

Metastases of Renal Cell Carcinoma to Thyroid Gland

*Hong Kong Association of Endocrine Surgeons
5th Clinical Meeting*

*SIU Lincoln
United Christian Hospital*

Outline

- ◆ Case presentation
- ◆ Literature Review

Case presentation

Case presentation

- ◆ 68 / M
- ◆ Hx of Right Renal Cell Carcinoma (RCC)
- ◆ Referred from Oncology for incidental CT detected thyroid nodules

Case presentation

- ◆ 68 / M
- ◆ Ex smoker , non drinker
- ◆ Past health : Left hemifacial spasm
 - ◆ CT Brain + Brainstem auditory evoked potential (BAEP) - unremarkable
 - ◆ Dysport injection

Right RCC

- ◆ 8/2013 : Open right radical nephrectomy + renal vein thrombectomy + adrenalectomy
- ◆ Pathology : pT4, clear cell , Fuhrman G2 , renal vein margin involved (closed to IVC)



Right RCC

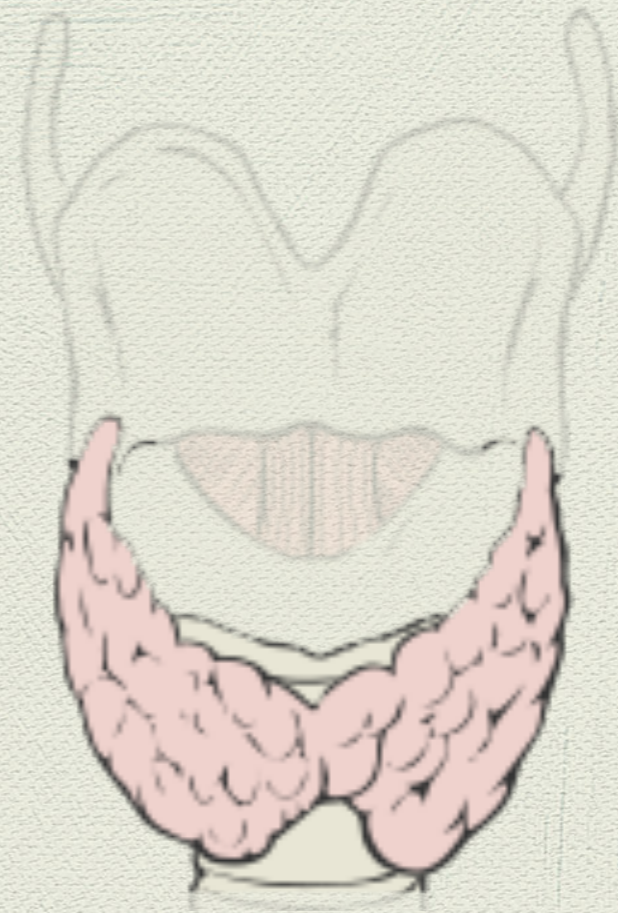
- ◆ Post op plan :
- ◆ No role for adjuvant Sunitinib
- ◆ For CT surveillance

Right RCC

- ◆ FU CT (2013 - 2015) showed suspected lung , adrenal nodules
- ◆ Discussed option of palliative target therapy
- ◆ Opt to observe

Thyroid nodules

- ◆ FU PET CT 9/2015
- ◆ FU CT 10/2016 :
 - ◆ 1.9 cm hypodense hypoenhancing right lobe nodule



Thyroid nodules

- ◆ USG thyroid 2/2017
- ◆ Several right lobe nodules
- ◆ Largest right middle / lower lobe heterogenous echogenic 2.1 x 1.9 x 2.47 cm with internal hypoechoic shadow
- ◆ No enlarged cervical LN

Thyroid nodules

- ◆ CT 3/2018
 - ◆ Largest right thyroid nodule 3.8 x 2.8 cm
- ◆ USG FNAC 2/2019
 - ◆ Cystic fluid , non diagnostic (C1)



Thyroid nodules

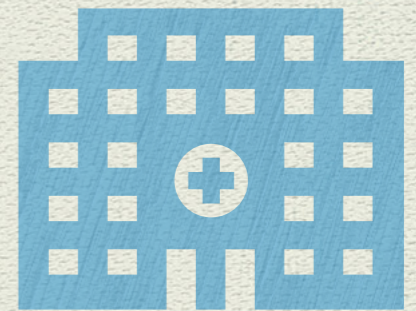
- ◆ Repeat USG FNAC 5 / 2020
- ◆ Clear cell neoplasm , favour metastatic renal cell carcinoma (PAX8 +ve , PTH / TTF1 / CK7 -ve)

Thyroid nodules

- ◆ Private PET CT 8 / 2020
 - ◆ No local recurrence
 - ◆ 5.2 cm right lobe heterogenous mass (FDG uptake 3.2 SUV)
 - ◆ No enlarged / hypermetabolic cervical lymph node

Metastasis to thyroid

- ◆ Right hemithyroidectomy 8 / 2020
- ◆ Large vascular thyroid
- ◆ Multiple right thyroid nodules



Metastasis to thyroid

- ◆ Right hemithyroidectomy 8 / 2020
- ◆ Metastatic renal cell carcinoma , clear cell type / multifocal
- ◆ Anterior resection margin involved

Metastasis to thyroid

- ◆ Post op plan :
- ◆ Not for completion thyroidectomy

Latest condition

- ◆ Latest PET CT 3 / 2022
- ◆ No local recurrence at anatomical right renal bed
- ◆ No new metabolically active metastatic lesion

Literature Review

Prevalence

- ◆ Thyroid metastasis
 - ◆ 2 % (1.4-3%) of all thyroid malignancy
- ◆ Common primary site
 - ◆ RCC : 25 - 50%
 - ◆ Lung , Breast , GI tract , Head and neck

[Tjahjono, 2021]
[Stergianos, 2021]

Prevalence

- ◆ RCC site of metastasis
- ◆ Common : lung , regional LN , bone , liver
- ◆ Uncommon : thyroid

[Tjahjono, 2021]

Pathophysiology

- ◆ Thyroid metastasis is rare :
- ◆ Fast arterial blood flow prevent from secondary tumour
- ◆ High concentration of oxygen and iodine

[Stergianos, 2021]

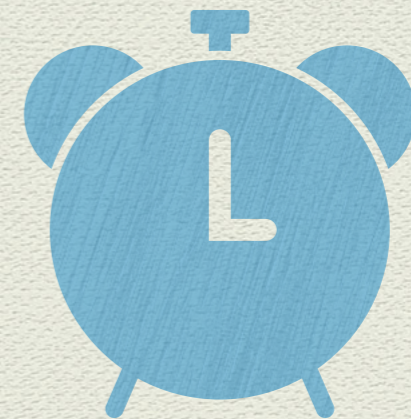
Pathophysiology

- ◆ RCC being commonest primary site :
- ◆ Haematogenous spread through paravertebral venous plexus of Batson
- ◆ Bypass pulmonary circulation

[Tjahjono, 2021]

Latency period

- ◆ Median time : 5-10 years



[Tjahjono, 2021]

Presentation

Clear-cell renal cell carcinoma single thyroid metastasis: A single-center retrospective analysis and review of the literature

Isabella Ricci ¹, Francesco Barillaro ², Enrico Conti ², Donatella Intersimone ³, Paolo Dessanti ³, Carlo Aschele ¹

¹ Department of Oncology, Ospedale S. Andrea, La Spezia, Italy;

² Department of Urology, Ospedale S. Bartolomeo, Sarzana, Italy;

³ Department of Pathology, Ospedale S. Andrea, La Spezia, Italy.

Presentation

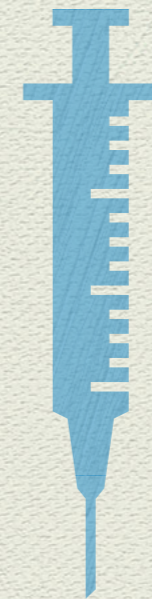
- ◆ Symptomatic / Painless mass 70%
- ◆ Asymptomatic 30%
- ◆ Dysphagia , hoarseness , dyspnea



[Ricci, 2021]

Investigation

- ◆ USG
- ◆ FNAC
- ◆ CT / PET-CT



[Ricci, 2021]

Management

- ◆ Radical surgery : localized metastasis
 - ◆ Hemi / total thyroidectomy
 - ◆ [No data on neck dissection]
- ◆ Palliative surgery : compression symptoms
- ◆ Systemic therapy : disseminated disease

[Ricci, 2021]

Prognosis

THYROID

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Survival After Renal Cell Carcinoma Metastasis to the Thyroid: Single Center Experience and Systematic Review of the Literature

Ulrich Beutner,^{1,*} Christine Leowardi,^{2,*} Ulrich Bork,³ Cornelia Lüthi,¹ Ignazio Tarantino,²
Sascha Pahernik,⁴ Moritz N. Wente,⁵ Markus W. Büchler,² Bruno M. Schmied,¹ and Sascha A. Müller¹

Prognosis

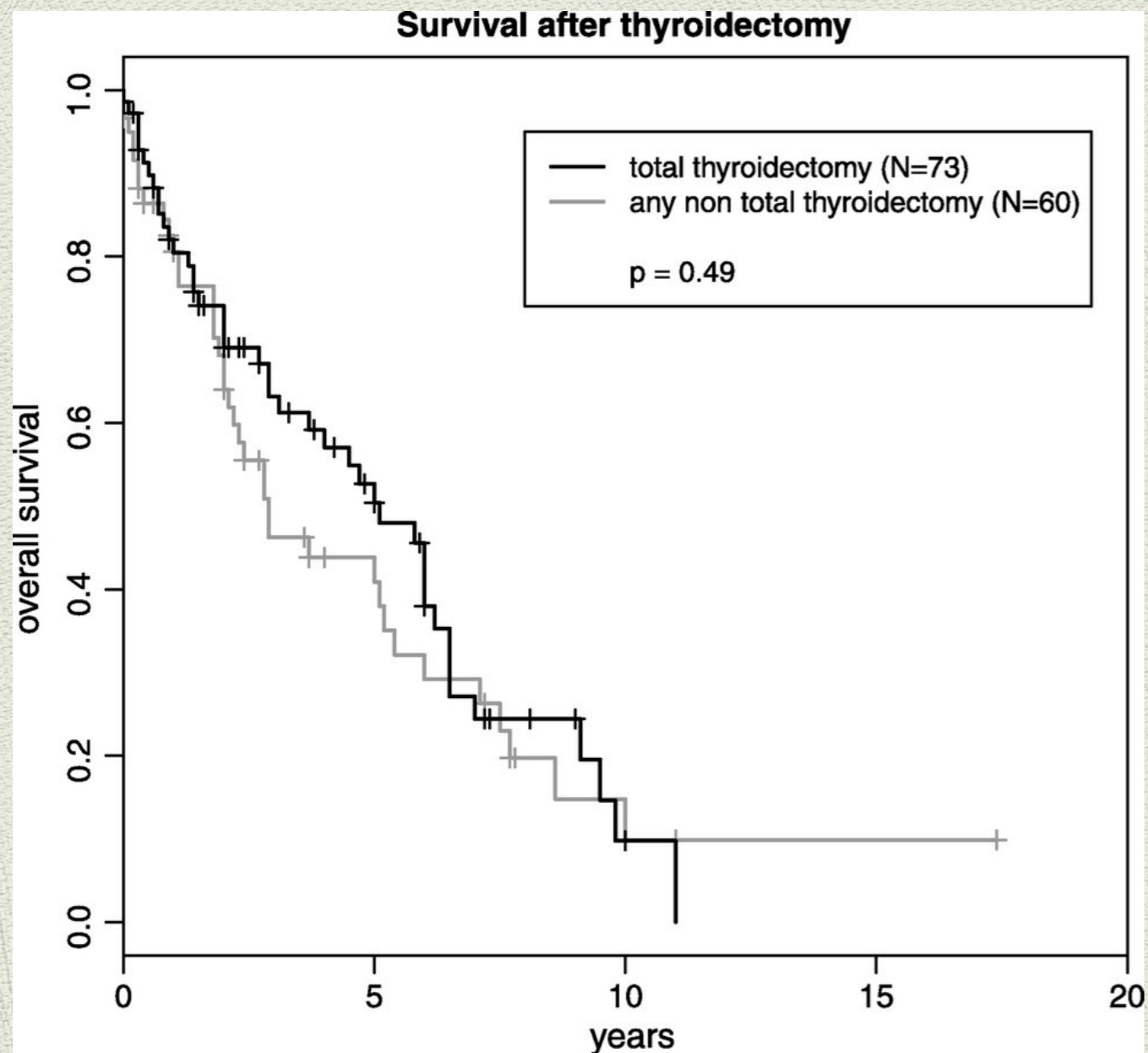
- ◆ Median survival after any metastasis of renal cell carcinoma : 1 to 2.3 years
- ◆ Median survival after thyroid metastasis : 3.4 years

[Beutner, 2015]

Prognosis

- ◆ Disseminated disease : poor prognosis
- ◆ Isolated thyroid metastasis : more favourable

Prognosis



Overall survival after total thyroidectomy (black line) and any other nontotal thyroidectomy (gray line).

[Beutner, 2015]

Prognosis

Clear-cell renal cell carcinoma single thyroid metastasis: A single-center retrospective analysis and review of the literature

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³ Department of Pathology, Ospedale S. Andrea, La Spezia, Italy.

- ◆ Post radical surgery : 5 year survival rate
30-60%

Prognosis

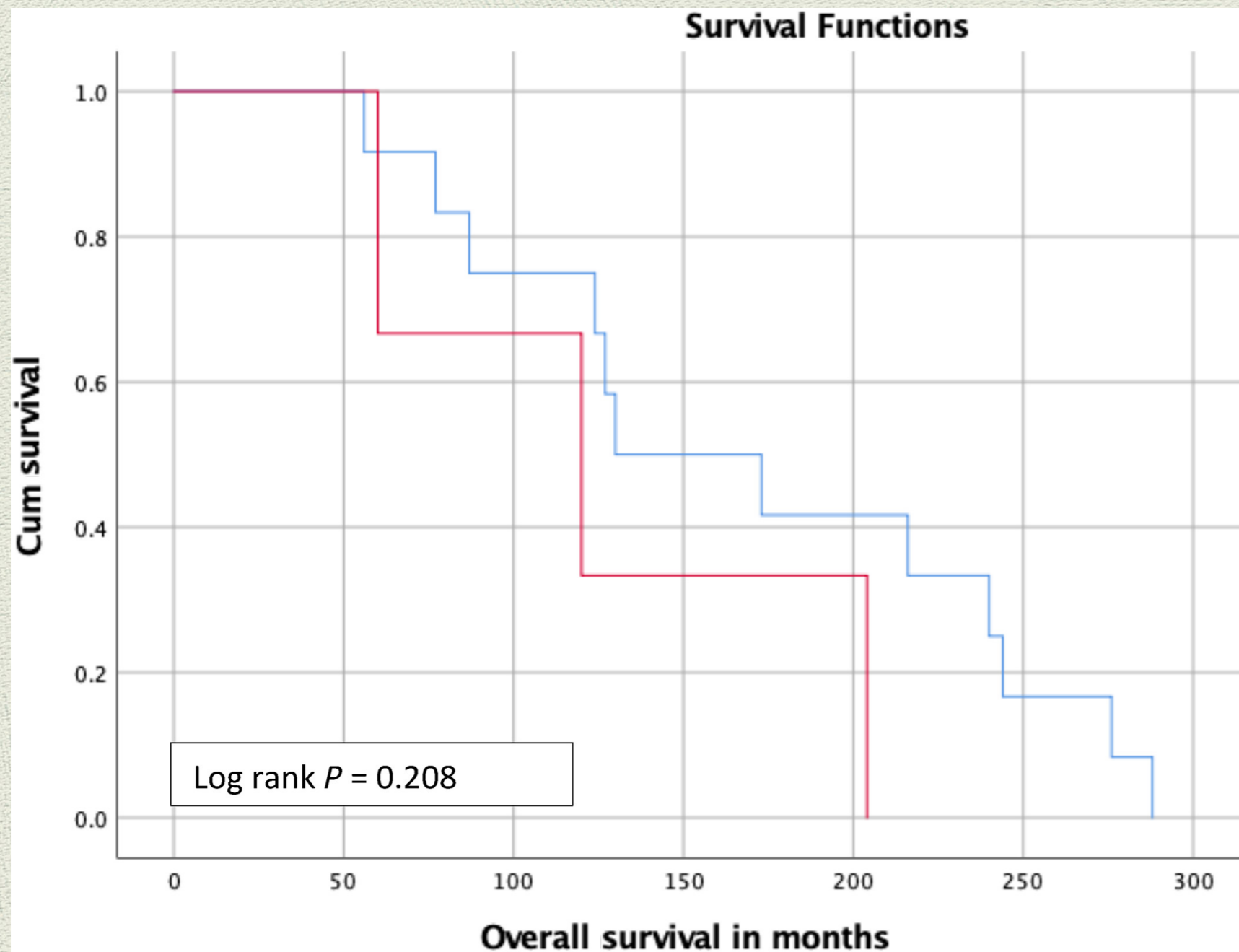
Thyroid gland metastasis from renal cell carcinoma: a case series and literature review

Richard Tjahjono MD, Daniel Phung BMed, Howard Gurney MBBS, FRACP, Ruta Gupta MD, FRCPA, Faruque Riffat MBBS, FRACS, Carsten E. Palme MBBS, FRACS ✉

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R. Tjahjono MD; **D. Phung** BMed; **H. Gurney** MBBS, FRACP; **R. Gupta** MD, FRCPA; **F. Riffat** MBBS, FRACS; **C. E. Palme** MBBS, FRACS.

Prognosis



Kaplan–Meier survival curve of patients with thyroid metastasis who underwent thyroidectomy and patients who did not.

Thyroidectomy?:
(—) yes; (—) no.

[Tjahjono, 2021]

Prognosis

- ◆ Partial vs total thyroidectomy
- ◆ Survival did not differ (HR = 0.86, p = 0.49)

[Beutner, 2015]

Conclusion

- ◆ Metastasis to thyroid is rare but should be considered with history of RCC
- ◆ Latency period can be up to years
- ◆ FNAC is helpful in making diagnosis
- ◆ Radical surgery should be considered for isolated RCC thyroid metastasis

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Q&A