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FDG-PET for a thyroid MALT lymphoma

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To the Editor

We previously reported on a patient in this journal (Acta Oncol 2006;45:750–2) who had a gastric mucosa-associated lymphoid tissue (MALT) lymphoma (MALToma) which showed intense F-18-fluoro-deoxyglucose (FDG) uptake into the tumor [1]. FDG positron emission tomography (PET) has been considered the first-line modality for staging, restaging, and monitoring the therapeutic response for lymphomas. However, variable FDG avidity in MALTomas has been reported in the literature, and the usefulness of this modality for MALTomas is controversial [2–4]. A recent report suggested that a MALToma with plasmacytic differentiation may be related to FDG uptake [5]. We recently had a patient with an invasive thyroid MALToma which showed intense FDG uptake in the postoperative residual tumor.

A 77-year-old female received a total thyroidectomy for a large, rapidly growing mass in her left thyroid. The operative findings revealed that the mass was elastic and firm with an ill-defined margin and local invasion to the surrounding muscle and vessels. Incomplete removal of the tumor was noted during the operation. Gross pathological findings showed that the specimen was diffusely fibrotic and there was an ill-defined grayish-white tumor in the upper left thyroid. Histopathology revealed an invasive MALT lymphoma in the tumor associated with chronic thyroiditis and fibrosis. Immunohistochemical stains were positive for CD 20, negative for CD5, cyclin D1, CD10 and CD3, which excluded the possibility of other small B-cell lymphomas and follicular cell lymphoma. The cytokeratin stain enhanced the presence of lymphoepithelial lesion. The origin of the neoplastic lymphoid tissue turned out to be marginal zone B cell lymphoma (MALToma). In addition, the tumor had invaded the perithyroidial soft tissue and nerve (Figure 1). Two months after the operation, a whole-body FDG-PET study showed focally intense FDG uptake in the anterior aspect of the left side of the neck, suggestive of a viable residual tissue (Figure 2).

A thyroid lymphoma is a rare, heterogeneous disease comprising approximately $1 \sim 5\%$ of all thyroid malignancies and $1 \sim 2.5\%$ of all lymphomas [6]. Pathogenically, the acquired lymphoid tissue from autoimmune thyroiditis might evolve to MALT and even transform to an aggressive lymphoma in the thyroid [7–10]. Derringer et al. reported that among 108 cases of primary thyroid lymphomas, MALT was identified in 66 cases (61%), including mixed diffuse large B cell lymphoma (DLBCL) with MALT in 36 cases. In addition, lymphocytic

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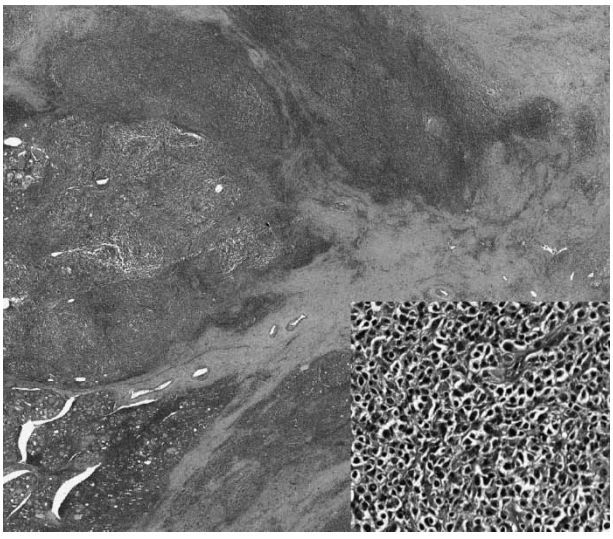

Figure 1. Tumor in the left thyroid gland showing a picture of a malignant lymphoma with diffuse lymphocyte infiltration and focal lymphoid nodular proliferation on a background of chronic thyroiditis. The nucleus of the tumor cells is small to intermediate sized and irregularly shaped, as shown in the inset (lower right).

thyroiditis was found in 94% of the cases, and 69% of the patients had perithyroidial soft-tissue infiltration [9]. Thieblemont et al. reported that among 26 cases, 23% were MALTomas, 30% were DLBCLs, and 20% were mixed DLBCLs with MALTs. All patients with a thyroid MALToma were followed-up for various periods of time under a diagnosis of Hashimoto's thyroiditis [6]. Sasal et al. reported that MALTomas comprised 77% of all thyroid lymphomas [11].

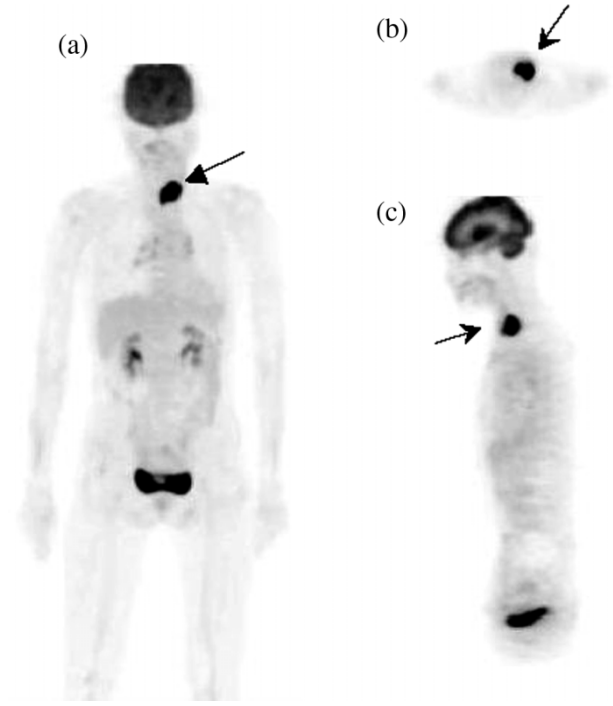

Figure 2. Whole-body PET performed 45 min after an intravenous injection of 370 MBq FDG using a Siemens ACCEL PET scanner. (A) Maximal intensity projection (MIP) view, (B) transverse section, and (C) sagittal section revealing focally intense FDG uptake in the anterior left side of the neck. The maximal standard uptake value (SUVm) of the lesion was 12.2. No abnormal uptake was demonstrated on the right side of the neck or elsewhere.

FDG uptake in a benign lesion of the thyroid is not uncommon [12–14]. Our previous study revealed that the diffuse and intense uptake in the thyroid glands was a clue to a diagnosis of chronic thyroiditis with hypothyroidism [12]. FDG uptake into the DLBCL of the thyroid has been reported [15–17]. However, few reports about thyroid MALTomas with FDG uptake are available [18]. Because of the coexistence of chronic thyroiditis and MALTomas, utilization of histopathology and/or FDG-PET for initial evaluation and for follow-up to detect a residual/recurrent tumor in patients with a thyroid MALToma is conservative [19,20].

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Exacerbation of diabetes related to exemestane treatment

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To the Editor

The high activity and low toxicity of exemestane, a third generation aromatase inhibitor, are well recognized [1,2]. Its adverse effects are relatively mild and mainly related to anti-estrogenic effect [1,2]. Compared to tamoxifen, only arthralgia and diarrhea occurred more frequently with exemestane [1]. Neither was an impact of exemestane on lipid metabolism demonstrated [3]. To our best knowledge, no cases of glucose tolerance deterioration or diabetes exacerbation associated with exemestane administration have been described. We apparently encountered such a situation in our patient treated with exemestane in a prospective clinical study.

A 62-year-old female with a history of right mastectomy for invasive breast cancer in 1983 presented in January 2001 with inoperable chest wall recurrence. Her significant medical history included type 2 diabetes, well controlled with oral hypoglycemic agents. On February 2, 2001, she commenced treatment with exemestane (25 mg daily) within the EORTC 10951 phase III study comparing exemestane and tamoxifen in advanced breast cancer. Upon that, exacerbation of diabetes was observed (glycemia up to >400 mg/dl). After modification of treatment, her fasting glycemia stabilized at <180 mg/dl (period 1, median 153 mg/dl) (Figure 1, 2). On July 17, 2001, exemestane administration was withdrawn for suspected progression. During the off-treatment period, her fasting glycemia did not exceed 160 mg/dl (period 2, median 139 mg/dl, $p=0.002$) (Figure 1, 2). There were no differences between postprandial glycemia "after breakfast" ($p=0.484$) and "after lunch" ($p=0.303$) in these two periods. Since additional examinations did not confirm disease progression, exemestane was reintroduced on August 23, 2001. Since then, glycemia began to rise steadily, eventually requiring the introduction of

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