

Introduction

- The development of endocrinopathies such as central diabetes insipidus or central hypothyroidism because of pituitary metastasis is an exceedingly rare phenomenon.
- Pituitary metastasis represents only **1% of any pituitary lesion**
- DI is an uncommon disease process with a prevalence of **1:25,000 with 90% being acquired**
- Pituitary gland metastases are often misdiagnosed with primary pituitary adenoma as there is no clear radiological criteria differentiating primary and metastatic pituitary pathology. **Prevalence of pituitary metastases was 0.14 to 3.6 % among all brain metastases**

Case Presentation

56 y/o F with 20 pack year smoking history and stage IV small cell lung cancer with metastasis to the brain and spinal cord presented for total brain radiation when she developed fatigue, headache, polydipsia, and polyuria (5-8 liters daily)

- Tachycardia to the 110-120s
- Physical exam showed ill appearing female with dry mucus membranes and decreased cap refill
- Labs showed *specific gravity*: 1.003, *Na*: 156, *Serum Osm*: >350, *Urine Osm*: 153, *TSH*: 0.067, *T3/T4*: <0.50/0.54 and *rT3*: 8.1

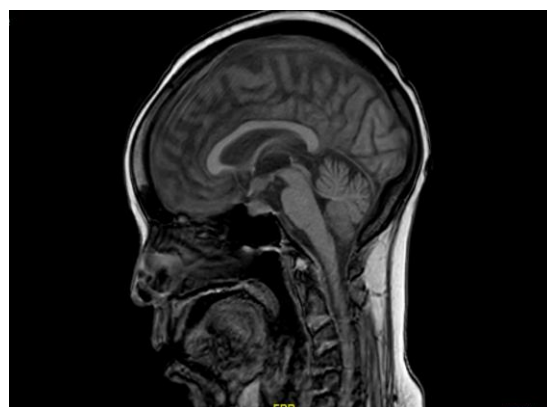


Figure 1

MRI of the brain demonstrated multiple small enhancing lesions including a 9x7x 6 mm lesion in the posterior pituitary stalk with thickening of superior stalk



Figure 2

CT head showing heterogenous enhancing within suprasellar cistern measuring 10 x 11 mm

Discussion

- Majority of pituitary metastasis are silent however small percentage results in endocrinopathies with **central DI** being the most common **at 45 % of cases**
- Thyrotropin deficiency is the secondary most common and is the result of anterior pituitary ischemia from mass effect.
- Our patient presented with the cardinal signs of DI which corrected with treatment of DDAVP supporting central DI secondary to metastatic spread of previously diagnosis small cell lung CA
- Previous studies have shown development of DI from pituitary adenoma occurs in only 1% of cases suggesting investigating for metastatic cancer may warranty in newly diagnosis central DI

Conclusion

Early detection of pituitary metastasis, followed by adequate local treatment, may improve patient survival and the quality of life.

Citations

1. Karikalan, Barani, et al. "Pituitary Metastasis of Lung Carcinoma Presenting as Diabetes Insipidus: Case Report." *Indian Journal of Pathology and Oncology*, vol. 7, no. 3, 2020, pp. 495–497., doi:10.18231/j.ijpo.2020.098.
2. Sirinvaravong, Sirinart, et al. "Diabetes Insipidus and Panhypopituitarism as a First Presentation of Silent Adenocarcinoma of Lung: a Case Report and Literature Review." *BMC Endocrine Disorders*, vol. 19, no. 1, 2019, doi:10.1186/s12902-019-0445-5.
3. Koshimoto, Yoshio. "MR of Pituitary Metastasis in a Patient with Diabetes Insipidus." *AJNR*, 15 Apr. 2017, doi:10.18411/a-2017-023.
4. Javanbakht, Aida. "Pituitary Metastasis: a Rare Condition." *Molecular Biotechnology*, vol. 3, no. 1, 1995, pp. 75–75., doi:10.1007/bf02821338.
5. Cieszynski, Lukasz, et al. "Diabetes Insipidus as a Main Symptom of Cancer." *Archives of Medical Science : AMS*, Termedia Publishing House, 12 May 2014, www.ncbi.nlm.nih.gov/pmc/articles/PMC4042058/.