

Unexpected Victory: High-Risk Papillary Thyroid Cancer with Distant Metastases Shows Extraordinary Response to First RAI Treatment

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Abstract

Papillary Thyroid Cancer (PTC) is the most prevalent type of differentiated thyroid cancer. Its incidence is growing worldwide although it has low death rates. Treatment includes surgery followed by radioactive iodine therapy. Patients are followed up with serum tumour markers (stimulated and unstimulated), sonographically and with iodine I-131 whole body scans. Patients with aggressive metastatic disease have worse prognosis as compared to those with localized disease. We present a case of high-risk PTC with lung metastases, who showed excellent response after the first radioactive iodine therapy.

Keywords: Thyroid cancer, lung metastases, excellent response.

DOI: <https://doi.org/10.47391/JPMA.24-102>

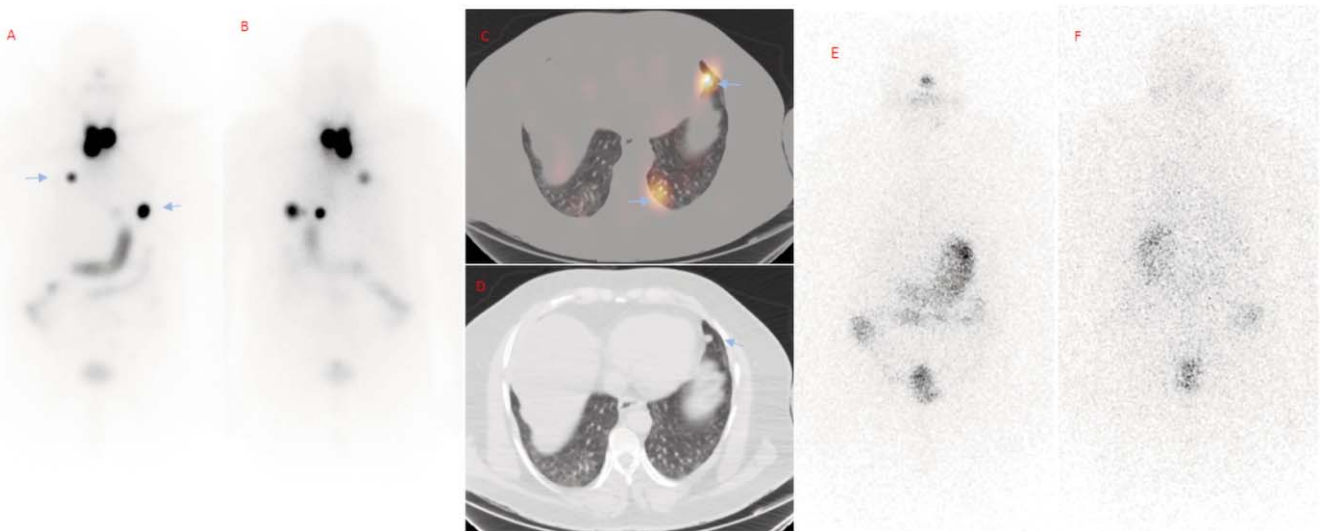


Figure A & B: Planar anterior and posterior views of pre-therapy scan showing iodine uptake in neck and lung metastases (blue arrows)

Figure C: SPECT/CT images of the lungs showing iodine avid pulmonary nodules (blue arrows)

Figure D: Low Dose CT image showing lung nodules (blue arrows)

Figure E & F: Planar anterior & posterior images of year-1 post therapy whole body iodine scan showing no iodine uptake in neck or elsewhere in the body. Complete resolution of uptake in pulmonary metastases

A 42-year-old male with PTC underwent total thyroidectomy and right neck dissection. Histopathologic stage was pT3bN1bMx. Radioactive iodine (RAI) therapy was planned. Pre-therapy TSH was >150, Thyroglobulin (Tg) 421 and anti-Tg levels <20. Pre therapy whole body scan (WBS) showed iodine avid uptake in neck and lung metastases. Based on American Thyroid Association (ATA) he was classified as high risk for recurrence of disease. Therapeutic dose 150mCi of I-131 NaI was administered. Post therapy scan showed iodine delivered to thyroid remnant, paratracheal node and lung nodules. At 1 year follow up I-131 WBS showed no evidence of I-131 avid disease. TSH was >150, stimulated Tg 1.3 and anti-Tg <1.3. Follow up ultrasound neck showed no sonographic evidence of residual or recurrent disease.

PTC is a type of differentiated thyroid cancer, more common in females between ages 30–50. Risk factors include female gender, family history, low iodine diet radiation exposure and obesity.¹ The ATA classifies disease as low, intermediate or high risk of recurrence based on type of cancer, histopathological features, presence of nodal or distant metastases.²

Lymph node metastases occur in 27% of patients, while distant metastases occur in only 1-25% of patients.³ Excellent response with radioactive iodine therapy is seen when there is no biochemical (stimulated Tg <1 ng/mL or suppressed Tg <0.2ng/mL) or structural disease on post therapy imaging. This is achieved in only 14-16% high-risk patients.² Another study characterized complete response as serum Tg < equal to 1.5 and negative Iodine scan.⁴

References

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