

Brain metastasis from papillary carcinoma of thyroid gland

Sir,

Papillary carcinoma of thyroid is the commonest type of thyroid malignancy.^[1] It has an excellent prognosis with a very low incidence of distant metastases.^[2] Lung and bone are the usual sites for metastases and associated with an unfavorable prognosis.^[3] Brain metastasis from papillary thyroid carcinoma is very rare with a frequency of 0.1 to 5 %.^[1,3,4]

A 46-year-old lady presented with mild to moderate, continuous, dull-aching left sided frontal headache for two months, along with a history of change in personality. Neurological examination revealed impairment in her recent and remote memory as well as judgment and emotional functions. She had undergone surgery for neck swelling (papillary carcinoma of the thyroid gland) previously. Subsequently she received radiotherapy and was on supplementary dose of thyroxin of 0.1mg/day. There was no history of similar cancer in the family. Magnetic resonance imaging (MRI) brain revealed a contrast enhancing 3 x 2 cm sized lesion in the left frontal lobe, which was isointense on T₁ WI and hypo intense on T₂ WI with marked perilesional edema [Figure 1A-C]. X-ray chest as well as an isotope bone scan revealed no abnormalities. Ultrasound scan of abdomen was also normal. Other biochemical parameters were within normal limits. She underwent left frontal craniotomy; intraoperatively a reddish brown, solid, firm, well

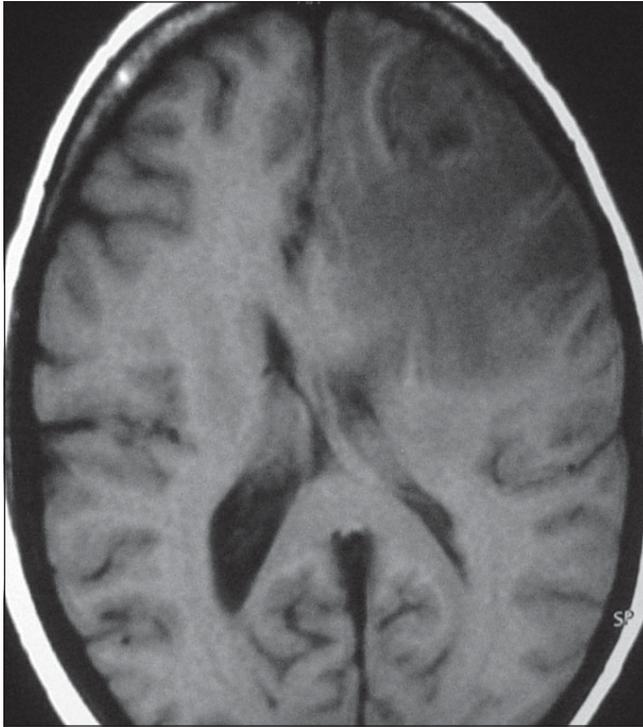


Figure 1A: MRI Brain T1WI (axial view) showing isointense to hypointense lesion in the left frontal lobe

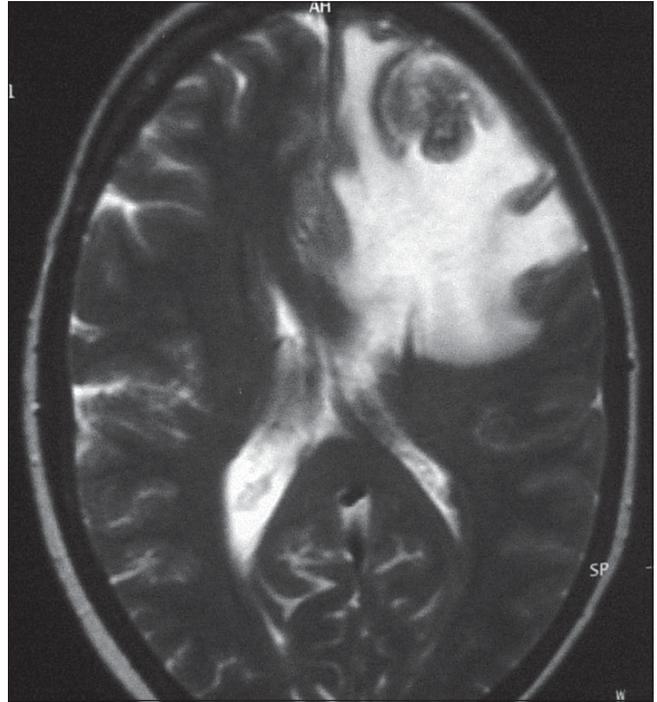


Figure 1B: MRI brain T2WI (axial view) showing isointense to hypointense lesion in the left frontal lobe

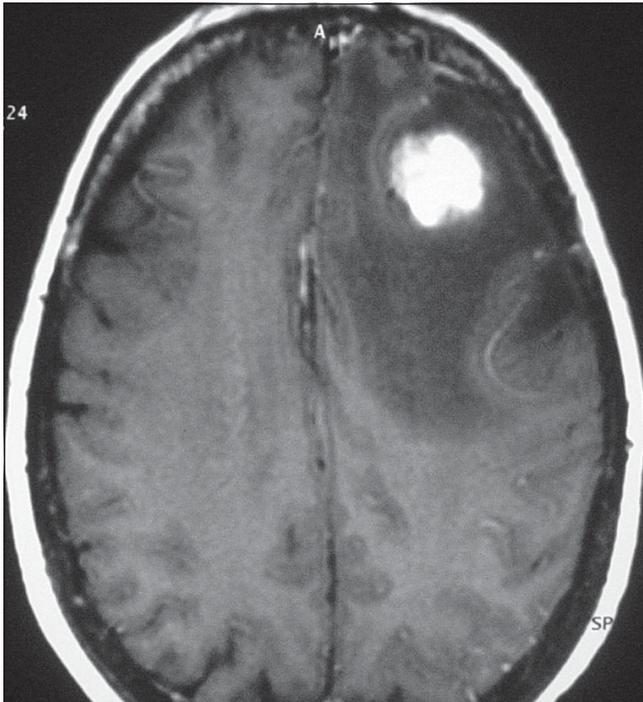


Figure 1C: MRI brain showing uniform enhancement on contrast in the lesion

capsulated minimally vascular lesion was found and excised completely. Histopathological examination was suggestive of metastasis from papillary thyroid carcinoma [Figure 2]. She received radiotherapy (4500 rad, 180 rad /

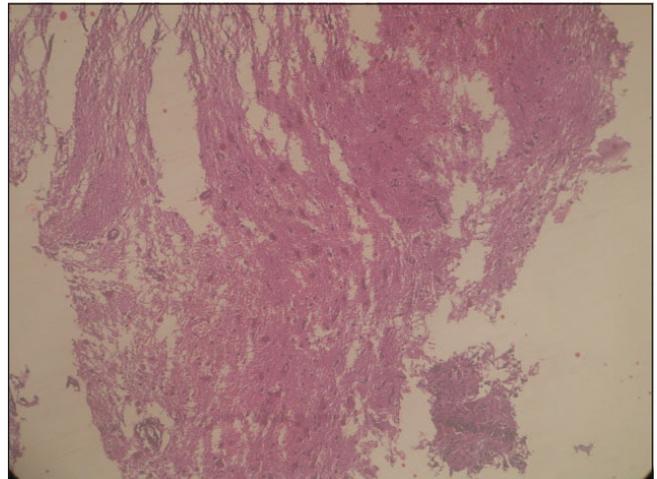


Figure 2: Cerebral metastasis: well differentiated papillary carcinoma of thyroid (H and E, x100)

day, for five days a week over a period of five weeks). At one-year follow-up, she was neurologically stable with only mild impairment of her remote memory.

Papillary carcinoma comprises 81.2% of all thyroid malignancies. Incidence of distant metastases at the time of diagnosis is less than 1%.^[4] It has less severe clinical course and a favorable long term survival at 10 years (94.9%). Nevertheless, subgroups of patients who develop distant metastasis are known to have a worse prognosis. Age < 20 years and > 60 years, Grade 3 or 4

cancers, thyroid lesion more than 4 cm and extra thyroid lesion at initial examination are associated with a high incidence of distant metastases, which has a serious impact on survival.^[3] Average duration between initial diagnosis and distant metastasis to the brain varies from less than a few months to up to 35 years. Signs and symptoms of raised intracranial pressure are the usual presentation and majority of the lesions localize in the frontal, parietal and temporal lobe but some unusual locations are also reported which includes cerebello-pontine angle, cerebellum, pituitary and cavernous sinus.^[5] There are no clearly defined guidelines and treatment varies. Available treatment options include conservative treatment, surgical excision, external beam radiation, resection and radioactive iodine, intraoperative implantation of radioactive iodine seeds, thyroxine and radiotherapy, gamma knife radio surgery and radioactive iodine therapy.^[6] Therapy must therefore be tailored to each patient. Though several treatment modalities have been used in the treatment of the limited number of cases of intracranial metastatic papillary thyroid carcinoma, results have been equivocal.^[7] Although presence of brain metastasis is an overall negative prognostic indicator, Chiu *et al.* found that surgical resection of brain metastasis may help to significantly prolong survival in patients with differentiated thyroid carcinoma.^[8]

metastases from papillary thyroid carcinoma: Case report. *Neurosurgery* 2001;49:1008-13.

8. Chiu AC, Delpassand ES, Sherman SI. Prognosis and treatment of brain metastases in thyroid carcinoma. *J Clin Endocrinol Metab* 1997;82:3637-42.

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DOI: 10.4103/0976-3147.63109

References

1. Carcangiu ML, Zampi G, Pupia A, Castagnoli A, Rosai J. Papillary carcinoma of thyroid: A clinicopathological study of 241 cases treated at university of Florence, Italy. *Cancer* 1985;5:805-28.
2. Dorairajan N, Pandiarajan R, Yuvaraja S. A descriptive study of papillary thyroid carcinoma in a teaching hospital in Chennai, India. *Asian J Surg* 2002;25:300-3.
3. Hoie J, Stenwig AE, Kullmann G, Lindegaard M. Distant metastases in papillary thyroid cancer: A review of 91 patients. *Cancer* 1988;61:1-6.
4. Mazzaferri EL, Young RL, Oertel JE, Kemmerer WT, Page CP. Papillary thyroid carcinoma: The impact of therapy in 576 patients. *Medicine (Baltimore)* 1977;56:171-96.
5. Dinneen SF, Valimaki MJ, Bergstralh EJ, Goellner JR, Gorman CA, Hay ID. Distant metastases in papillary thyroid carcinoma: 100 cases observed at one institution during 5 decades. *J Clin Endocrinol Metab* 1995;80:2041-5.
6. McWilliams RR, Giannini C, Hay ID, Atkinson JL, Stafford SL, Buckner JC. Management of brain metastases from thyroid carcinoma: A study of 16 pathologically confirmed cases over 25 years. *Cancer* 2003;98:356-62.
7. Aguiar PH, Agner C, Tavares FR, Yamaguchi N. Unusual brain