

^{131}I accumulation in oligodendroglioma: before and after surgery

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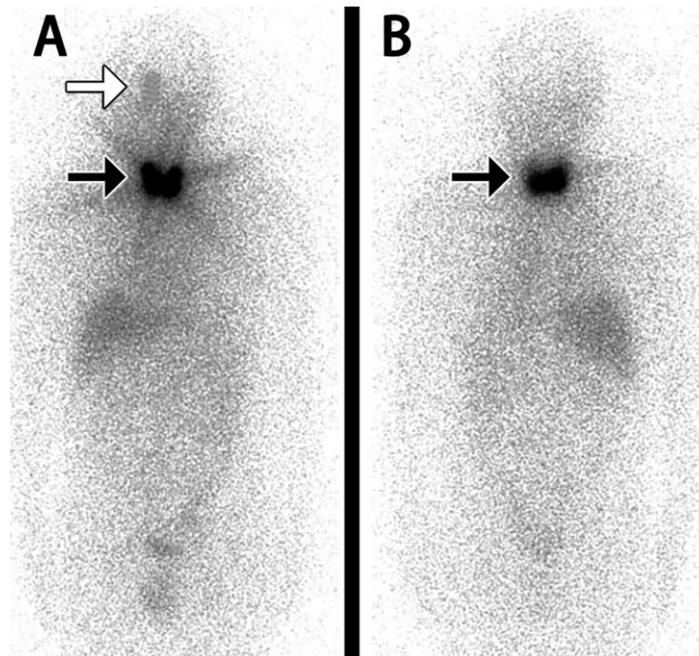


Figure 1. A 49 year old man with papillary thyroid cancer underwent iodine-131 (^{131}I) therapy with a dose of 3.7GBq after thyroidectomy. His serum thyroglobulin level was 112.4ng/mL. Seven days later, an ^{131}I whole-body scan showed a focal point in the central area of the neck due to residual thyroid tissue (A-B, black arrows) and an unexpected focal point in the right craniocerebral region (A, white arrow). At that time, the lesion in the right craniocerebral region could not be excluded as a metastasis from thyroid cancer.

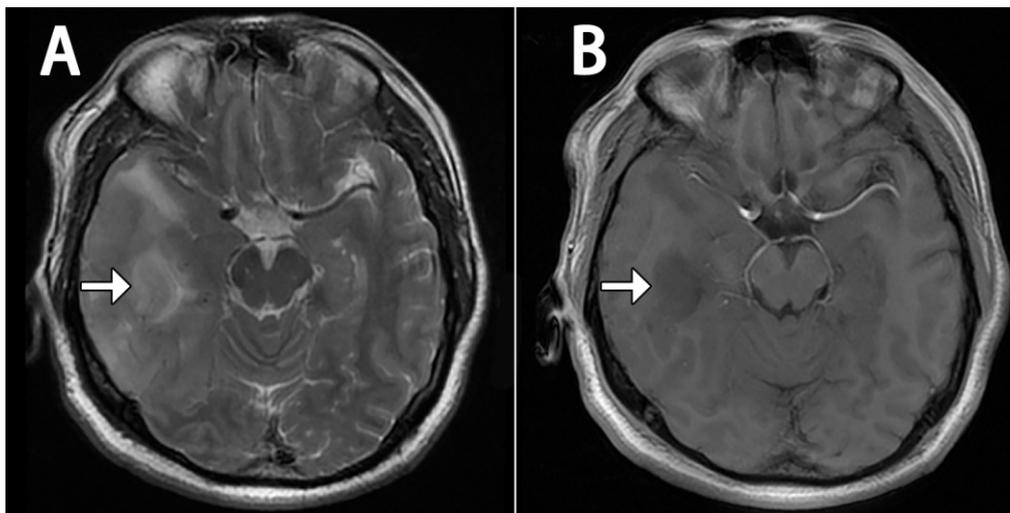


Figure 2. One month later, the patient was sent to the emergency department of our hospital because of a seizure. A magnetic resonance imaging (MRI) scan of the head showed hyperintensity in the right temporal lobe on T2 weighted imaging (T2WI) and hypointensity on T1 weighted imaging (T1WI) (A-B, arrows). The mass was subsequently surgically removed. Histological examination confirmed that the mass was oligodendroglioma with a mutation in the IDH1 gene (R132H) and a loss of 1p/19q heterozygosity. Further inquiry also revealed that the patient experienced two epileptic fits six months earlier.

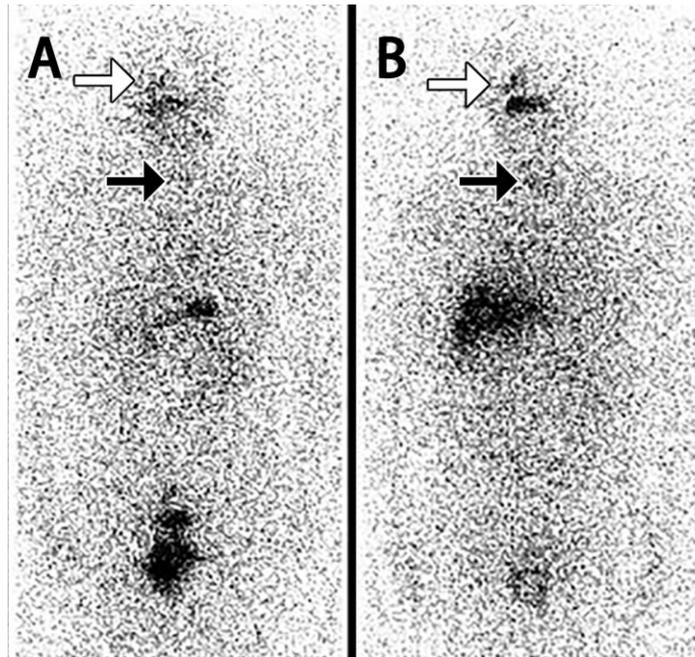


Figure 3. The patient returned to our department 11 months later. A diagnostic whole-body ^{131}I scan revealed a mildly ^{131}I -positive lesion in the thyroid area (A, black arrow) and another mildly ^{131}I -positive lesion in the right craniocerebral region (A, white arrows). The thyroglobulin level at that time was 31.85ng/mL. He received a second ^{131}I dose of 3.7GBq. Seven days later, a therapeutic whole-body scan showed two ^{131}I -positive lesions (B, black and white arrows). The lesion in the right craniocerebral region had a dramatically lower activity and smaller size than in the previous image.

Pathological ^{131}I accumulation in the craniocerebral region has been reported due to the distant metastasis of differentiated thyroid carcinoma, intraosseous hemangioma, and meningioma [1-5]. In this case, ^{131}I accumulated in oligodendroglioma, and after the operation, the accumulation decreased. More research is needed on the mechanism of accumulation.

Bibliography

1. Korhonen K, Zhuang HM. Pediatric Patient With Cerebral Metastasis From Papillary Thyroid Cancer. *Clin Nucl Med* 2018; 43: 471-3.
2. Sinha P, Conrad GR, Holzhauser M. Incidental detection of a falx meningioma on post-therapy radioiodide whole-body imaging. *Clin Nucl Med* 2002; 27: 916-7.
3. Schmidt M, Scheidhauer K, Urbanek V et al. Metastasizing follicular thyroid carcinoma with intracranial iodide 131 uptake in brain edema due to a frontal meningioma. *Nuklearmedizin* 2000; 39: 38-9. (English translation)
4. Preisman RA, Halpern SE, Shishido R et al. Uptake of ^{131}I by a papillary meningioma. *Am J Roentgenol* 1977; 129: 349-50.
5. Lee MK, Lee YK, Jeon TJ et al. ^{131}I uptake in intraosseous hemangioma of the skull: mimicking a bone metastasis in thyroid cancer. *Clin Nucl Med* 2014; 39: 990-2.

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