

DİFERANSİYE TİROİD KARSİNOMALI HASTALARIN TAKİBİNDE ANTI-TG ANTİKOR DÜZEYLERİNİN ÖNEMİ: OLGU SUNUMU

The Importance of anti-Tg Antibody Levels on the Follow-up of Patients with Differentiated Thyroid Carcinoma: Case Report

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ÖZET

Diferansiye tiroid karsinomlu (DTK) hastalarda antitiroglobulin (anti-Tg) antikor varlığında tiroglobulin (Tg) ölçümlerinin güvenilirliği azalmaktadır. Anti-Tg varlığında Tg değerleri genellikle hatalı olarak düşük ölçülebilmektedir. Birçok çalışmada anti-Tg seviyelerindeki sebat ya da artışın kalıcı ve tekrarlayıcı hastalık için önemli bir risk faktörü olduğu rapor edilmiştir. Bazı çalışmalarda ise normal sınırlarda Tg seviyelerine sahip DTK'lı hastalarda pozitif anti-Tg seviyelerinin tümör belirteci olarak kullanılabilmesi rapor edilmiştir. Otuz iki yaşındaki papiller tiroid karsinomlu kadın hasta totale yakın tiroidektomi sonrası remnant ablasyonu için nükleer tıp kliniğine yönlendirildi. Operasyondan sonra hastaya remnant ablasyonu için 100 mCi 131I ile verildi. Ablasyon tedavisinden yaklaşık 6 ay sonra tedavi cevaplarının değerlendirilmesi amacıyla radyoyot tarama planlandı. Taramadan hemen önce hastanın uyarılmış Tg ve anti-Tg değerlerine bakıldı. Hastanın Tg değeri ölçülemeyecek kadar düşük, anti-Tg değeri 238 U/ml idi. Tanısal taramada tiroid yatağında postop/post-ablatif bakiye tiroid dokuları ile uyumlu görünüm izlendi. Sonuç olarak DTK'lı hastalarda normal sınırlarda Tg varlığında pozitif anti-Tg değerlerinin tümör belirteci olarak kullanılabilmesini, ayrıca pozitif anti-Tg seviyesi ile negatif radyoyot taramanın FDG PET-BT görüntüleme için endikasyon olabileceğini düşünmekteyiz.

Anahtar kelimeler: *Kanser; Tiroid; Anti-tiroglobulin*

ABSTRACT

The reliability of thyroglobulin (Tg) measurements in patients with differentiated thyroid carcinoma (DTC) is decreased by the presence of anti-Tg antibodies (TgAb). In the presence of Tg Ab, levels of Tg can be usually mistakenly low. Most studies have reported that the persistence or a rising trend in Tg Ab concentrations is a significant risk factor for persistent and recurrent disease. Some studies reported that positive Tg Ab levels can be used as a tumor marker in DTC patients with undetectable Tg levels. Thirty-two year-old female patient with papillary thyroid carcinoma referred to nuclear medicine clinic for remnant ablation after near-total thyroidectomy. After surgery 100 mCi 131I was given to patient for remnant ablation. To control the ablation treatment efficacy, diagnostic whole body scan (DWBS) was planned approximately 6 months later. Just before DWBS, Tg and Tg Ab levels were measured, simultaneously with TSH. On DWBS, postop/postablative thyroid remnants were seen on the thyroid bed. In conclusion we think that positive Tg Ab level can be used as a surrogate tumor marker in the presence of undetectable Tg level in patients with DTC. Also we think that positive Tg Ab and negative radioiodine scan may be an indication for FDG PET-CT scan.

Keywords: *Cancer; Thyroid; Anti-thyroglobulin*

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INTRODUCTION

Thyroglobulin (Tg) is the main serum tumor marker of differentiated thyroid carcinoma (DTC), which is more sensitive than imaging methods especially when measured in high thyroid stimulating hormone (TSH) levels (1-3). But sensitivity of this marker is limited in some situations. The presence of anti-Tg antibodies (TgAb) is one of the most important reason of this limitation. The reliability of Tg measurements in patients with DTC is decreased by the presence of TgAbs in serum. TgAb leads wrong interpretation of Tg level (4, 5). In the presence of TgAb, levels of Tg can be usually mistakenly low. For this reason all specimens sent for Tg testing should also include a TgAb measurement. Some studies reported that positive TgAb levels can be used as a tumor marker in DTC patients who have undetectable Tg levels (6-12). The aim of this study is to show the importance of TgAb on the follow-up of patients with DTC.

CASE REPORT

Thirty-two year-old female patient whose pathological examination has been reported as classical variant of papillary thyroid cancer after near-total thyroidectomy, referred to nuclear medicine clinic for postsurgical remnant ablation with radioiodine. Approximately 6 weeks after surgery 100 mCi I-131 was given orally in capsule form to patient for remnant ablation. A posttreatment whole body scan (PWBS) was performed 5-10 days after ablative 131I treatment (AIT) to patient. On PWBS thyroid remnants were present in the neck and there was no foci of pathologic radioiodine uptake outside the thyroid bed. After AIT levothyroxine suppression therapy was given to patient and controls were made in periodic intervals. To control the AIT efficacy, diagnostic whole body scan (DWBS) was planned approximately 6 months later while the patients were off hormonal therapy. Three weeks before undergoing DWBS, patients stopped taking triiodothyronine, and followed a low-iodine diet during that period. Just before DWBS, Tg and TgAb levels were measured, simultaneously with TSH. While patient had undetectable Tg level, TgAb level was 238 U/ml. Tg and TgAb levels were measured using immunoradiometric analyzer that uses paramagnetic microparticles and chemiluminescent detection technology. Lower detection limit of test for Tg is 0.2 ng/ml

and normal range of test for TgAb is 0-4 U/ml. After TSH stimulation, 5 mCi I-131 was given orally to patient and 2 days later, DWBS was performed. On DWBS, postop/postablative thyroid remnants were seen on the thyroid bed.

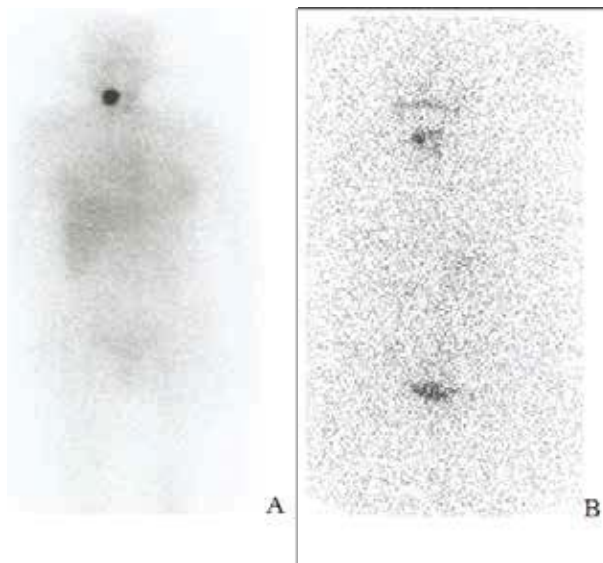


Figure 1. A posttreatment whole body scan (PWBS) (A) and diagnostic whole body scan (DWBS) (B) of patient. On DWBS of the the patient who had undetectable Tg and positive TgAb levels, residual thyroid tissue was observed in both thyroid lobe which is more pronounced in the right.

DISCUSSION

TgAb interference is the most important problem affecting serum Tg measurement (13). TgAb is detected in approximately 20% of patients with DTC, compared with the 10% incidence reported for the general population (12, 14) and is usually of IgG1, IgG3 or IgG4 subtypes (15). Anti-Tg antibody concentrations of DTC patients typically fall to undetectable levels in a median of 3 years after removing the antigenic stimulus of Tg by successful treatment (16, 17). The detection of circulating TgAb is very important because even very low TgAb concentrations can affect the Tg measurements (5, 8, 14).

TgAb secretion can be so sensitive to changes in the mass of Tg-producing tissue, so that TgAb measurements can be monitored as a surrogate tumor marker for DTC patients (6-12). Most studies have reported that the persistence or a rising trend in TgAb concentrations of DTC patients after treatment is a significant risk factor for persistent and recurrent disease (5, 7, 8, 10). Chung et al. concluded that persistently elevated TgAb levels can be a useful marker for recurrent or persistent DTC in patients with undetectable serum Tg results (7). They found that 25 (49 %) of 51 patients who had undetectable Tg level with positive TgAb, were confirmed with recurrence and the recurrence rate of TgAb-positive patients was higher than TgAb-negative patients. Kim et al. think that a change in Tg Ab concentration during the early postoperative period may be a prognostic indicator of recurrence in patients with undetectable Tg and positive TgAb levels (10). In their study, patients who became TgAb-negative or showed more than a 50% decrease in Tg Ab over the 6 to 12 months after radioiodine treatment had a recurrence less than 1% during follow-up. Whereas, 19% of patients whose TgAb decreased less than 50% and also the 37% whose Tg Ab concentrations increased, were diagnosed with recurrences. Rubello et al. showed that 5 of 19 patients whose TgAb levels were elevated on the follow-up, showed disease progression(11). In our study, positive DWBS was seen in a patient who had positive TgAb and undetectable Tg levels.

In conclusion we think that positive TgAb level can be used as a surrogate tumor marker in the presence of undetectable Tg level in patients with DTC. On the follow-up of DTC patients, TgAb should be measured with Tg. Also we think that positive TgAb and negative radioiodine scan may be an indication for FDG PET-BT scan.

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