



THE ANNUAL CONFERENCE OF SISNM
TARGETED THERAPY IN ONCOLOGY
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Certificate of Participation

This is to certify that Dr. AISYAH ELLIYANTI has attended
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DIFFERENTIATED THYROID CANCER LOSS ABILITY TO ACCUMULATE RADIOIODINE: A CASE REPORT.



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Background

- Thyroid cancer can be classified based on histopathology, such as papillary (75%), follicular (10%), medullary (5-9%), hurtle cell (2-4%), anaplastic (1-2%).
- Differentiated Thyroid Cancer (DTC) included papillary and follicular cancer are treatable with radioiodine (^{131}I)
- DTC patients who undergo total or near- total surgery are followed by ^{131}I treatment.
- Despite prognosis, DTC is generally good. About 5% of patients will develop metastases who showed inability to accumulate radioiodine. This condition exhibits aggressive behaviour.

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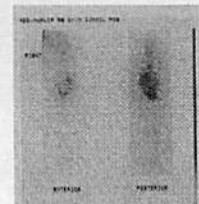
Case Report

- A 51 years-old woman was diagnosed as adenomas goiter.
- Eight years after the first diagnosis, she had complained of a lump in her skull and underwent a total thyroid surgery, followed by 100 mCi ^{131}I treatment as a fact of follicular thyroid cancer.
- Four years after the operation, she came back with a complaint of an increased in the size of the lump.
- We made an examination after four weeks from thyroxin withdrawal:
 - TSH : 2.771 mU/L,
 - Thyroglobulin :1.78 ng/mL
 - anti-thyroglobulin was negative.
- Thyroid scintigraphy showed no uptake at thyroid bed. (Pic. 1)
- ^{131}I Whole body scan did not show radioactivity up-take at skull. (Pic. 2)
- Bone scintigraphy demonstrated high uptake at parietal bone. (Pic. 3)

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Picture 1 : Thyroid scan showed there was no uptake ^{131}I on thyroid bed.



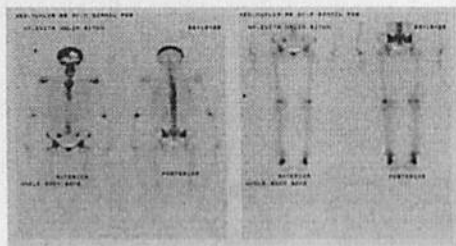
Picture 2 : ^{131}I whole body scan after 24 hours.

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Discussion

- Adenomas goiter is a common disease with life time risk of developing a clinically significant thyroid nodule of 10% or higher.
- Follicular thyroid carcinoma (FTC) type is more common in countries with high cases of low iodine diet, such as Indonesia (11.7% of Indonesian population, 2008)
- Usually, this type does not spread to lymph nodes; but, more likely to develop lung and bone metastases.
- Histopathology is the procedure of choice to diagnose.
- FTC resembles the normal thyroid pattern that makes the distinction between benign and malignant follicular difficult.

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Picture 3 : ^{99m}Tc -MDP Bone scan showed high radiactivity uptake at skull bones.

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Continued...

- Furthermore, distinction between follicular adenomas and follicular variant of papillary thyroid carcinoma is difficult.
- Prognosis FTC is going worse once distance metastases has occurred.
- Cell dedifferentiation leads cell loss of the ability to accumulate ^{131}I .
- Other treatment modality, such as external radiotherapy or systemic therapy with targeted agent is needed for cases with radioiodine refractory and progressive distance metastases.

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Conclusion

- It is difficult to make the distinction between benign and malignant follicular thyroid cancer.
- Identify genes expressed in follicular adenomas and carcinomas of thyroid will permit molecular differentiation in suspicious cases.
- Furthermore, unresponsiveness of radioiodine can be caused by cell dedifferentiation.
- Understanding the molecular aberration in thyroid has led to a promising future in targeting therapies of unresponsive radioiodine.

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