. After aspirating 6 cc of fluid, the mass was decreased in size (D).

Surgery is the treatment of choice both for initial therapy and for tumor recurrence because of the tumors' unresponsiveness to chemotherapy and radiation therapy. The surgical stage of the disease is the most important prognostic factor and early detection is critical and especially for an asymptomatic patient with sporadic MTC.

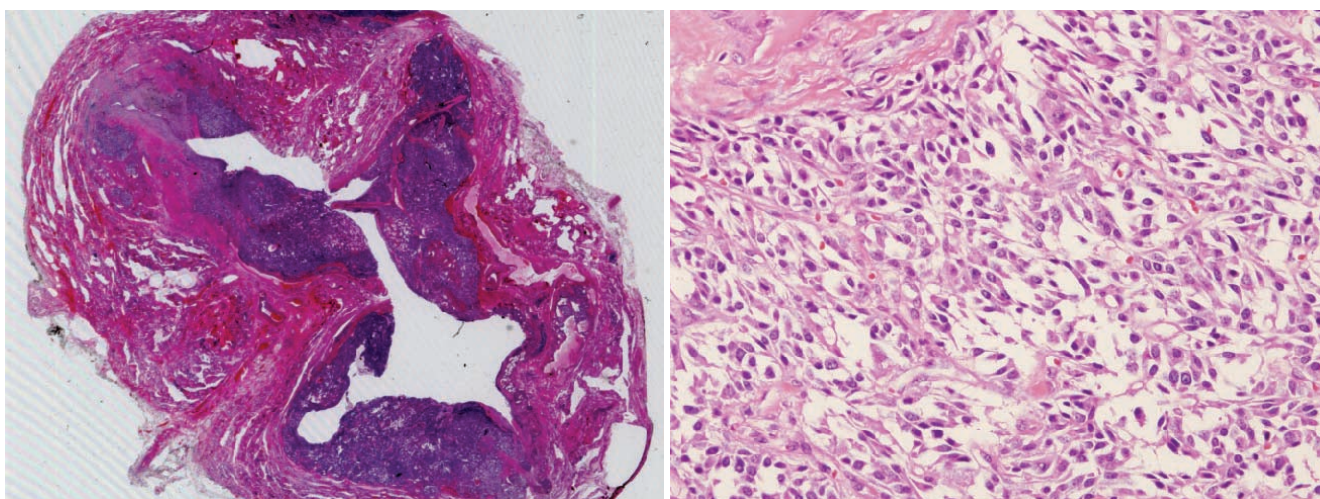
MTC originates from parafollicular calcitonin-producing C cells, and these cells play an important role in calcium metabolism. Serum calcitonin is known as the most specific and sensitive biochemical

marker of MTC and it can be used for both the primary diagnosis and the postsurgical follow-up of MTCs [5]. Although routine calcitonin check-ups in patients with thyroid nodules are useful for the early diagnosis of MTCs [6], routine calcitonin measurement is not widely-used due to the high cost and limited specificity of calcitonin assay [4]. CEA and chromogranin A are other complementary tumor marker produced by MTC [7]. Trimboli *et al* recently suggested that calcitonin measurement in the washout of the needle after aspiration can play a role in diagnosing primary and metastatic MTC [8].

Most cases of MTC have shown spiculated margins, marked hypoechogenicity and/or intranodular micro- or macrocalcifications, or a combination of these [2, 4, 9]. These features are not different from those of papillary thyroid carcinoma [2]. The malignancy rates have been reported to be 2.2 and 7.4% for predominantly cystic thyroid nodules and predominantly solid thyroid nodules, respectively [9]. But there was no significant difference of the diagnostic efficacy of US between these two groups of nodules [10]. For cystic thyroid masses, an eccentric configuration of the solid portion of the mass and microcalcifications were associated with the risk of malignancy [9, 10]. In our case, although the result from the first FNAB was a paucity of cells, we were



**Fig. 2.** The fine needle aspiration cytology revealed a cellular smear that showed singly scattered atypical cells with eccentric nuclei (black arrow) and pinkish amyloid materials (arrowhead) (Papanicolaou,  $\times 400$ ).



**Fig. 3. A.** The histological section revealed medullary carcinoma with an inner cystic space with no lining epithelium (A, H & E,  $\times 1$ ). **B.** The solid portion of the mass is composed of short spindle cells with a poorly defined nest pattern (H & E,  $\times 200$ ).

able to preoperatively diagnose medullary carcinoma according to the results from the second FNAB with the elevated serum calcitonin and CEA levels. In the clinical setting, when elevated tumor markers are detected on a health check-up and therefore medullary carcinoma can be suspected, a tumor marker analysis of the FNA fluid may aid in making the diagnosis.

### 요 약

대부분의 갑상선 수질암은 초음파에서 저에코성, 뾰족한 경계, 결절 내부 석회화 등의 악성이 의심되는 소견을 보이며 이는 갑상선 유두암에서 알려진 것과는 일치한다. 따라서 본 증례는 초음파상에서 대부분이 양성으로 보였던 결절이 갑상선 수질암으로 진단되었던 드문 환자의 증례를 보고하고 이의 진단접근법을 고찰한다.

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