A Case of Papillary Thyroid Carcinoma with Anaplastic Dedifferentiation and Skull Base Metastasis

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87 yo presenting with CN deficits (IX, X, XII) of unknown etiology

Initial assessment included CT neck and MRI Brain (Figures 1 & 2)

Findings: thyroid nodule with concurrent skull base lesion

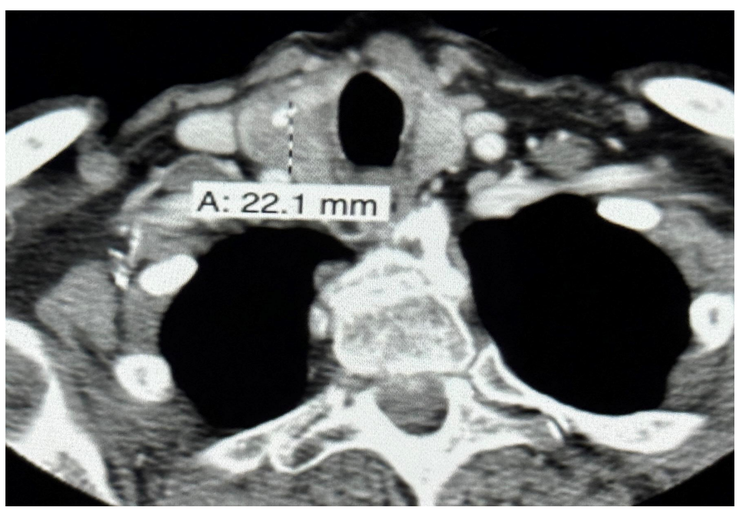

Figure 1. CT soft tissue neck with IV contrast demonstrating 2.2 cm right thyroid mass with internal calcification (A, above), suggestive of PTC.

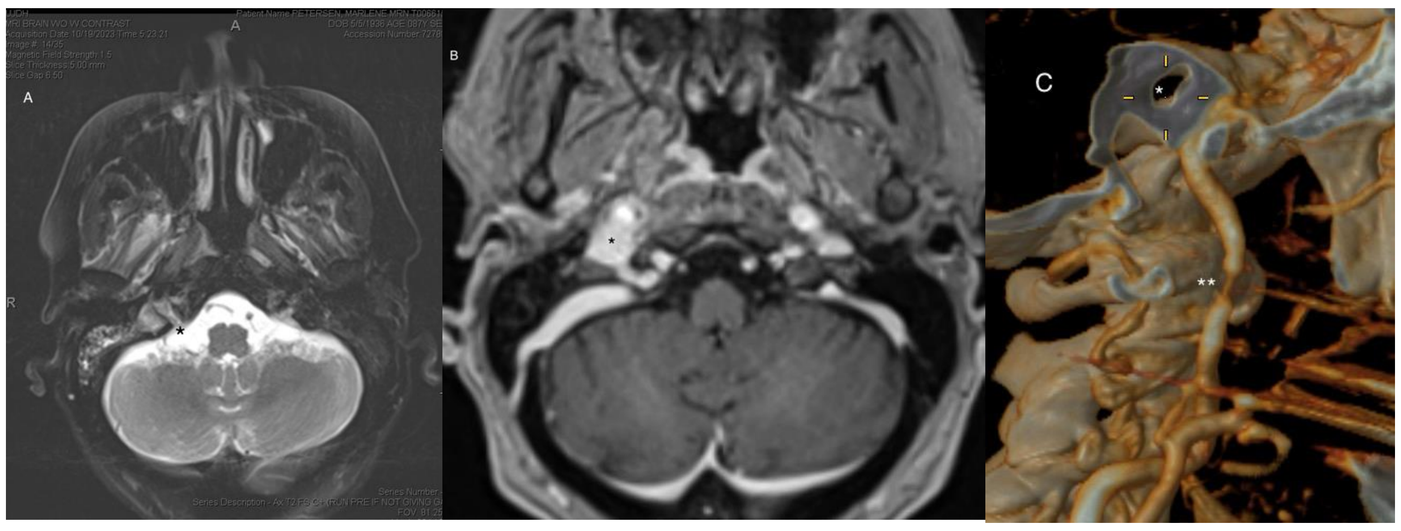

Figure 2. Figure 2A, above, depicts MRI Brain with edema along the expected course of cranial nerve XII through the hypoglossal canal (*, above). Figure 2B, above, depicts area of abnormal enhancement just posterior to the carotid sheath and abutting the hypoglossal canal (*, above). Figure 2C, above, 3D reconstruction showing narrowing of hypoglossal canal (*, above) and of the carotid artery (**, above).

FNA confirmed PTC and PET was obtained (Figure 3)

Concern for metastatic disease and thyroidectomy pursued. Pathology in Figure 4.

FINAL DIAGNOSIS: Anaplastic Thyroid Carcinoma with Skull Base Metastasis

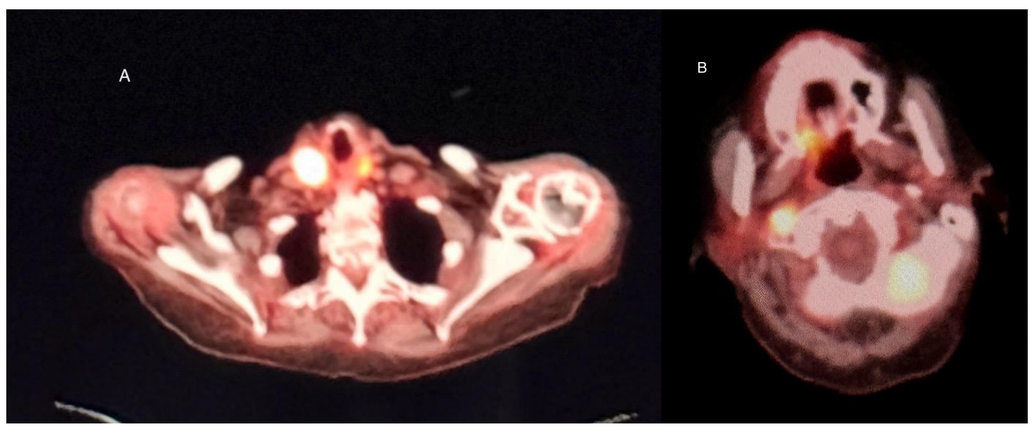

Figure 3. PET scan demonstrating avid uptake in the right thyroid lobe (Panel A, above) and avid uptake along course of the internal carotid artery (Panel B above), concerning for known thyroid lobe malignancy with base of skull metastasis.

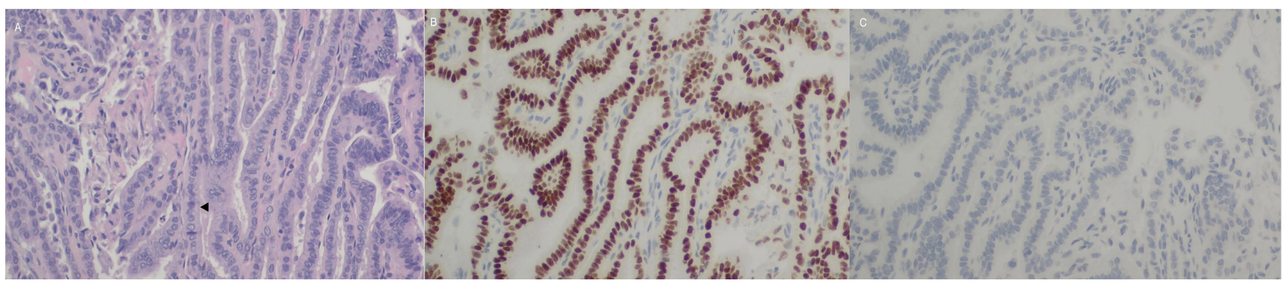

Figure 4. Figure 4A, above, representative H&E from patient's total thyroidectomy specimen, demonstrating tall cell variant PTC (arrowhead, above). Figure 4B, above, immunostain of total thyroidectomy specimen showing PTC components strongly positive for thyroid-transcriptase factor 1 (TTF-1). Figure 4C, above, immunostain of total thyroidectomy specimen showing absent to weak expression of p40.

Clinical Pearls

1. Advanced age increases risk of PTC dedifferentiation to ATC
2. Consider thyroid malignancy in skull base metastases presenting with cranial neuropathy
3. Tailor management strategies based on tumor pathology, patient health, and lesion location

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