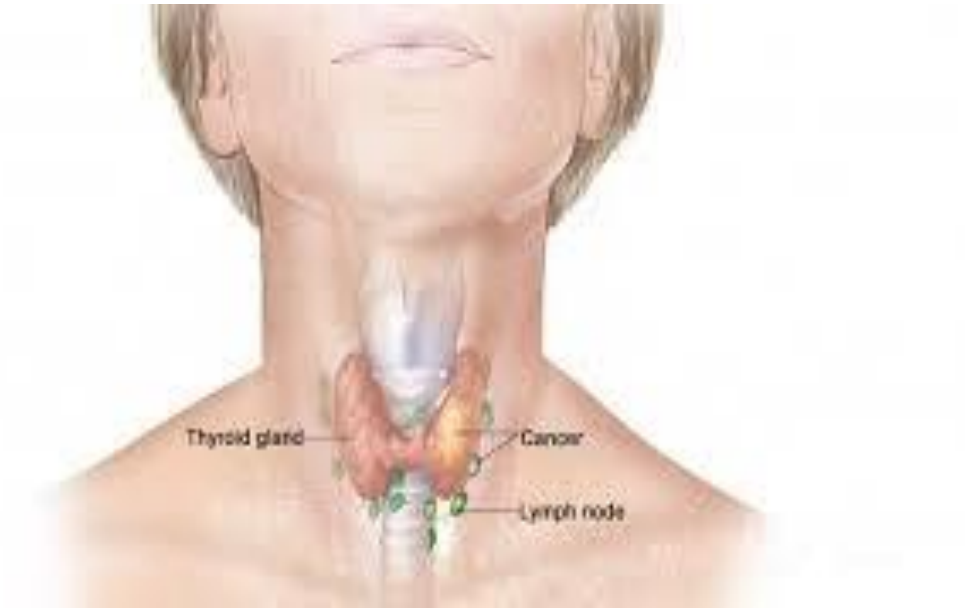


A 29 –years- old woman with follow up after lobectomy due to PTC

Patient ID

- Gender : woman
- Age : 29- year-old
- Source of history : patient , reliable
- Married
- Born in Yazd
- Live in Tehran
- Job : Master of Family Health

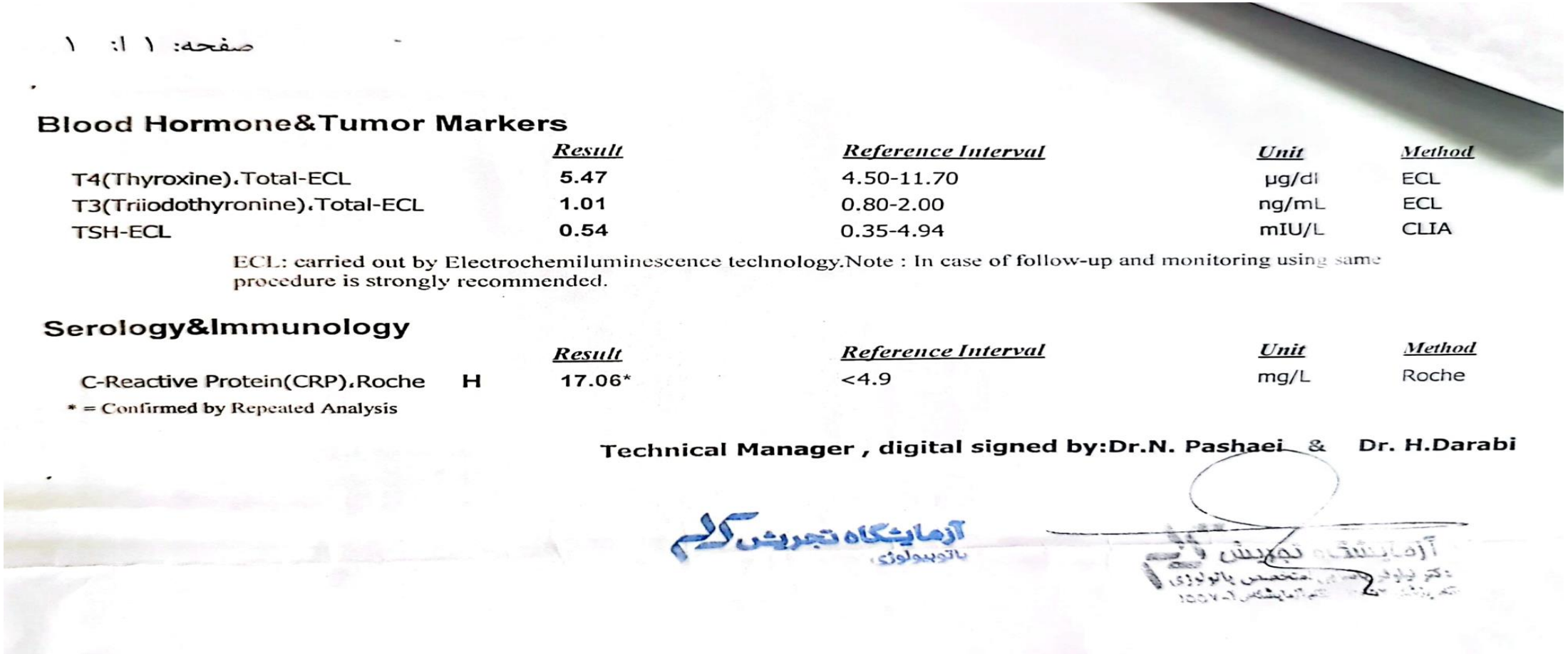
Chief complaint

- A 29 year-old woman with PTC and lobectomy referred for follow up

Present illness

- The patient was relatively well until bahman of 1402 that developed influenza like syndrome and sore throat and earache ,lasting for about 6-7 days.
- thyroid sonography and lab tests were done

Laboratory data



صفحه: ۱ از: ۱

Blood Hormone&Tumor Markers

	Result	Reference Interval	Unit	Method
T4(Thyroxine),Total-ECL	5.47	4.50-11.70	µg/dl	ECL
T3(Triiodothyronine),Total-ECL	1.01	0.80-2.00	ng/mL	ECL
TSH-ECL	0.54	0.35-4.94	mIU/L	CLIA

ECL: carried out by Electrochemiluminescence technology.Note : In case of follow-up and monitoring using same procedure is strongly recommended.

Serology&Immunology

		Result	Reference Interval	Unit	Method
C-Reactive Protein(CRP),Roche	H	17.06*	<4.9	mg/L	Roche

* = Confirmed by Repeated Analysis

Technical Manager , digital signed by:Dr.N. Pashaei & Dr. H.Darabi

آزمایشگاه تجریش کلم
پاتوبیولوژی

آزمایشگاه تجریش
دکتر ... متخصص پاتولوژی

Thyroid sonography

Ava Institute of Sonography

همکار گرامی - -

سن : ۲۹ سال

تاریخ : ۱۴۰۲/۱۱/۳۰

سونوگرافی تیروئید – گردن:

هر دو لوب تیروئید با ابعاد نرمال و اکوی پارانشیمال طبیعی رویت شدند .

لوب راست 15 mm ×11×34 و لوب چپ 12 mm ×12×35 میباشند.

ضخامت ایسموس 2.7mm طبیعی با اکوی پارانشیم هموژن دیده شد.

- تصویر ندول سالید هایپو اکو با حدود مشخص و با نمای Wider than tall دارای چند فوکوس کلسیفیکاسیون از نوع punctate به ابعاد 7mm×11 در سمت چپ ایسم تیروئید رویت میشود. (TIRADS=4)
  FNA از این ندول توصیه میشود
- چند لنف نود با نمای ری اکتیو و benign دارای هیلوم طبیعی در zone1 تا zone 3 گردنی هر دوسمت باحداکثر SAD=4.5mm در zone2 سمت چپ و SAD=3mm در zone 2 سمت راست مشاهده میشود.

آدنوپاتی suspicious در زنجیره قدامی گردنی هر دو سمت دیده نمی شود.

Present illness

- So the patient was referred for thyroid nodule FNA

Name : * خانم فریبا ناظمی نارگانی Age : 29 Y Date : 16/12/1402

Dear Colleague : Dr. Sadeghi

Color Doppler Sonography of Thyroid and Neck:

Findings:

Both thyroid lobes have shown normal size and homogenous normal echopattern.

Overall vascularity: *Symmetrically normal.*

Focal lesions at right lobe: ***Not seen***

Focal lesions at left lobe:

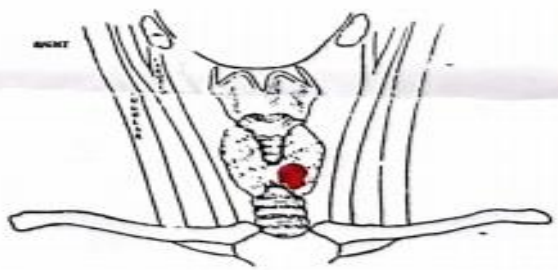
- ***N1: A 9.2x7.4x7.7 mm well-defined hypoechoic nodule with micro calcification and abnormal vascularity is seen at junction left lobe to isthmus with subcapsular position (TIRADS V, Highly suspicious).***

Neck Survey:

No pathologic lymph node is seen at all neck zones and retrosternal area and all visible lymph nodes show normal hilum and color Doppler appearance.

Impression:

- ***Left T5 nodule without cervical LAP***



دکتر جمت ابراهیمی نیک

Dr.H.Chegini
Radiologist-Interventionist

FNA:

Under sonography control percutaneous ***FNA biopsy*** *of* ***left*** *thyroid lobe nodule (TIRADS V,* ***9.2x7.4x7.7*** *mm) has been done.*

Thyroid background: Normal thyroid

Radiologic diagnosis: R/O PTC

Dr.H.Ebrahimi Nik
Radiologist-Interventionist

Dr.H.Chegini
Radiologist-Interventionist

Pathology report of FNA

CLINICAL INFORMATION: Left thyroid nodule (TIRADS V, 9.2x7.4x7.7 mm)

SPECIMEN: The sample submitted for cytologic evaluation consists of 2 alcohol fixed and 1 air dried smears prepared from left thyroid nodule fine needle aspirate and stained by PAP and Wright methods.

MICROSCOPIC DESCRIPTION:

Smears show many isolates and clusters of atypical follicular cells with papillary configuration and peripheral palisading. The mentioned cells have round to oval nuclei with partially smooth chromatin pattern, few nuclear grooves and rare pseudoinclusions.

DIAGNOSIS:

LEFT THYROID NODULE (9.2 mm), FNA:

-POSITIVE FOR MALIGNANCY, PAPILLARY THYROID CARCINOMA

-PLEASE SEE MICROSCOPIC DESCRIPTION AND NOTE

NOTE:

Frozen section study is advised before any thyroid radical surgery.

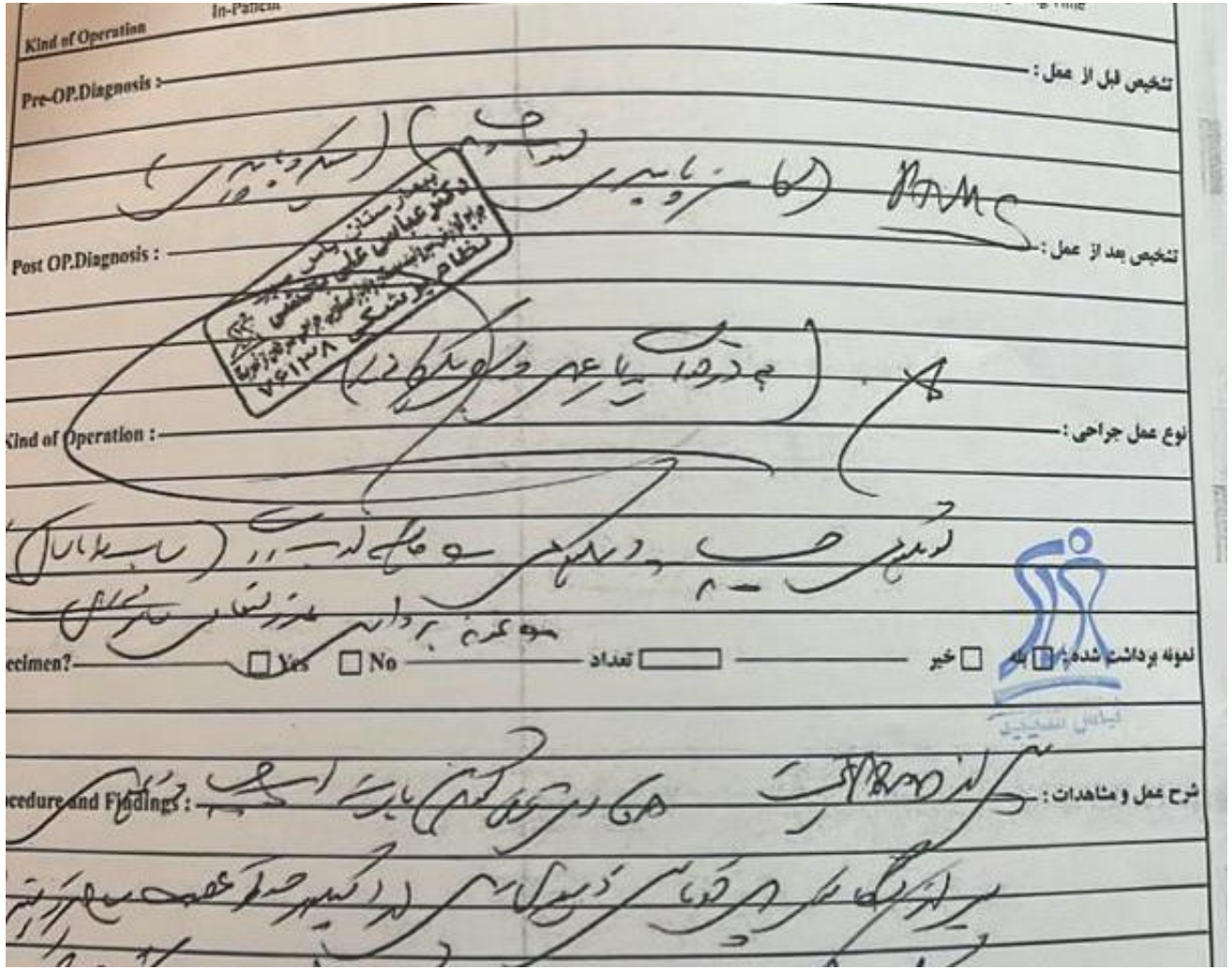
Present illness

- The patient was candidate for lobectomy and isthmectomy

- At the 2.2.1402 she underwent left lobectomy and isthmectomy

2.2.1402

Left lobectomy and isthmectomy and right margin (sub total thyroidectomy)+central lymph node biopsy)



Pathology report

Pathology Report

Clinical History: Left lobe PTC.
Sonography: A 9.2x7.4x7.7mm nodule of left thyroid lobe (T5).
Procedure: Left lobectomy and isthmectomy.

Macroscopy:
The specimens are received in formalin in 2 separate containers; labeled as follows:
1) "Thyroid left lobe, isthmus, and right lobe margin" consists of thyroid gland including right lob
isthmus, pyramid, totally weighing 4.5gr. Left lobe measures 4x1.5x1.0cm, isthmus and part of right l
measures 2x1.5x1.0cm and pyramid measures 2x0.5x0.4cm. The back surface inked black, lateral
surface inked green and the anterior surface inked blue, and right lobe margin inked yellow.
On cutting a white nodule is seen in left lobe and isthmus measuring 1.2x0.8x0.6cm. Cut section of t
other regions are unremarkable.
Representative sections submitted in 6 blocks as follows:
Right lobe margin: #1/ Isthmus, and pyramid lobe: #5-6/ Left lobe: #2-4/
2) "Central cervical lymph nodes" consists of 3 pieces of creamy-black tissue totally measuring
1/3x1/0x0.5cm. Submitted in toto in 2 blocks: #7-8

Diagnosis: Labeled as:
1) "Thyroid left lobe, isthmus, and right lobe margin"
- **Papillary thyroid carcinoma, classic subtype**
- Tumor focality: one focus.
- Tumor site: **Isthmus and left lobe**
- Tumor size: 1.2x0.8x0.6cm (as measured grossly)
- *Lymphatic invasion*: **Present.**
- *Vascular invasion*: Not seen.
- *Extrathyroid extension*: Not seen.
- ***All surgical margins are free from tumor***
- *Minimum distance of the tumor from right lobe margin*: 0.3cm
- *Non neoplastic thyroid tissue is unremarkable*
- ***One reactive lymph node free from tumor***

2) "Central cervical lymph nodes"
- ***Three out of 3 lymph nodes involved by tumor.***
- *Size of largest tumor deposit*: 2mm.
- *Extranodal extension*: Not identified.

- ✓ Tumor **focality** : **one** focus
- ✓ Tumor **site**: isthmus and left lobe
- ✓ Tumor **size**:1.2x 0.8x 0.6 cm
- ✓ **Lymphatic** invasion: **present**
- ✓ **Vascular** invasion: **not** seen
- ✓ **Extrathyroidal** invasion: **not** seen
- ✓ All surgical margins are **free** from tumor
- ✓ Minimum distance of the tumor from right lobe margin:0.3 cm

Right lobe margin: #1/ Isthmus, and pyramid lobe: #5-6/ Left lobe: #2-4/
2) "Central cervical lymph nodes" consists of 3 pieces of creamy-black tissue totally measuri
1/3x1/0x0.5cm. Submitted in toto in 2 blocks: #7-8

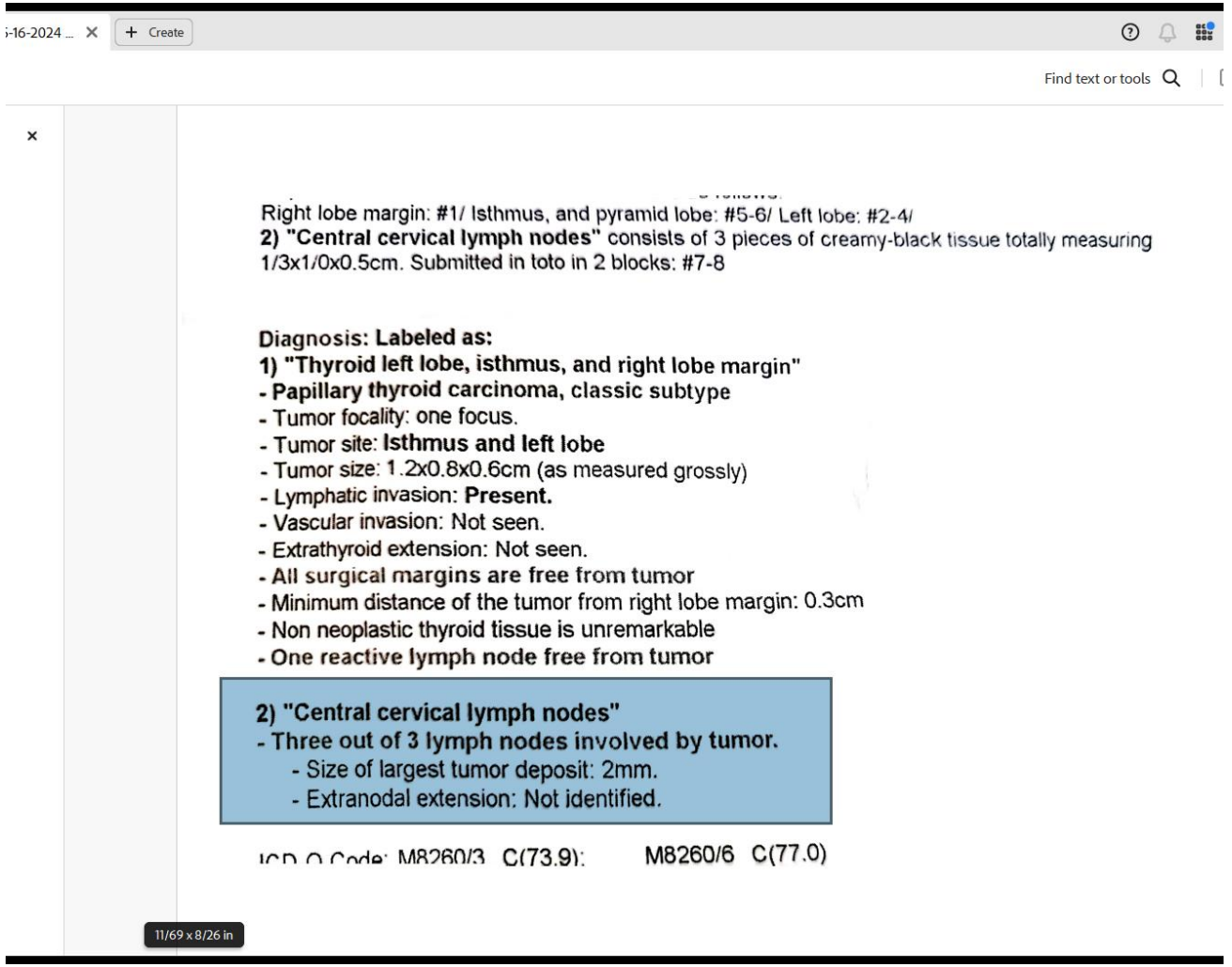
Diagnosis: Labeled as:
1) "Thyroid left lobe, isthmus, and right lobe margin"
- **Papillary thyroid carcinoma, classic subtype**
- Tumor focality: one focus.
- Tumor site: **Isthmus and left lobe**
- Tumor size: 1.2x0.8x0.6cm (as measured grossly)
- Lymphatic invasion: **Present.**
- Vascular invasion: Not seen.
- Extrathyroid extension: Not seen.
- **All surgical margins are free from tumor**
- Minimum distance of the tumor from right lobe margin: 0.3cm
- Non neoplastic thyroid tissue is unremarkable
- **One reactive lymph node free from tumor**

2) "Central cervical lymph nodes"
- **Three out of 3 lymph nodes involved by tumor.**
  - Size of largest tumor deposit: 2mm.
  - Extranodal extension: Not identified.

Central cervical lymph nodes

- **Three** out of **3** lymph nodes involved by tumor
- Size of largest :

  2 mm
- Extra nodal extension: not identified



Right lobe margin: #1/ Isthmus, and pyramid lobe: #5-6/ Left lobe: #2-4/
2) "Central cervical lymph nodes" consists of 3 pieces of creamy-black tissue totally measuring 1/3x1/0x0.5cm. Submitted in toto in 2 blocks: #7-8

Diagnosis: Labeled as:
1) "Thyroid left lobe, isthmus, and right lobe margin"
- **Papillary thyroid carcinoma, classic subtype**
- Tumor focality: one focus.
- Tumor site: **Isthmus and left lobe**
- Tumor size: 1.2x0.8x0.6cm (as measured grossly)
- Lymphatic invasion: **Present.**
- Vascular invasion: Not seen.
- Extrathyroid extension: Not seen.
- **All surgical margins are free from tumor**
- Minimum distance of the tumor from right lobe margin: 0.3cm
- Non neoplastic thyroid tissue is unremarkable
- **One reactive lymph node free from tumor**

2) "Central cervical lymph nodes"
- **Three out of 3 lymph nodes involved by tumor.**
  - Size of largest tumor deposit: 2mm.
  - Extranodal extension: Not identified.

ICD O Code: M8260/3 C(73.9): M8260/6 C(77.0)

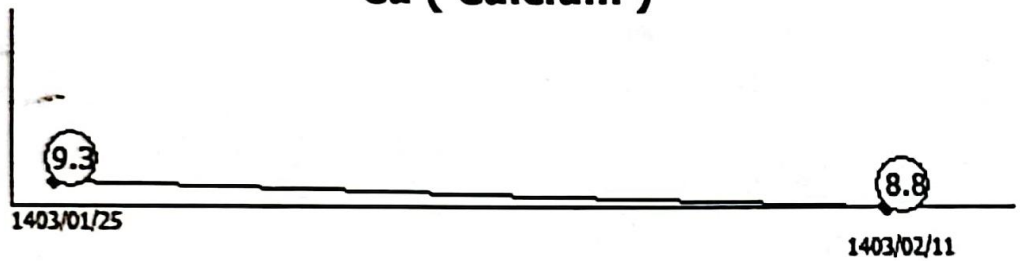
11.2. 1403

(10 days after surgery)

Blood Biochemistry

Test	Result	Unit	Refrence Range
Ca (Calcium)	*8.8*	*mg/dL*	*8.5 - 10.5*
P (Phosphorus)	*3.0*	*mg/dL*	*2.6 - 4.5*

Ca (Calcium)



Normal ranges are according to the patients sex and age.

Immunoassays-Thyroid Function

Test		Result	Unit	Refrence Range
TSH (ECL)	*H*	*5.55**	*µIU/mL*	*0.3 - 4.2*
Thyroglobulin (ECL)		*19.9*	*ng/mL*	*1.4 - 78*

* = Confirmed by Repeated Analysis H=High

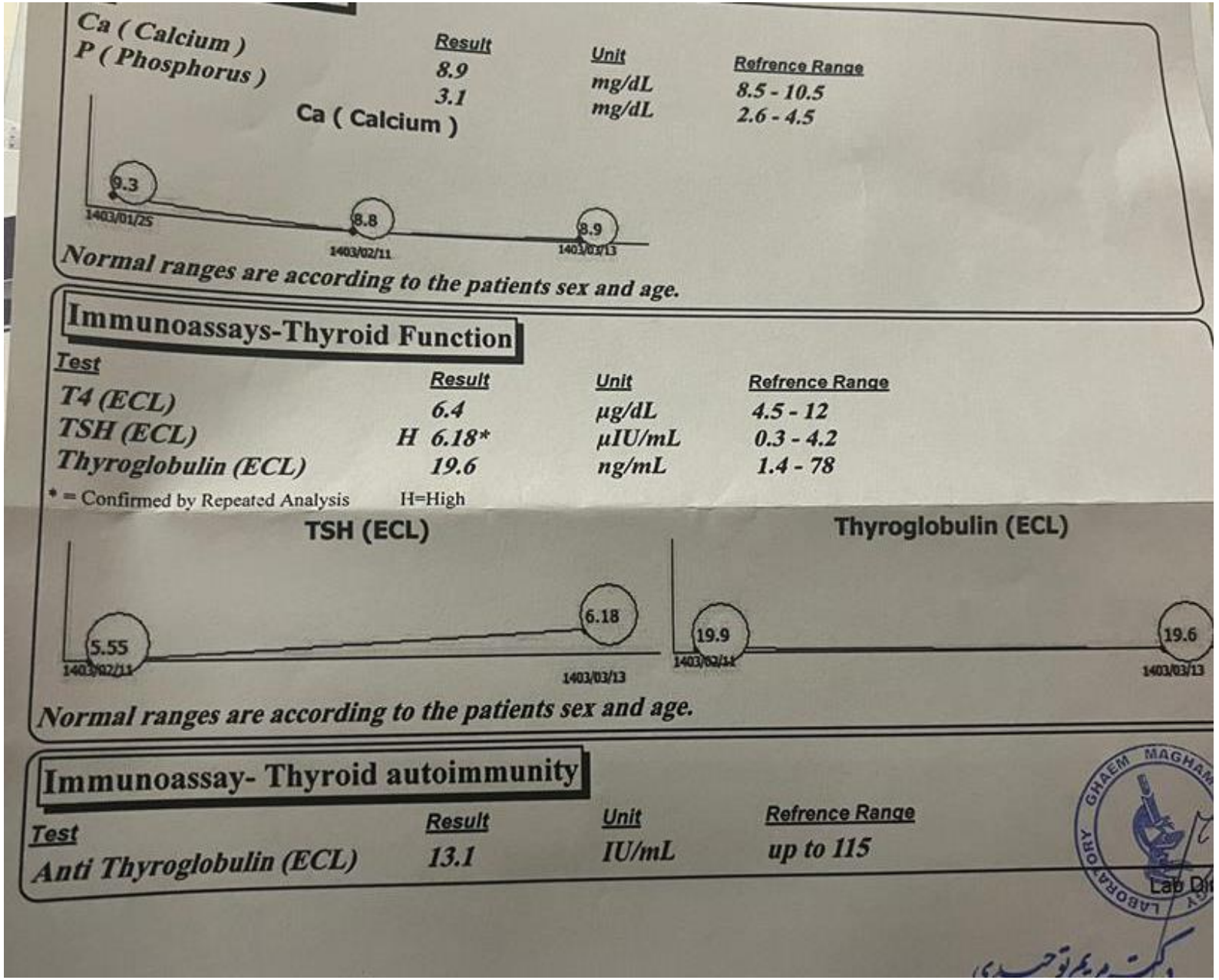
Normal ranges are according to the patients sex and age.

Immunoassay- Thyroid autoimmunity

Test	Result	Unit	Refrence Range
Anti Thyroglobulin (ECL)	*11.5*	*IU/mL*	*up to 115*

12.3.1403

4 weeks after surgery



Test	Result	Unit	Refrence Range
Ca (Calcium)	8.9	mg/dL	8.5 - 10.5
P (Phosphorus)	3.1	mg/dL	2.6 - 4.5

Ca (Calcium)

9.3 (1403/01/25) 8.8 (1403/02/11) 8.9 (1403/03/13)

Normal ranges are according to the patients sex and age.

Immunoassays-Thyroid Function

Test	Result	Unit	Refrence Range
T4 (ECL)	6.4	µg/dL	4.5 - 12
TSH (ECL)	H 6.18*	µIU/mL	0.3 - 4.2
Thyroglobulin (ECL)	19.6	ng/mL	1.4 - 78

* = Confirmed by Repeated Analysis H=High

TSH (ECL)

5.55 (1403/02/11) 6.18 (1403/03/13)

Thyroglobulin (ECL)

19.9 (1403/02/11) 19.6 (1403/03/13)

Normal ranges are according to the patients sex and age.

Immunoassay- Thyroid autoimmunity

Test	Result	Unit	Refrence Range
Anti Thyroglobulin (ECL)	13.1	IU/mL	up to 115

GHAEM MAGHAM LABORATORY

Lab Di

- Past medical:
  - As present illness
  - Breast fibroadenoma since the age of 17 years old

- Drug history:
- Levothyroxine 500 mcg per weeks since 12.3.1403
- Ca-D since 2.2.1403

- Habitual History:
  - Neg
  - Family History :
  - Neg
- Social History :
  - Married
  - No children
  - Education: master of family health

Review of Systems:

- Headache (-) Nausea & Vomiting (-) Visual problems (-)
- Weight changes (-) Appetite changes (-) Sexual problems (-)
- Skin:Pigmentation (-) Diaphoresis (-) Dry & Fragile Hair (-)
- Ears, nose, mouth: Nl
- Cardiovascular: Nl, Palpitation (-)
- Respiratory: Nl
- Gastrointestinal: Nl, Epigastric pain (-)
- Musculoskeletal: Nl
- Neurological: Nl
- Psychiatric:Nl

Physical Examination:

- General Appearance:
  - A 29 year-old woman , awake and alert

- Vital Sign:
  - BP: 120/80 mmHg
  - HR: 72 / min
- BMI:
  - Weight: 64Kg Height:1.65 m BMI:23.5 Kg/m^2

Physical Examination:

- Neck: Scar of pervious surgery
- Thorax: Nl
- Lungs : Clear
- Heart : Normal
- Abdomen : Normal
- Skin: No pigmentation
- Extremities :
    - Upper : Normal
    - Lower : Normal

Problem list:

- A 29-year-old woman
- PTC classic type(1.2x 0.8x 0.6 cm) that underwent lobectomy and isthmectomy

- Three out of 3 lymph node involvement

Agenda

- Risk stratification of patient
- Indications of Prophylactic central-compartment neck dissection
- Which patients are candidate for lobectomy?
- Follow up of patients after lobectomy
- whether completion thyroidectomy is necessary in patient with upgraded risk after surgery based on long-term follow-up?

TABLE 11. ATA 2009 RISK STRATIFICATION SYSTEM WITH PROPOSED MODIFICATIONS

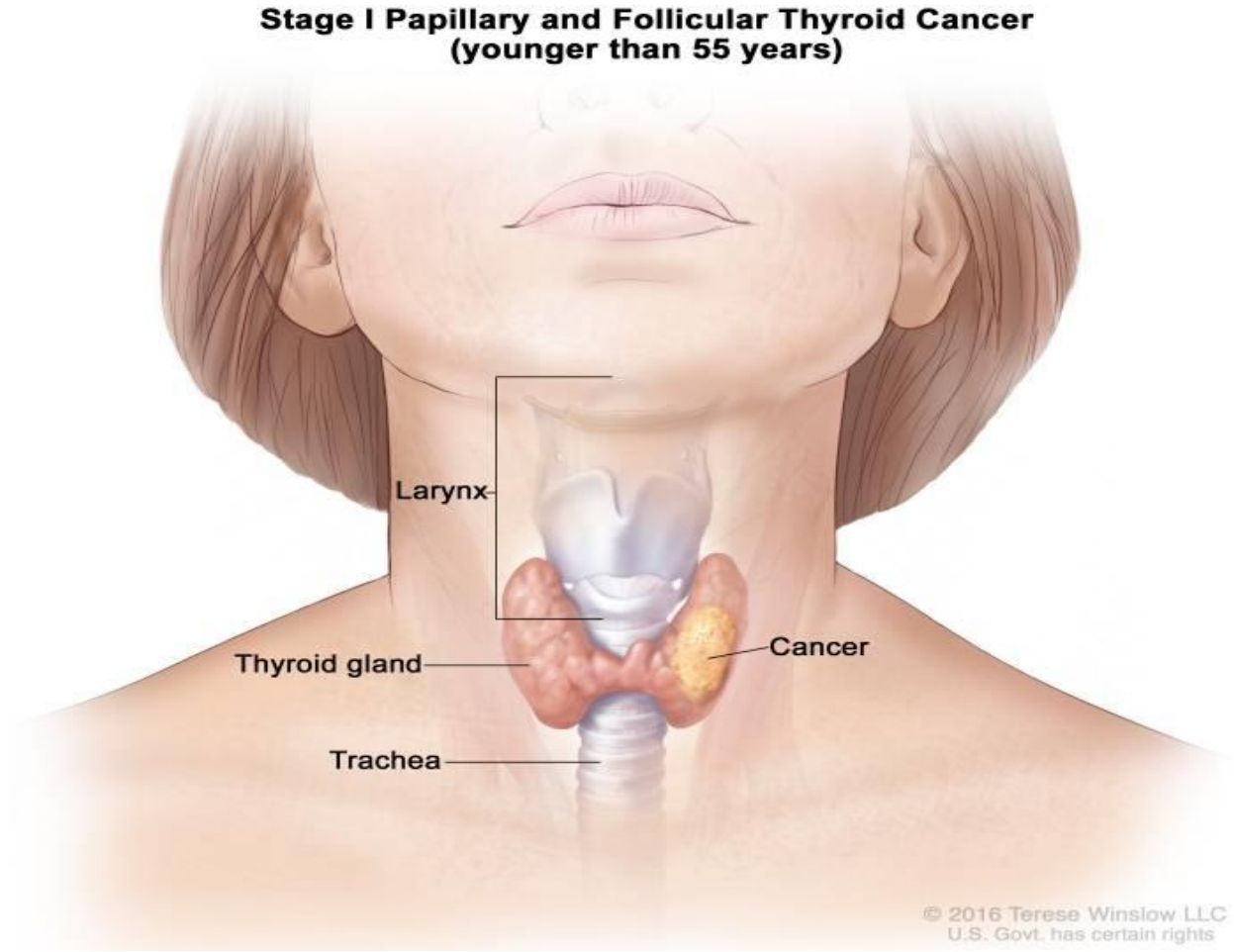
ATA low risk	Papillary thyroid cancer (with all of the following): • No local or distant metastases; • All macroscopic tumor has been resected • No tumor invasion of loco-regional tissues or structures • The tumor does not have aggressive histology (e.g., tall cell, hobnail variant, columnar cell carcinoma) • If ^{131}I is given, there are no RAI-avid metastatic foci outside the thyroid bed on the first posttreatment whole-body RAI scan • No vascular invasion • Clinical N0 or ≤5 pathologic N1 micrometastases (<0.2 cm in largest dimension)[a] Intrathyroidal, encapsulated follicular variant of papillary thyroid cancer[a] Intrathyroidal, well differentiated follicular thyroid cancer with capsular invasion and no or minimal (<4 foci) vascular invasion[a] Intrathyroidal, papillary microcarcinoma, unifocal or multifocal, including *BRAF*^{V600E} mutated (if known)[a]
ATA intermediate risk	Microscopic invasion of tumor into the perithyroidal soft tissues RAI-avid metastatic foci in the neck on the first posttreatment whole-body RAI scan Aggressive histology (e.g., tall cell, hobnail variant, columnar cell carcinoma) Papillary thyroid cancer with vascular invasion Clinical N1 or >5 pathologic N1 with all involved lymph nodes <3 cm in largest dimension[a] Multifocal papillary microcarcinoma with ETE and *BRAF*^{V600E} mutated (if known)[a]
ATA high risk	Macroscopic invasion of tumor into the perithyroidal soft tissues (gross ETE) Incomplete tumor resection Distant metastases Postoperative serum thyroglobulin suggestive of distant metastases Pathologic N1 with any metastatic lymph node ≥3 cm in largest dimension[a] Follicular thyroid cancer with extensive vascular invasion (> 4 foci of vascular invasion)[a]

- **Tumor** : -No tumour invasion of locoregional tissues or structures
  -Not aggressive histology
  -No vascular invasion

- **Node :** clinical N0
  Pathologic N 3/3 ?

- **Distant metastasis :** No distant metastases

- **OTHER :** All macroscopic tumour has been resected


Stage I Papillary and Follicular Thyroid Cancer
(younger than 55 years)
Larynx
Thyroid gland
Cancer
Trachea
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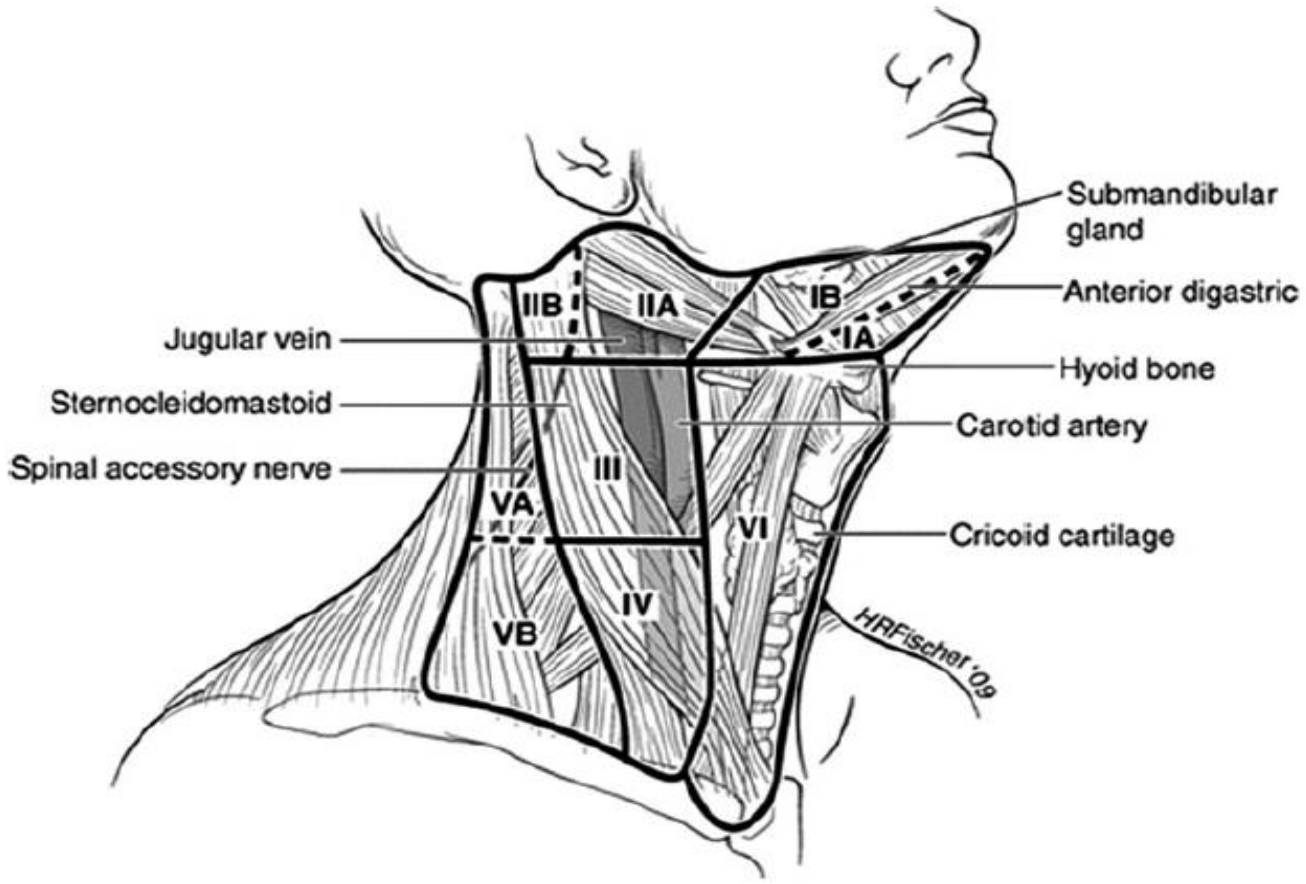
ATA low risk

Lymph node dissection



Therapeutic

Therapeutic central-compartment (level VI) neck dissection for patients with **clinically involved** central nodes **should** accompany **total thyroidectomy** to provide clearance of disease from the central neck.

American Thyroid Association 2015

Prophylactic

- clinically uninvolved central neck lymph nodes (cN0) who have advanced primary tumors (**T3 or T4**)

- clinically involved lateral neck nodes

American Thyroid Association 2015

Category	7th edition		8th edition	
T	0	no evidence of primary tumor	0	no evidence of primary tumor
	1a	size ≤ 1 cm AND intrathyroidal	1a	size ≤ 1 cm AND intrathyroidal
	1b	1 cm < size ≤ 2 cm AND intrathyroidal	1b	1 cm < size ≤ 2 cm AND intrathyroidal
	2	2 cm < size ≤ 4 cm AND intrathyroidal	2	2 cm < size ≤ 4 cm AND intrathyroidal
	3	(size > 4 cm AND intrathyroidal) OR minimal extrathyroidal extension (sternothyroid muscle, perithyroid soft tissues)	3a	size > 4 cm AND intrathyroidal
	4a	extension beyond thyroid capsule (subcutaneous soft tissue, larynx, trachea, esophagus, recurrent laryngeal nerve)	3b	gross extrathyroidal extension (sternohyoid, sternothyroid, thyrohyoid, omohyoid muscles)
	4b	invasion to prevertebral fascia OR encasing the carotid artery, mediastinal vessels	4a	gross extrathyroidal extension (subcutaneous soft tissue, larynx, trachea, esophagus, recurrent laryngeal nerve)
			4b	gross extrathyroidal extension (prevertebral fascia) OR encasing the carotid artery, mediastinal vessels
N	0	no regional lymph node metastasis	0	no regional lymph node metastasis
	1a	metastasis to level VI	1a	metastasis to level VI, VII
	1b	metastasis to level I, II, III, IV, V, VII, retropharyngeal lymph nodes	1b	metastasis to level I, II, III, IV, V, retropharyngeal lymph nodes
M	0	no distant metastasis	0	no distant metastasis
	1	distant metastasis	1	distant metastasis

AJCC American Joint Committee on Cancer, *UICC* Union for International Cancer Control

Current indications for thyroid lobectomy and completion thyroidectomy

The 2015 ATA guidelines

- low-risk papillary and follicular carcinomas

- DTC ≤1 cm (if surgery is chosen, instead of active surveillance), no ETE, no clinical LN metastasis, no prior history of head and neck irradiation and no familial history of thyroid carcinoma.

- DTC >1 cm and ≤4 cm (without ETE and clinical evidence of LN metastasis) either a bilateral procedure (near total or total thyroidectomy) or a unilateral procedure lobectomy).

Current indications for thyroid lobectomy and completion thyroidectomy

- completion thyroidectomy is recommended for patients for whom total or near-total thyroidectomy would have been recommended if the diagnosis had been available before the initial surgery.

REVIEW

Lobectomy in patients with differentiated thyroid cancer: indications and follow-up

Jae Hyun Park and **Jong Ho Yoon**

Department of Surgery, Wonju Severance Christian Hospital, Yonsei University Wonju College of Medicine, Wonju, South Korea

Correspondence should be addressed to J H Yoon: gsyoon@yonsei.ac.kr

Abstract

The extent of thyroid surgery for patients with low- and intermediate-risk differentiated thyroid carcinoma (DTC), with a primary tumour <4 cm and no extrathyroidal extension (ETE) or lymph node (LN) metastases, has shifted in a more conservative direction. However, clinicopathological risk factors, including microscopic ETE, aggressive histology, vascular invasion in papillary thyroid carcinoma (PTC) and intermediate volume of LN metastases, can only be identified after completing thyroid lobectomy. It is controversial whether patients with these risk factors should immediately undergo complete thyroidectomy and/or radioactive iodine remnant ablation or should be monitored without further treatments. Data are conflicting about the prognostic impact of these risk factors on clinical DTC outcomes. Notably, the recurrence rate in patients who underwent thyroid lobectomy is low and the few recurrences that develop during long-term follow-up can readily be detected by neck ultrasonography and treated by salvage surgery with no impact on survival. These findings suggest that a more conservative approach may be a preferred management strategy over immediate completion surgery, despite a slightly higher risk of structural recurrence. Regarding follow-up of post-lobectomy DTC patients, it is reasonable that an initial risk stratification system based on clinicohistological findings be used to guide the short-term follow-up prior to evaluating the response to initial therapy and that the dynamic risk stratification system based on the response to initial therapy be used to guide long-term follow-up.

Key Words

- thyroid
- carcinoma

Endocrine-Related Cancer
(2019) **26**, R381–R393

Table 2 Proposed indications and contraindications of thyroid lobectomy for differentiated thyroid carcinoma.

	Absolute indications	Relative indications	Contraindications
Completion thyroidectomy after thyroid lobectomy	Not recommended	Personalised decision making regarding other concurrent clinicopathologic risk factors	Recommended
Primary tumour size	≤1 cm (if patients choose surgery) and >1 cm and ≤2 cm	>2 cm and ≤4 cm	>4 cm
ETE	No	Minimal (microscopic or only invasion of strap muscle)	Extensive (T4)
LN involvement	Clinical N0 and number of metastatic LNs <3 (or 5) and maximal diameter of metastatic foci of LNs ≤0.35 (or 0.5) cm and metastatic LN ratio ≤0.4	Number of metastatic LNs ≥3 (or 5) or maximal diameter of metastatic foci of LNs >0.35 (or 0.5) cm and ≤2 (or 3) cm or metastatic LN ratio >0.4 (if compartment-oriented LN dissection was performed)	Clinical N1 or maximal diameter of metastatic foci of LNs >2 (or 3) cm
Multifocality	Absent or present	–	–
Histologic variants	Classic	Tall cell, Columnar cell, Hobnail	–
Vascular invasion	In FTC, absent or <4 foci of vascular invasion	In PTC, present	In FTC, ≥4 foci of vascular invasion
	In PTC, absent		–
*BRAF*V600E mutation	Wild	Mutant	–

ETE, extrathyroidal extension; FTC, follicular thyroid carcinoma; LN, lymph node; PTC, papillary thyroid carcinoma.

Park, Jae Hyun, and Jong Ho Yoon. "Lobectomy in patients with differentiated thyroid cancer: indications and follow-up", Endocrine-Related Cancer 26, 7 (2019)

follow-up strategies patients undergoing thyroid lobectomy

- **Tg** and **anti-Tg antibody** : **6–12 weeks** after initial surgery → **6 and 12 months** → **annually** thereafter if patients are disease **free**.

- Periodic **neck ultrasound** : only for patients with reasonable suspicion of structural recurrence.

Park, Jae Hyun, and Jong Ho Yoon. "Lobectomy in patients with differentiated thyroid cancer: indications and follow-up", Endocrine-Related Cancer 26, 7 (2019)

follow-up strategies of patients undergoing thyroid lobectomy

- **TSH target :** is recommended to be maintained between **0.5–2.0** mU/L for patients with an excellent initial therapy response

- **Tg** cutoff : **30** ng/dL

{ A nonstimulated Tg cutoff of 30 ng/mL was chosen since a normal thyroid gland usually secretes 20–60 ng/mL and a lobe would be expected to secrete 50% of this}

Park, Jae Hyun, and Jong Ho Yoon. "Lobectomy in patients with differentiated thyroid cancer: indications and follow-up", Endocrine-Related Cancer 26, 7 (2019)

whether completion thyroidectomy is necessary in patient with upgraded risk after surgery based on long-term follow-up

Original Article

Thyroid lobectomy is sufficient for differentiated thyroid cancer with upgraded risk after surgery

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- retrospective
- medical records of **1702** patients
- between 2006 and 2011
- Thyroid lobectomy and ipsilateral central lymph node (LN) dissection
- mean follow-up durations : **10 years**

Thyroid lobectomy is sufficient for differentiated thyroid cancer with upgraded risk after surgery. Gland Surgery, North America, 11, sep. 2022

Table 2 Clinicopathologic characteristics of patients in Group A and Group B

Variable	Group A (n=1,159)	Group B (n=543)	P value
Sex, n (%)			0.074
Male	181 (15.6)	67 (12.3)	
Female	978 (84.4)	476 (87.7)	
Age, years (%, mean ± SD)			0.600
<55	993 (85.7, 40.4±8.0)	460 (84.7, 40.6±8.1)	
≥55	166 (14.3, 60.2±4.6)	83 (15.3, 59.3±4.0)	
Tumor size, cm (mean ± SD, SEM)	0.54±0.46 (0.01)	0.68±0.53 (0.02)	<0.001
Cancer subtype, n (%)			0.003
Papillary thyroid cancer	1,150 (99.2)	527 (97.1)	
Follicular thyroid cancer	6 (0.5)	13 (2.4)	
Hurthle cell cancer	3 (0.3)	3 (0.5)	
Microscopic capsular invasion, n (%)	0	535 (98.5)	<0.001
Multifocality, n (%)	116 (10.0)	62 (11.4)	0.376
Central lymph node metastasis, n (%)	196 (16.9)	147 (27.1)	<0.001
Number of central lymph node (mean ± SD, SEM)			
Total	5.17±3.95 (0.12)	5.15±3.83 (0.17)	0.940
Positive	0.34±0.86 (0.02)	0.72±1.52 (0.07)	<0.001
Recurrence, n (%)	19 (1.6)	13 (2.4)	0.285
Follow-up duration, years (mean ± SD, SEM)	10.22±1.58 (0.05)	10.13±1.47 (0.06)	0.287

Group A: patients with ≤5 positive central lymph nodes and no pathologic microscopic capsular invasion. Group B: patients with >5 positive central lymph nodes, or pathologic microscopic capsular invasion. SEM, standard error of the mean.

Table 3 Cox proportional hazard analysis of variables predicting recurrence after thyroid lobectomy

Variable	N	Recurrence (n, %)	Univariate analysis		Multivariate analysis	
			HR (95% CI)	P value	HR (95% CI)	P value
Sex				0.452		0.330
Male	248	6 (2.4)	1.000		1.000	
Female	1,454	26 (1.8)	0.734 (0.299–1.803)		0.631 (0.250–1.593)	
Age, years				0.612		0.242
<55	1,453	29 (2.0)	1.000		1.000	
≥55	249	3 (1.2)	0.599 (0.181–1.981)		0.422 (0.100–1.791)	
Tumor size, cm				0.189		0.982
<4	1,691	31 (1.8)	1.000		1.000	
≥4	11	1 (9.1)	5.355 (0.665–43.125)		0.000 (0.000–1.391)	
Multifocality				0.071		0.023
Absent	1,524	25 (1.6)	1.000		1.000	
Present	178	7 (3.9)	2.455 (1.046–5.759)		2.775 (1.153–6.677)	
Microscopic capsular invasion				0.258		0.151
Absent	1,167	19 (1.6)	1.000		1.000	
Present	535	13 (2.4)	1.505 (0.738–3.070)		1.749 (0.816–3.752)	
CLN metastasis				0.033		0.163
Absent	1,175	17 (1.4)	1.000		1.000	
Present	343	11 (3.2)	2.257 (1.047–4.865)		1.783 (0.791–4.020)	
Number of CLN metastasis				0.230		0.462
≤5	1,504	27 (1.8)	1.000		1.000	
>5	14	1 (7.1)	4.208 (0.531–33.323)		2.180 (0.273–17.428)	

HR, hazard ratio; CLN, central lymph node.

sex, **age**, **tumor size**, **multifocality**, **extrathyroidal extension** , **central LN metastases**, and **number of central LN metastases** were **not** associated with recurrence after TL

Thyroid lobectomy is **sufficient** for patients with Differentiated Thyroid Cancer whose risk is **upgraded** after surgery because they have a **good prognosis** at long-term follow-up.

Thyroid lobectomy is sufficient for differentiated thyroid cancer with upgraded risk after surgery. Gland Surgery, North America, 11, sep. 2022

Completion thyroidectomy may not be required for papillary thyroid carcinoma with multifocality, lymphovascular invasion, extrathyroidal extension to the strap muscles, or five or more central lymph node micrometastasis

- Aim : to determine whether completion thyroidectomy is necessary based on long-term follow-up oncological results according to various clinical and pathological characteristics of patients with PTC who underwent lobectomy.
- 1815 patients
- 2003 to 2014
- Follow-up : 10 years

. Completion thyroidectomy may not be required for papillary thyroid carcinoma with multifocality, lymphovascular invasion, extrathyroidal extension to the strap muscles, or five or more central lymph node micrometastasis. Oral Oncol. 2022

Table 1
Various clinical and pathologic features associated with recurrence in patients with PTC underwent lobectomy (N = 1815).

	Lobectomy without recur (N = 1,733)	Lobectomy with recur (N = 82)	*P*-value
Mean age (range)	55.70 ± 11.22	55.61 ± 12.02	0.943
Sex	289	9	0.173
Male	(16.7)1,444	(11.0)73	
Female	(83.3)	(89.0)	
Maximal tumor size	0.68 ± 0.47	0.72 ± 0.59	0.451
Multifocal tumor	1518	68	0.214
No	(87.6)215	(87.4)14	
Yes	(12.4)	(12.6)	
Extrathyroidal extension			
No	1227(70.8)506	51(62.2)31	0.095
Yes	(29.2)	(37.8)	
Lymphovascular	430	23	0.508
invasion	(24.8)1303	(28.0)59	
No	(75.2)	(72.0)	
Yes			
Capsular invasion	948	44	0.853
No	(54.7)785	(53.7)38	
Yes	(45.3)	(46.3)	
Central LN metastasis	(N = 1469)1031	(N = 59)39	0.502
No	(70.2)438	(66.1)20	
Yes	(29.8)	(33.9)	
Pathologic variant	1627	76	0.960
Classical	(93.9)1	(92.7)0	
Diffuse sclerosing	(0.1)10	(0)0	
Encapsulated	(0.6)65	(0)5	
Follicular variant	(3.8)1	(6.1)0	
Lymphocyte	(0.1)3	(0)0	
predominant	(0.2)23	(0)1	
Oncocytic	(1.3)	(1.2)	
Tall cell variant	3(0.2)	0(0)	
Warthin like			

Data are given as mean ± SD and values in brackets are percentages (%). The chi-square test and Independents-Samples T-test were used to evaluate the significance of the correlations between recurrence and clinicopathologic factors. Abbreviation: LN; Lymph node.

- Eighty-two (4.5%) patients showed locoregional recurrence during the average 10.2-year follow-up period.
- There was **no** significant difference in **tumor size**, **multifocality**, **lymphovascular invasion** , microscopic or **strap muscle-extrathyroidal extension**, and **central neck lymph node micrometastasis** between the recurrence and non-recurrence groups.
- **Conclusion:** After thyroid lobectomy, PTC patients with **multifocality**, **LVI**, **extrathyroidal extension to the strap muscles**, or **five or more central LN micrometastases** may **not** require **immediate** completion thyroidectomy.

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Partial Thyroidectomy With Incidental Metastatic Lymph Nodes

Ehab Alameer, MD1,2; Alana Eagan, MPH2; Daniel W. Scholfield, MBChB, BSc2; et al

- Aim : To investigate the outcomes of patients with incidental metastatic lymph nodes following partial thyroidectomy
- A retrospective review of a prospectively maintained thyroid cancer database
- 1985 to 2015
- 74 patients
- underwent thyroid lobectomy or thyroid isthmusectomy
- have incidental metastatic lymph nodes on final pathologic analysis and were selected to be observed without immediate completion thyroidectomy were included

Alameer E, Eagan A, Scholfield DW, et al. Partial Thyroidectomy With Incidental Metastatic Lymph Nodes. JAMA Otolaryngol Head Neck Surg. 2024

- Classic papillary thyroid: carcinoma (34 [46%])
- Vascular invasion : 11 patients (16%)
- microscopic extrathyroidal extension: 22 patients (30%)
- Positive margins : 5 patients (7.8%)
- Size of metastatic lymph nodes: between 0.07 cm and 1.2 cm
- median follow up : **48**.15 **months**

- only **1** patient had regional recurrence after a median follow-up of 48 months

- **Completion** thyroidectomy may **not** be necessary in appropriately selected patients who are found to have incidental metastatic lymph nodes (N1a) after partial thyroidectomy for localized well-differentiated thyroid cancer