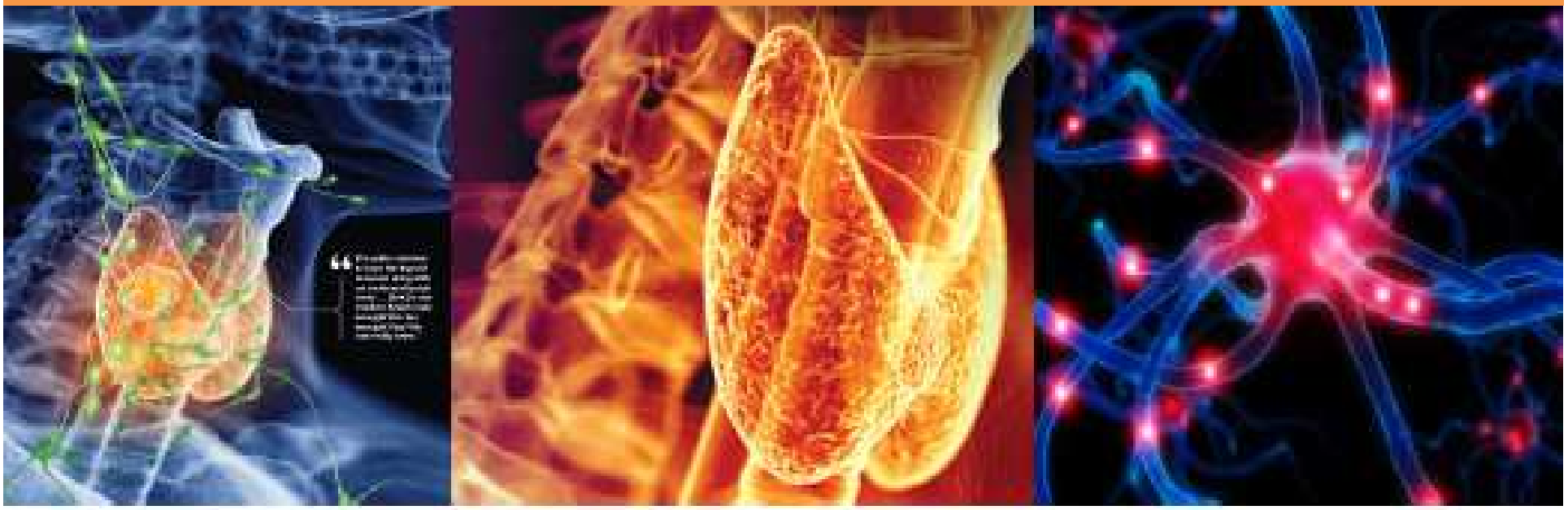
A 79-year old women with previous history of papillary thyroid cancer presented with recurrent mass at neck



Sirinate Krittiyawong, M.D.
14 November 2018

เทพธารินทร์
Theptarin Hospital
สมดุลชีวี ... ด้วยวิถีพอเพียง

Case 1

- หญิงไทยหม้าย อายุ 78 ปี , ไม่ได้ประกอบอาชีพ
- ที่อยู่ อำเภอเมือง จังหวัดสมุทรปราการ
- อาการสำคัญ : มีก้อนโตขึ้นบริเวณคอมา 5 วัน

ประวัติปัจจุบัน

- 5 วันก่อนมาโรงพยาบาลรู้สึกเจ็บบริเวณคอและสังเกตว่ามีก้อน บริเวณก้อนแดง กดเจ็บและมีไข้ต่ำๆ

ประวัติอดีต

- ความดันโลหิตสูง เป็นมานาน 10 กว่าปี
- ผู้ป่วยเคยได้รับการผ่าตัดต่อมไทรอยด์ด้านซ้ายไปเมื่ออายุ 40ปี ไม่ทราบรายละเอียด
- 2 ปีก่อนมีก้อนใหม่ที่ไทรอยด์ด้านขวา ได้รับการผ่าตัด total thyroidectomy ที่โรงพยาบาลเอกชน จังหวัดสมุทรปราการ แล้ว refer มาเพื่อให้ radioactive iodine treatment

ประวัติอดีต

- ผลชิ้นเนื้อตามใบรายงานผลมีดังนี้

  Right lobe - Papillary thyroid cancer, tumor size was not reported, right lobe tissue was 3.0x3.0x6.0 cm, no striated muscle invasion

  Left lobe - Hyperplastic nodule with a small follicular adenoma

ประวัติอดีต

- ได้ admit ให้ radioactive iodine treatment ปริมาณ 150 mci และ total body scan รายงานว่ามี intense radioactive iodine uptake at thyroid bed, no evidence of distant metastasis ผู้ป่วยขอกลับไปรักษาต่อที่เดิม
- ผู้ป่วยได้รับประทานฮอร์โมนไทรอยด์แต่มาตรวจติดตามอาการไม่สม่ำเสมอ มีช่วงขาดยาไปนาน 8 เดือนและกลับมารับประทานยาใหม่ล่าสุดได้รับยา Levothyroxine 100 ug/day
- ผลเลือดล่าสุด 3 เดือนก่อน TSH เท่ากับ 0.08 uIU/ml และ Tg เท่ากับ 1.19 ng/ml ไม่ได้ตรวจ Anti-Tg

ยาที่ได้รับอยู่

- Levothyroxine (100 ug) 1 tab,OD
- Amlodipine (5 mg) 1 tab,OD
- Enalapril (20 mg) 1 tab,OD
- Atenolol (25 mg) 1 tab,OD

ผลตรวจร่างกาย

GA - An old women , good consciousness

VS - T37.0°C, BP 146/71 mmHg, RR 18/min, PR 70/min

Eye - Not pale, not icteric

ENT - A 3x3 cm mass, adjacent to previous surgical scar with skin erythema, tense consistency and mild tenderness

- No palpable lymph node

ผลตรวจร่างกาย

Heart - Regular, no murmur

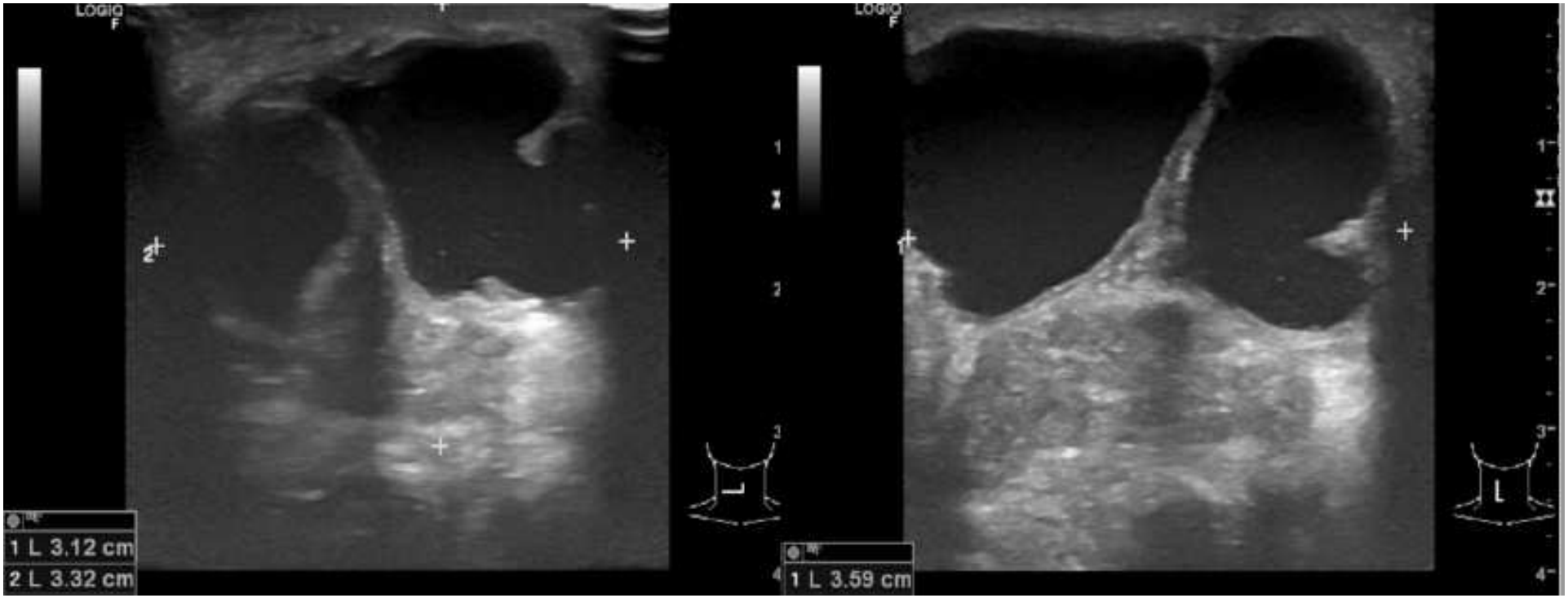
Lung - Clear

Abdomen - Soft, not tender

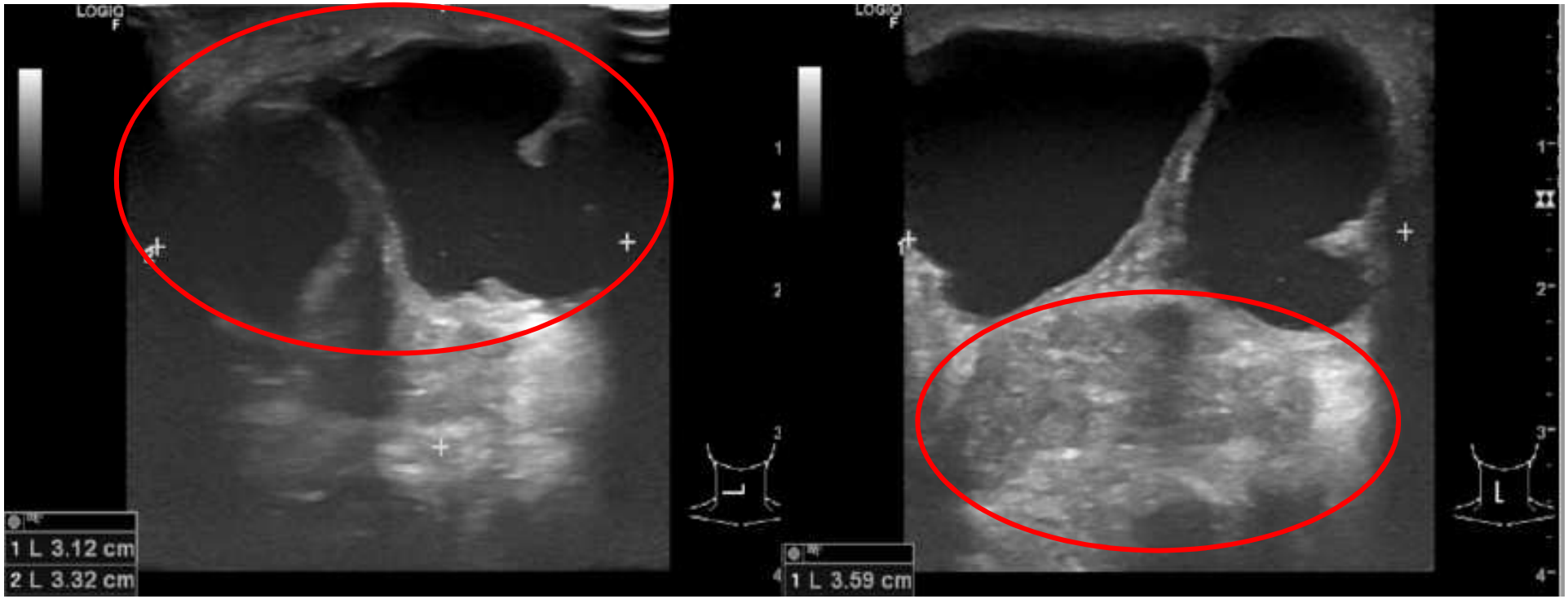
- No palpable liver and spleen

Extremities - No edema

Ultrasonography of thyroid and neck



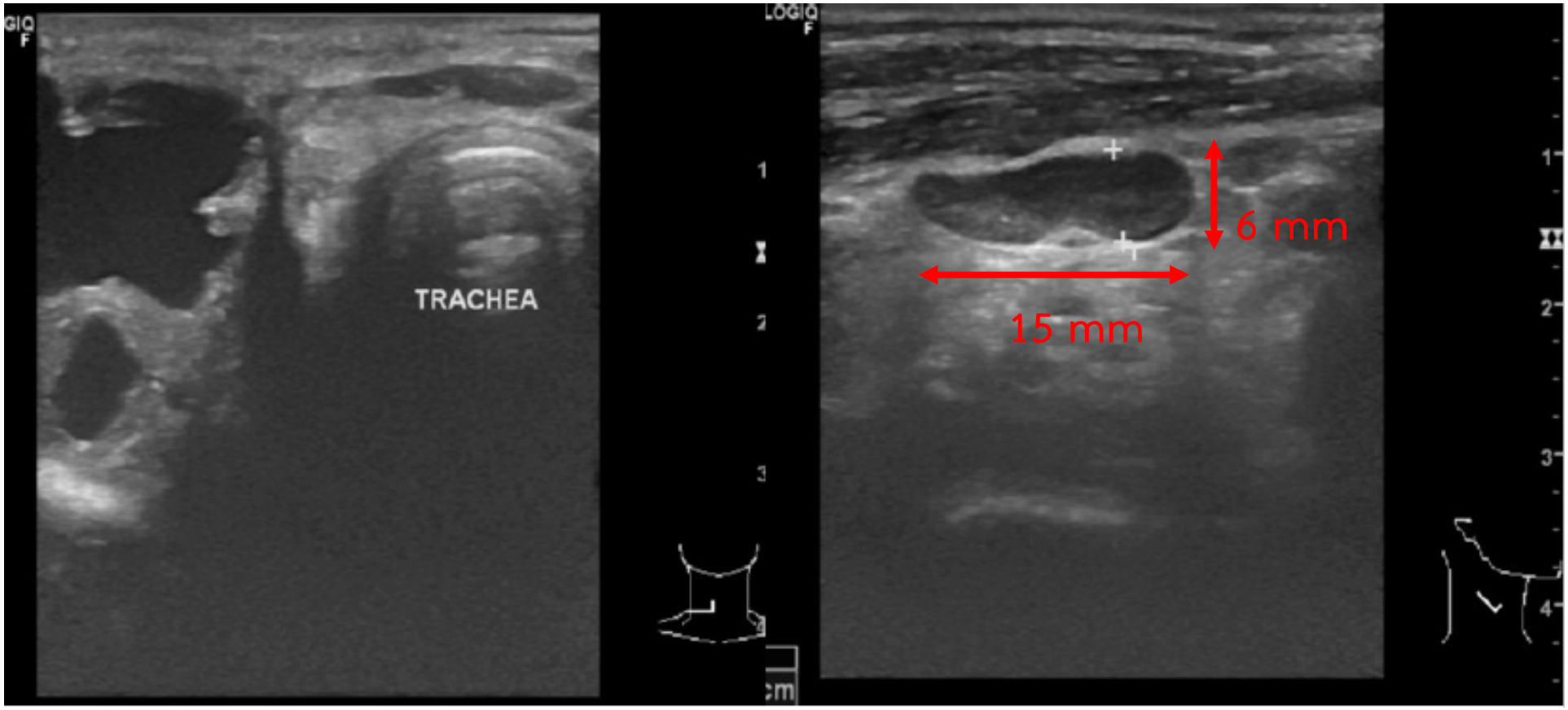
Ultrasonography of thyroid and neck



Cystic part, size 3.1x3.3x3.6 cm

Solid part, size 2.1x1.6x2.8 cm

Ultrasonography of thyroid and neck



Ultrasonography of thyroid and neck

- Heterogeneous echogenicity of solid lesion with multiple internal calcifications at right thyroid bed (size 2.1x1.6x2.8 cm) with adjacent complex multilocular cystic lesion with septations.(size 3.1x3.3x3.6 cm)
- One enlarged cervical Lymph node at gr IV of right neck. Lymph node size was 0.6 cm in short axis and absent fat hilum.

What is your differential diagnosis ?

Investigations

- CBC- Hb 11.5 gm/dl, Hct 37.6%, WBC 4,430/mm^3 (N58, L35, E2), Plt 238,000/mm^3
- Thyroid aspiration was done. The fluid amount was 10 cc. in brown colour with mild turbidity.
- Fluid examination
  - Gram stain - PMN 2+, no organism
  - Cytological exam- Large number of PMN and debris cell. Suggestion of inflammation.
  - Culture for bacteria- No growth

Investigations

- CBC- Hb 11.5 gm/dl, Hct 37.6%, WBC 4,430/mm^3 (N58, L35, E2), Plt 238,000/mm^3
- Random BS- 157 mg/dl, Cr- 0.71 mg/dl
- CXR - Calcified nodule at right lower lung, 0.5 cm in dimension

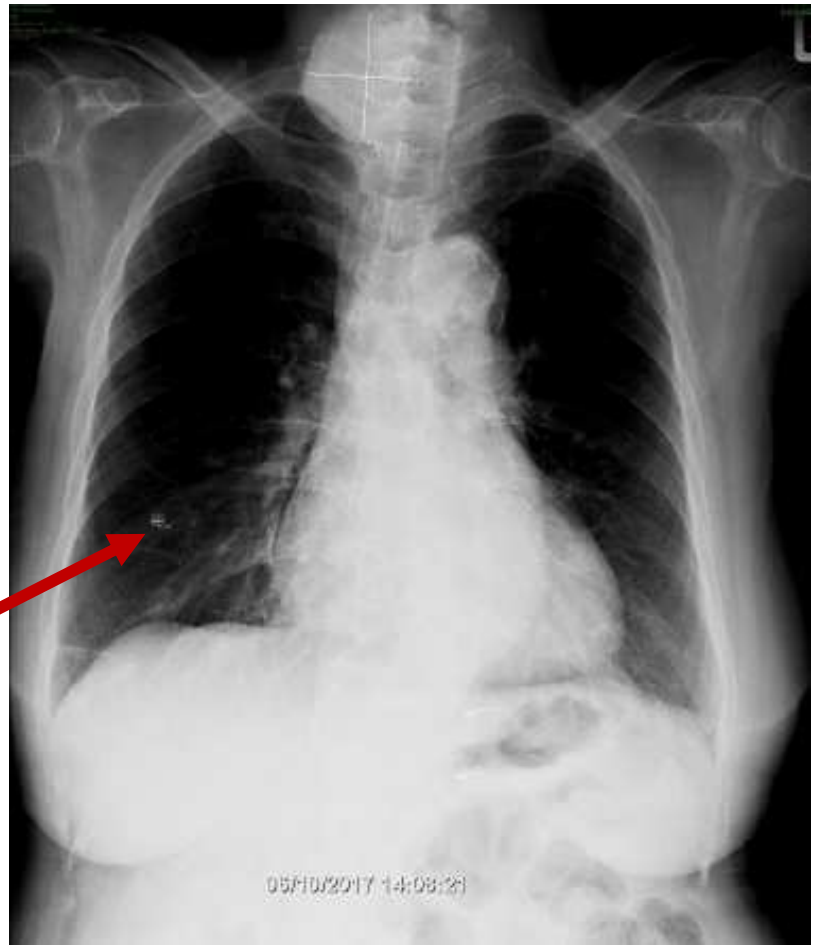
Progression

- Oral antibiotics was prescribed for one week.
- Thyroid nodule was rapidly growing after first aspiration. The size was 4.1x4.5 cm by palpation with skin erythema and mild tenderness.
- UGFNA of thyroid mass was done. Sections revealed small groups of papillary carcinoma.

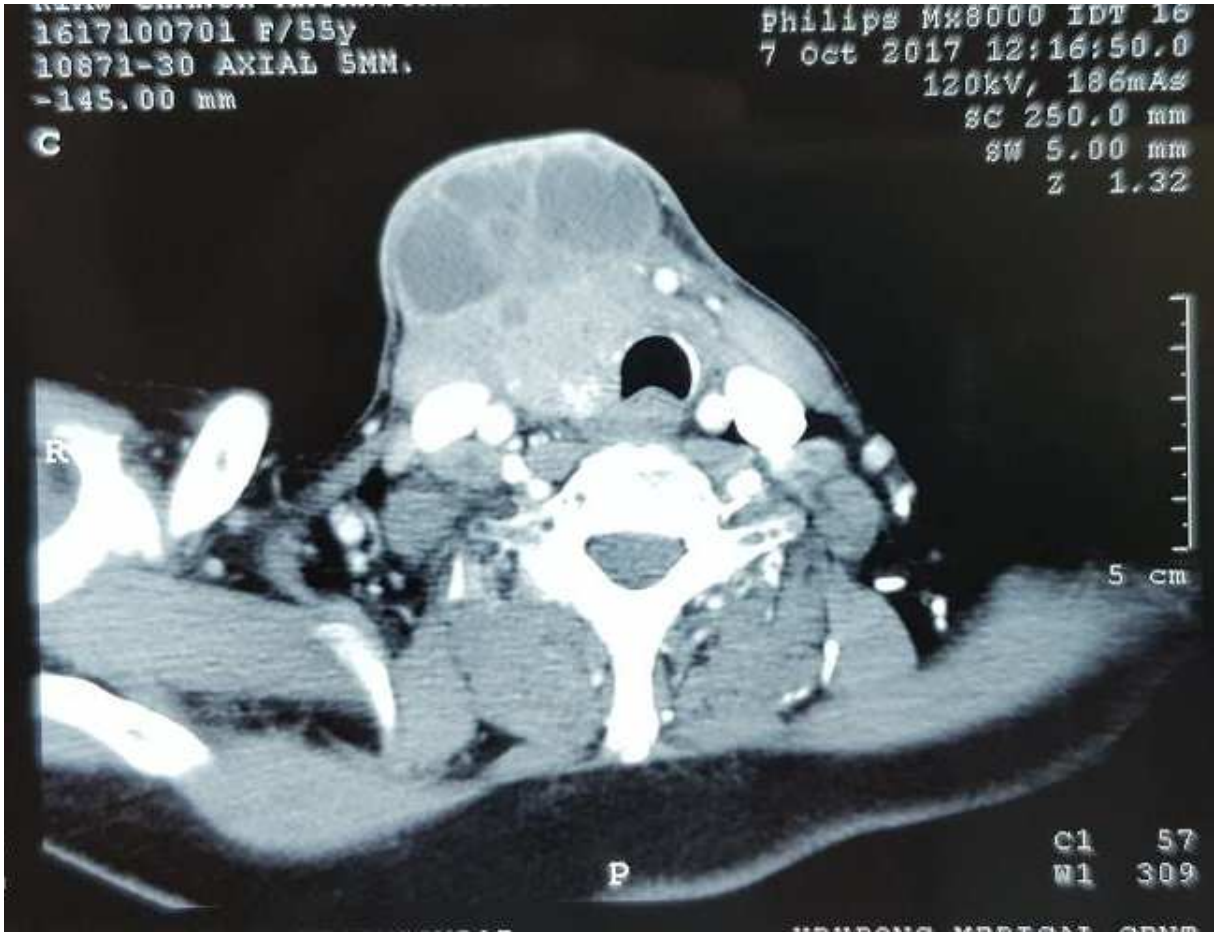
What is your next management ?

Chest film

Calcified nodule, 0.5 cm



Computed Tomography of neck
(7 Oct 2017)



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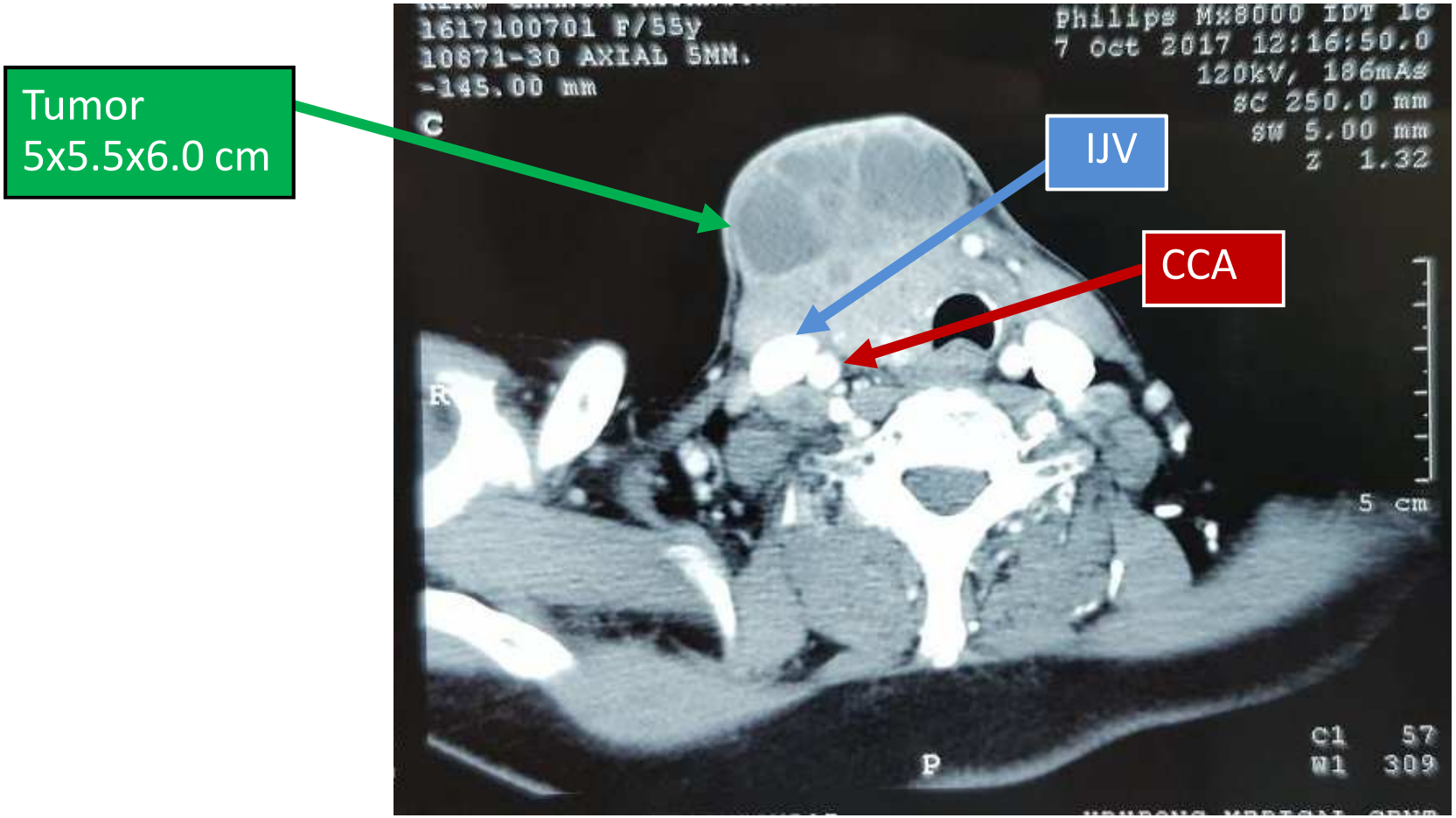
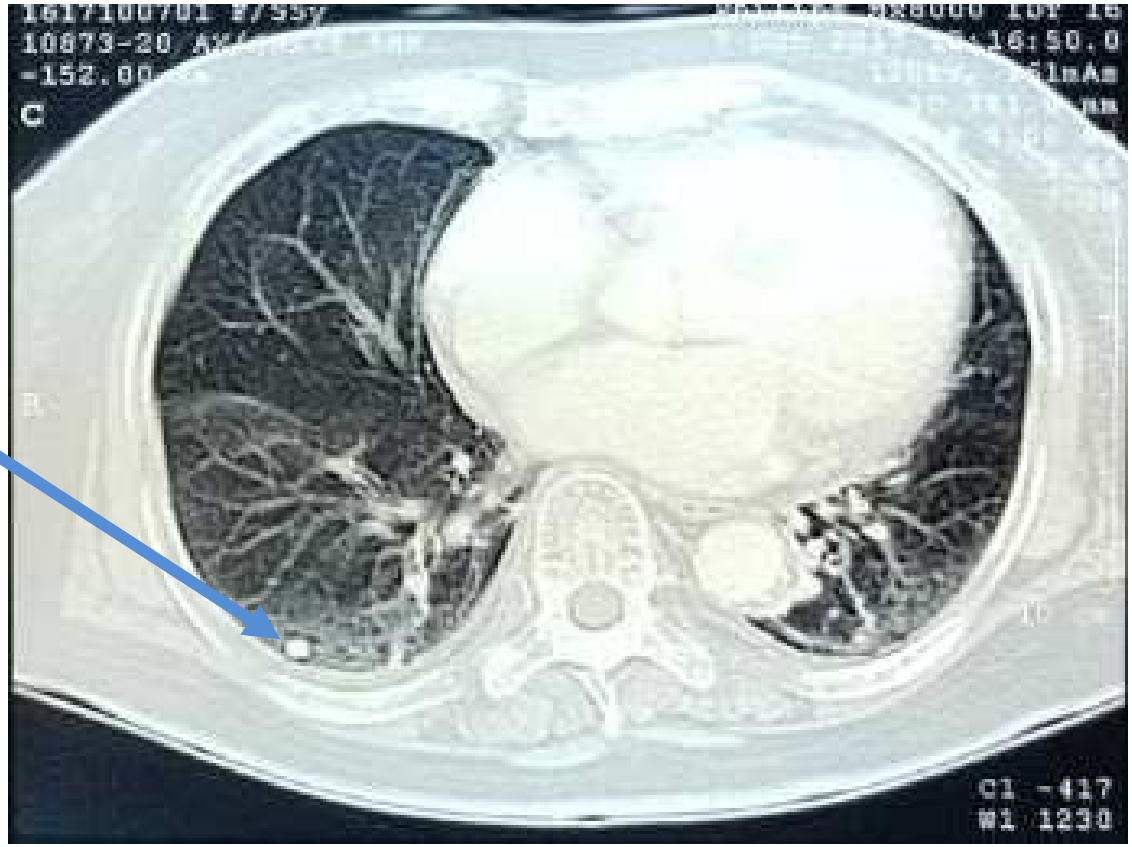
Computed Tomography of neck
(7 Oct 2017)



Computed Tomography of chest

Calcified nodule
RLL, 5 mm



Computed Tomography of neck and chest

- A large solid and cystic mass with internal calcification, size 5x5.5x6.0 cm, close to medial wall of right carotid sheath
- No enlargement of cervical lymph node
- A 5 mm calcified nodule at right lower lung

Second operation for recurrent papillary thyroid carcinoma

- Finding
  - Tumor mass was 7x5x3 cm in diameter with adhesion to trachea and right recurrent laryngeal nerve. Soft tissue mass 3x0.7x0.5 cm adjacent to tumor mass was found.
- Procedure
  - Tumor mass and soft tissue mass were excised with sacrifice of right recurrent laryngeal nerve.

Surgical pathology report (second operation)

- Thyroid mass - Papillary thyroid cancer with invasion of the adjacent thyroid tissue. No vascular invasion was demonstrated.
- Soft tissue mass – Papillary thyroid cancer with same characteristics of thyroid mass.

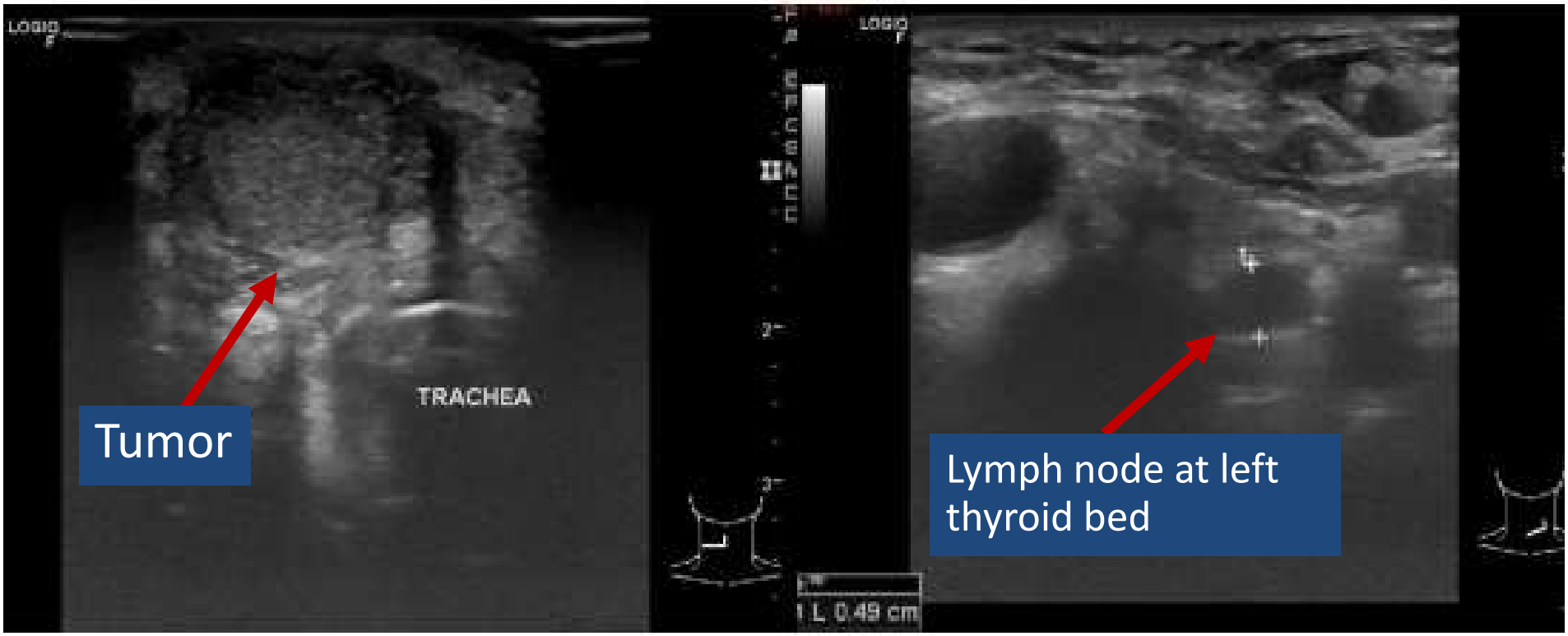
Second dose of RAI and TBS
(9 Nov 2017)

- TBS was done after 150 mci of RAI was given.
- Result
  - No abnormal radioiodine uptake at thyroid bed and the rest of whole body.

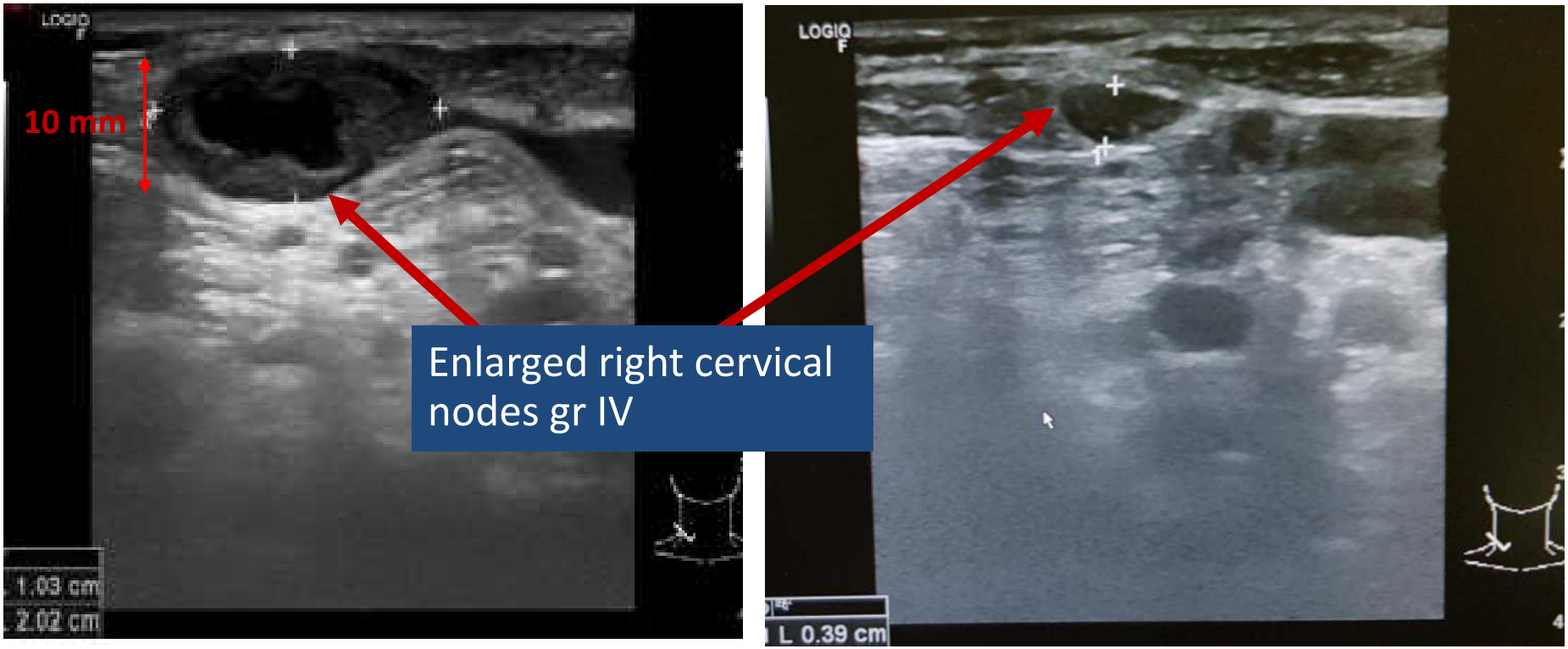
Progression

- At 7 months after second surgery, a 2 cm nodule recurred at the same location with skin erythema.
- ENT examination revealed right vocal cord paralysis without demonstrated tumor.
- Result of blood test
  - TSH - 0.01 uIU/ml (with Levothyroxine 125 ug/d)
  - Thyroglobulin < 0.04 ng/ml
  - Anti-TG- not done

Ultrasonography of neck (May 2018)



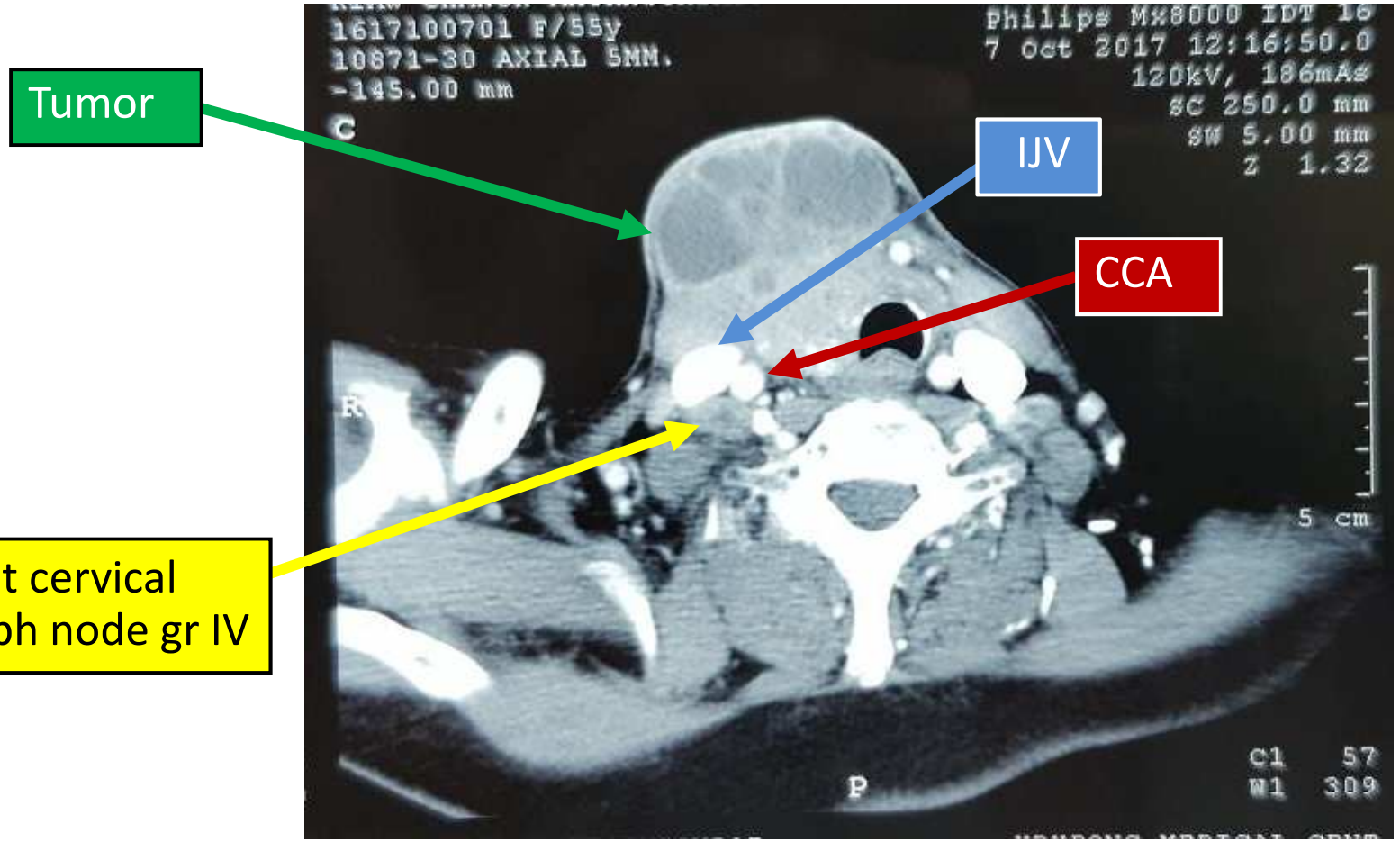
Ultrasonography of neck (May 2018)



Ultrasonography of neck (May 2018)

- Disappearance of previously seen a large cystic and solid mass at right thyroid bed.
- Newly seen a lobulated solid mass with heterogenous echogenicity at right cervical region.
- Bilateral enlargement of lymph nodes at right group IV and left thyroid bed.

Review of previous CT neck (7 Oct 2017)



What's your presumptive diagnosis for these recurrent masses and next management?

Third operation

- Finding

  - Inflammatory midline mass, 2 cm in diameter, located at cricothyroid level. No cartilage invasion was seen.

  - Right lower cervical nodes (gr IV) and left paratracheal nodes (gr VI) were found.

- Procedure

  - Tumor mass and surrounding tissue including muscle and cartilage were excised.
  - Lateral neck compartment lymph node dissection and suspicious left paratracheal nodes removal were performed.

Surgical pathology report

Diagnosis:

Central mass, excision	:	Involvement of poorly differentiated squamous cell carcinoma, consistent with de-differentiation of papillary thyroid carcinoma into squamous cell carcinoma.
	:	Size = 2.5x2.3x2.0 cm.
	:	Lymphatic invasion is identified.
	:	All surgical margins are free of the carcinoma.
Surrounding tissue, inner aspect	:	Negative for tumor invasion.
Surrounding tissue, outer aspect	:	Negative for tumor invasion.
	:	One reactive lymph node seen (0/1).
Lymph nodes, Rt.lateral cervical	:	Metastatic papillary thyroid carcinoma with foci of de-differentiation into squamous cell carcinoma in 1 out of 14 lymph nodes (1/14).
	:	Perinodal invasion of papillary carcinoma component seen.
Lymph nodes, Lt.cervical	:	Negative for metastatic carcinoma (0/5).

Summary of immunohistochemistry

	PTC component	SCC component	Both
TTF1	Yes	No	No
Thyroglobulin	Yes	No	No
CK5/6	No	Yes	No
CK19	Yes	Yes	Yes
PAX8	Yes	Yes	Yes
p63	Yes	Yes	Yes
p53	Yes	Yes	Yes
p16	No	No	No

Diagnosis

- Recurrent papillary thyroid carcinoma, with de-differentiation into poorly differentiated squamous cell carcinoma(PTC-SCC)

De-differentiation of Papillary Thyroid Carcinoma into Squamous Cell Carcinoma (PTC-SCC)

- This rare cancer often occur in association with the tall cell variant of PTC.
- Overall clinical characteristics are aggressive.
- One third of primary lesions were preoperatively diagnosed as or suspected of having SCC components by FNA or CNB.[1]

1.Ito et al. J Thyroid Res 2012;1-5.

Well-differentiated tumors associated with a squamous cell component

Series	Pathologic finding	Diagnostic criteria	Number of patients
Ito et al.[1]	Papillary thyroid carcinoma with squamous cell component	Malignant squamous cells associated with papillary thyroid carcinoma	10: PTC dominant (>50%): 4 TC dominant: 3 SCC dominant: 1 Undifferentiated component : 2
Beninato et al.[2]	Papillary thyroid carcinoma with squamous differentiation	Malignant squamous cells comprise <50% of the tumor	10: PTC dominant: 8 TC dominant: 2
Kleer et al.[3]	Primary squamous cell carcinoma of the thyroid	Malignant squamous cells comprise >75% of tumor	8: PTC component: 2 TC component: 4 Undifferentiated component: 2

1.Ito et al. J Thyroid Res 2012;1-5.
2.Beninato et al. J Surg Res 2018;39-45.
3.Kleer et al. Mod Pathol 2000;13:742-6.

Overall aggressive characteristics and outcome of treatment

	Ito et al. [1]	Beninato et al.[2]
Number of case	10	10
Duration of follow-up	Range 5-43 mo	Median 56.5 mo Range 3-158 mo
Rapid growth	20%	NA
Extrathyroidal extension	80%	67%
Locoregional recurrence	NA	60%
Metastasis	Node metastasis 100% Distance metastasis 20% (lung)	Node metastasis 80% Distance metastasis 30% (lung)
Outcome of treatment	Death 30% Alive 70% (10% AWC, 60% AWEC)	Death 10%

1.Ito et al. J Thyroid Res 2012;1-5. 2.Beninato et al. J Surg Res 2018;39-45.

Differential diagnosis of PTC-SCC

- Anaplastic thyroid carcinoma with squamoid differentiation (Spindle cell squamous carcinoma, SCSC)
- Metastatic squamous cancer from adjacent upper aero-digestive organ

Treatment of PTC-SCC

- No standard protocol of treatment can be established since the rarity of disease.
- Long-term survival can be expected for some PTC-SCC patients if they undergo locally curative surgery and do not have distant metastasis at diagnosis or a UC component.
- Multimodality therapy should be considered for aggressive diseases.
  - Adjuvant chemotherapy
  - Adjuvant radiation (External beam radiation therapy, EBRT)

Take home message

- Rapidly growing thyroid cancer should be considered for the differential diagnosis of painful thyroid lesion.

- Preoperative CT or MRI is recommended as an adjunctive to US for patients with clinical suspicious for advance disease.

Take home message

- The decision for treatment and surgery is best derived through collaborative team approach involving surgery, endocrinology, and importantly the patient and family.

Take home message

- De-differentiation of PTC into SCC is rare. Most cases were diagnosed postoperatively.

- Long-term survival can be expected for some PTC-SCC patients if they undergo locally curative surgery and do not have distant metastasis at diagnosis or a UC component.


Thank you for your kind attention