Diffuse Sclerosing Variant of Thyroid Carcinoma Presenting as Hashimoto Thyroiditis: A Case Report

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ABSTRACT

The aim of report is to present a case of a rare diffuse sclerosing variant of a papillary thyroid carcinoma. A 15-year-old girl referred for ultrasound examination because of painless thyroid swelling lasting 10 days before. An ultrasound of the neck showed diffusely changed thyroid parenchyma, without nodes, looking as lymphocytic thyroiditis Hashimoto at first, but with "snow-storm" appearance, predominantly in the right lobe. Positive thyroid peroxidase antibodies (TPO-AT) also suggested Hashimoto thyroiditis. Repeated US-FNAB (fine needle-aspiration biopsy) of the right lobe revealed diffuse sclerosing variant of papillary thyroid carcinoma and patient underwent total thyroïdectomy. Pathohistologic finding confirmed diffuse sclerosing variant of a papillary thyroid carcinoma in the both thyroid lobes and several metastatic lymph nodes. Two months later patient received radioablative therapy with 3700 MBq (100 mCi) of I-131 followed by levothyroxine replacement. At the moment, patient is without evidence of local or distant metastases and next regular control is scheduled in 6 months. In conclusion, a diffuse sclerosing variant is rare form of papillary thyroid carcinoma that echographically looks similar to Hashimoto thyroiditis and sometimes could be easily overlooked.

Key words: diffuse sclerosing variant, papillary thyroid carcinoma, Hashimoto thyroiditis, neck ultrasound

Introduction

A diffuse sclerosing variant of thyroid papillary carcinoma is rare form of thyroid neoplasm initially described by Crile and Fisher in 1953, with reported incidence in literature from 0.8 to 5.3 % of all papillary cancer. It occurs in young individuals, ranging from 19 to 35 years and has a higher incidence of local metastasis compared to classic papillary thyroid cancer, with poorer prognosis. This report include a case of a young girl who referred to Nuclear Medicine Department for thyroid ultrasound examination with symptoms of diffuse goiter.

Case Report

A 15-year old girl initialy presented with symptoms of painless swelling in thyroid area 10 days earlier. Clinical examination revealed significant enlargement of the right lobe of thyroid, with no palpable cervical lymph nodes. The thyroid function tests (FT4, TSH) were in normal range, but with positive thyroid peroxidase antibodies (TPO-AT 57 U/mL, reference range <5.6 U/mL). Ultrasound revealed enlarged thyroid, especially right lobe with hypoechoic, inhomogeneous echostructure, without nodes, but with a "snow-storm" appearance suggesting multiple microcalcifications in the parenchyma (Figure 1). Vascularity of the right lobe was increased on a color Doppler image. At first glance the thyroid parenchyma seemed changed as Hashimoto thyroiditis, but right lobe was enlarged and a little bit different comparing to the left lobe. 99mTc pertechnetate thyroid scan showed decreased uptake of the tracer in the right thyroid lobe (Figure 2). So, instead of completing the exami-
nation with the diagnosis of chronic lymphocytic thyroditis Hashimoto, we decided to perform fine needle aspiration biopsy of the both lobes. Cytological finding suggest diffuse sclerosing variant of papillary thyroid carcinoma in the right lobe and normal finding of the left thyroid lobe with slightly higher number of thyreocytes (Figure 3). The patient underwent total thyreoidectomy with selective neck dissection of the lymph nodes. Hystopathological finding confirmed a rare sclerosing variant of papillary thyroid carcinoma of the right thyroid lobe, with multiple islands of tumor tissue in the left lobe, infiltration of thyroid capsule, with abundant psammoma bodies inside the tumor. It also showed several lymph nodes contained metastatic carcinoma. Two months later patient received radioablative therapy with 3700 MBq (100 mCi) of I-131 followed by levothyroxine replacement. Whole-body postablation scan performed with SPECT/low dose CT showed intensive uptake of the radioiodine in the thyroid bed and focal uptake in the right supraclavicular region (Figure 4) which was suspected as metastatic lymph node. An ultrasound of the neck detected enlarged lymph node in the right supraclavicular region, but ultrasound followed by FNAB revealed only reactive hyperplastic lymph node in that region. At the moment patient is without evidence of local (verified with neck ultrasound) or distant metastases (verified by chest X-ray, and with postablation scan). The outcome of ablation and medical treatment will be assessed in next regular control scheduled in 6 months by whole-body scan with 5 mCi of I-131 performed in hypothyroid state, neck ultrasound and determination of TSH, thyroglobulin (Tg) and thyroglobulin antibodies (TgAt).

Discussion

A diffuse sclerosing variant of thyroid papillary carcinoma is rare form of thyroid malignancy usually presented with a diffuse goitre in patients who are mostly euthyroid. It occurs most frequently in young females and most of patients have lymph node involvement at the time of disease presentation. The disease could be mistaken clinically for benign disease particularly Hashimoto thyroiditis, because of similar echostucture, that could be potential pitfalls which may delay the diagnosis.

Sonographic features include heterogenous echogenicity, hypoechoic areas and numerous internal microcalcification which correlate to extensive fibrosis, lymphocytic infiltration and to psammoma bodies on histopathology diagnosis. Precisely, the presence of microcalcifications detected as abundant psammoma bodies on ultrasound followed by FNAB revealed only reactive hyperplastic lymph node in that region. At the moment patient is without evidence of local (verified with neck ultrasound) or distant metastases (verified by chest X-ray, and with postablation scan). The outcome of ablation and medical treatment will be assessed in next regular control scheduled in 6 months by whole-body scan with 5 mCi of I-131 performed in hypothyroid state, neck ultrasound and determination of TSH, thyroglobulin (Tg) and thyroglobulin antibodies (TgAt).

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sonography may provide pre-operative evidence of those form of thyroid malignancy and should not be over-
looked\(^5\). In this case, the clinical presentation, biochemi-
cal and initial ultrasound findings were all indicative of
benign pathology: As metastases are frequently present
it is therefore important to consider this rare malignancy
when investigating a goitre in a young patient. The
ultrasonographically presence of numerous internal
microcalcifications should always stimulate to perform
fine needle aspiration biopsy in spite of absence of nodal
changes in thyroid. A diagnosis of diffuse sclerosing-vari-
ant of papillary thyroid carcinoma on FNAB should be
considered when the typical cytological features of classi-
cal papillary carcinoma (papillary clusters, follicular cells
with dense cytoplasm, well-defined margins, intranu-
clear cytoplasmic inclusions, multinucleate giant cells
and psammoma bodies) are combined with sheets of
squamous-like cells, numerous lymphocytes and absence
of colloid\(^9\). Ultrasound guided FNAB indicated malign-
cy and should be performed. A diagnosis of that form of malignoma.

Conclusion

Because of similar echostructure, diffuse sclerosing
variant of papillary carcinoma could be mistaken for be-
ign disease like Hashimoto thyroiditis. Our patient
introduced with symptoms of both disease, but clinical ap-
pearance (asymmetric enlargement with echographically
snow-storm picture) suggested possible thyroid maligno-
ma. Ultrasound itself cannot exactly distinguish benign
from malignant lesions, but some sonographic features
like numerous punctate microcalcifications in spite of ab-
ence of nodal changes can suggest malignancy and help
in the selection of changes to aspirate with FNAB that is
crucial for final diagnosis.

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DIFUZNO SKLEROZIRAJUĆI OBLIK PAPILARNOG KARCINOMA ŠTITNJAČE NA LIK HASHIMOTO TIREOIDITISU: PRIKAZ SLUČAJA

S A Ž E T A K

Opisan je slučaj petnaestogodišnje djevojke upućene na ultrazvučni pregled zbog bezbolnog zadebljanja štitinje
nastalog 10-ak dana prije dolaska na obrazu. Bolesnica je bila eutiroidna uz povišana antitijela na peroksidazu (TPO-
At) što je postavilo sumnju na postojanje autoimunog limfocitnog tireoiditisa. Ultrazvučnim pregledom verificirane su
difuzne promjene ehostukture u parenhimu oba režnja štitnjače nalik kroničnom limfocitnom Hashimoto tireoiditisu.
Medutim, obzirom na prisutnost punktiformnih kalcifikata unutar desnog režnja štitinje, ipak je, unatoč nepostojanju
nodoznih promjena u štitinjači učinjena citološka punkcija pod kontrolom ultrazvuka, te je potvrđena sumnja na di-
fuzno sklerozirajući oblik papilarnog karcinoma u desnom režnju štitinje. Učinjena je totalna tireoidektomija sa
selektivnom disekcijom limfnih čvorova na vratu, a patohistološki nalaz je potvrdio dijagnozu difuzno sklerozirajućeg
karcinoma u desnom režnju štitinjače s fokalnim žarištima tumora i u likužnom režnju, infiltraciju kapsule štitinjače, kao i
više pozitivnih limfnih čvorova obostrano na vratu. Dva mjeseca kasnije bolesnica je aplicirana radiojodna ablacija sa
3700 MBq (100 mCi) I-131, a potom je postavljen regresijski pod supresijsku terapiju L-tiroksinom. U ovom trenutku bolesnica je bez
evidentnih znakova lokalnih ili distalnih metastaza i očekuje redovitu kontrolnu obradu predviđenu za oko 6 mjeseci.
Kod mladih bolesnika sa bezbolnim povećanjem štitinje i promjenama ehostrukturerima u smislu kroničnog tireoiditisa
Hashimoto, ali sa difuznim punktiformnim kalcifikatima unutar režnja potrebno je svakako imati u vidu i ovu riječku
vrstu papilarnog karcinoma. Stoga je u takvim slučajevima unatoč nepostojanju nodoznih promjena neophodno učiniti
cijan citološku punkciju koja nam pomaže u postavljanju točne dijagnoze.