

LEARNING OBJECTIVES

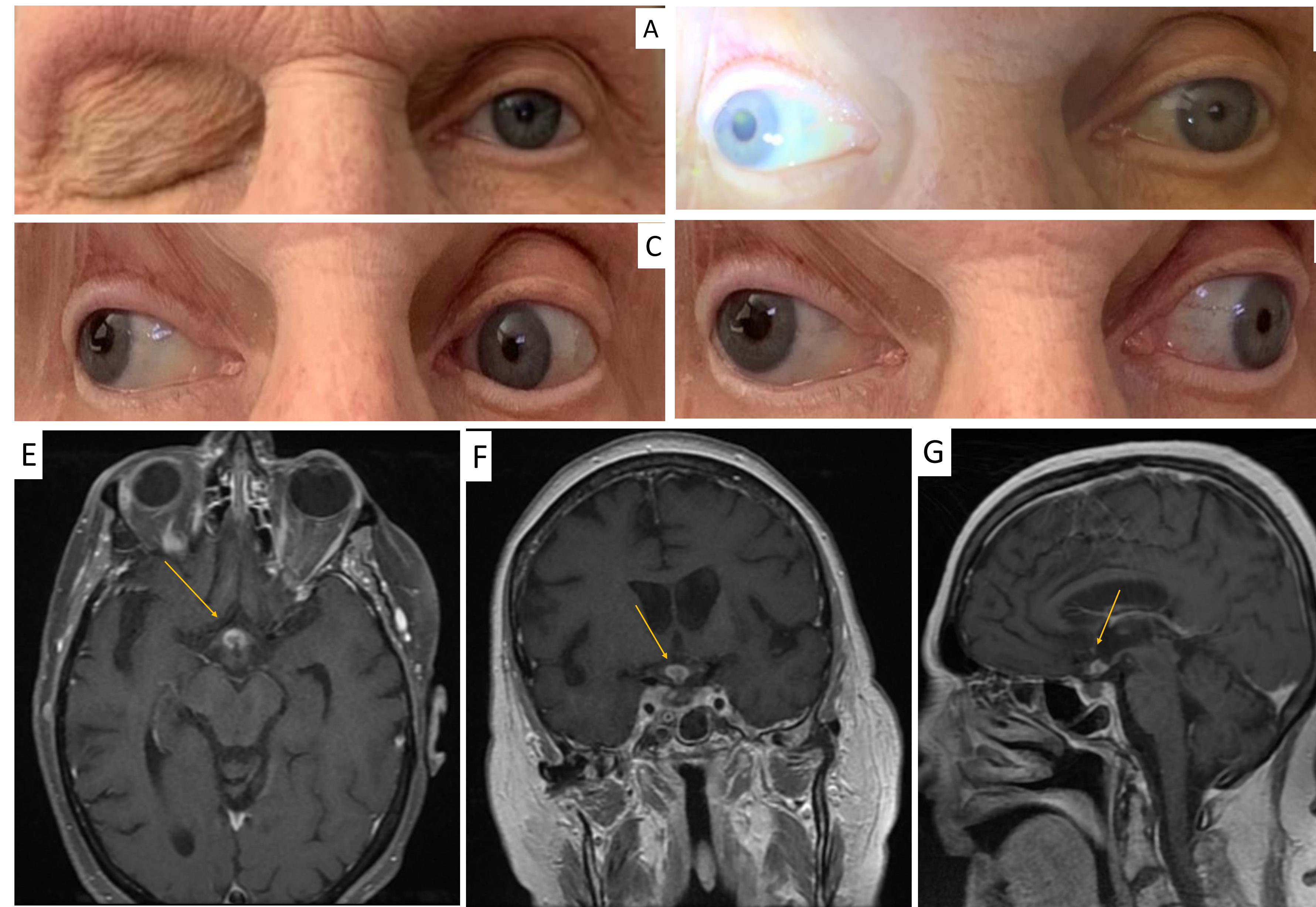
- Recognize that pituitary metastasis is a rare complication of lung and breast cancer as well as melanoma.
- Appreciate that pituitary metastasis invading the cavernous sinus may result in compression of the third cranial nerve leading to an isolated third cranial nerve palsy as in the patient presented here.

CASE PRESENTATION

- A 74-year-old Caucasian woman presented to the emergency department complaining of difficulty in opening her right eye for a week.
- HPI: She described sudden onset of difficulty in opening the right eye for a week, along with double vision when she tried to open the right eye associated with headache.
- PMH: History of stage IIB left upper lobe moderately differentiated adenocarcinoma of the lung diagnosed 3 years prior to admission. She had undergone left upper lung lobectomy and 3 cycles of adjuvant chemotherapy cisplatin/docetaxel but discontinued as she was not tolerating it and followed with surveillance scans. Several months after diagnosis she suffered a left sided stroke and an unprovoked DVT of the left leg. Approximately one month prior to this admission she was diagnosed with pituitary hypophysitis. PET scan was negative for metastasis and she was managed with hormone replacement.
- Physical examination showed complete right-sided ptosis with an abducted and depressed right eye. The right pupil was dilated and non-reactive to light with a consensual response in the left eye. The left eye and remainder of the examination was normal.
- Labs: None significant

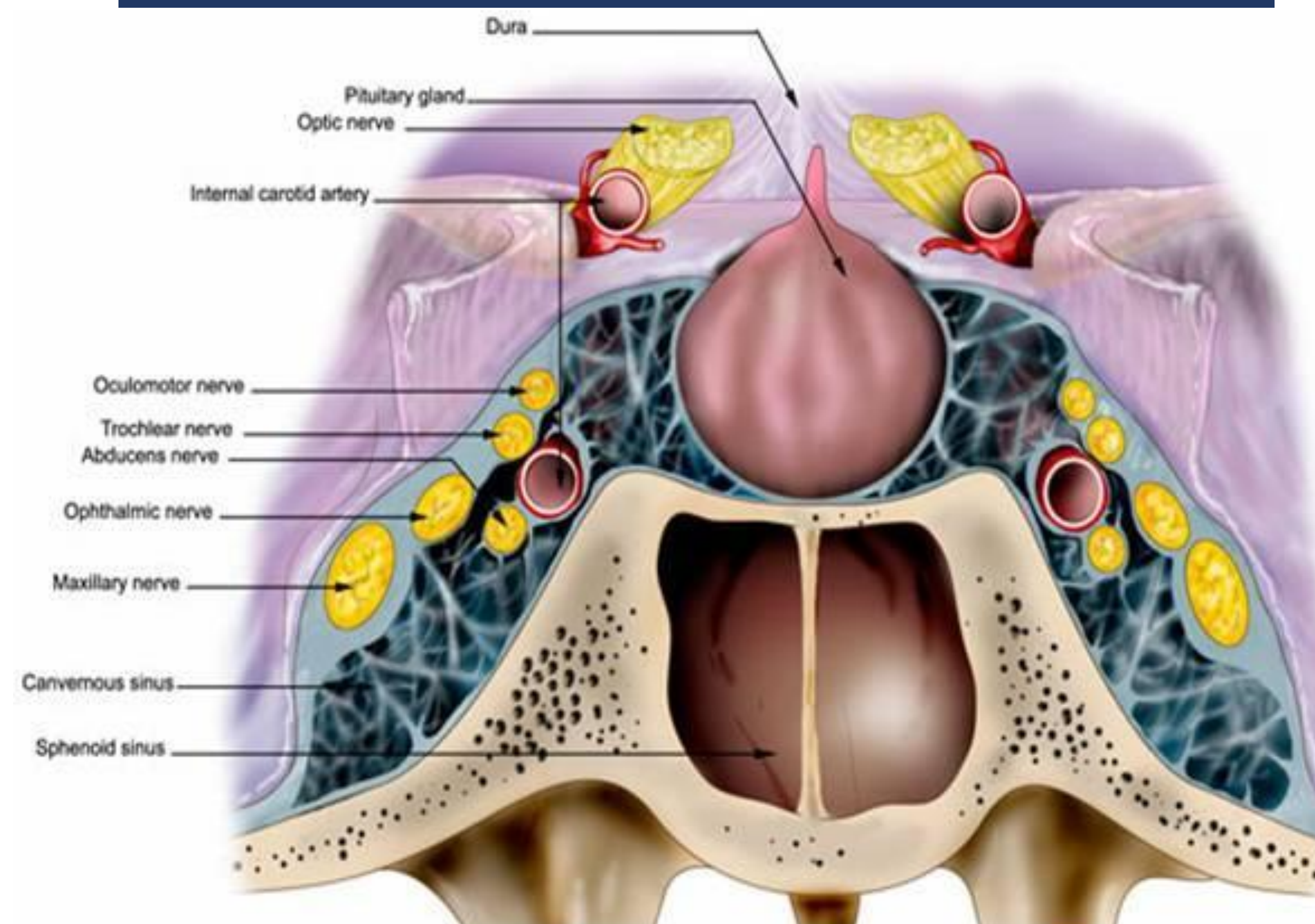
HOSPITAL COURSE

- CTA of the head and neck showed bilateral periventricular and patchy cerebral hypodensities and chronic infarction in the left basal ganglia.
- MRI of the brain showed heterogeneous enhancement of the sellar and suprasellar structures, no compression of the visual apparatus, no enhancement of the optic nerves or chiasm and probable right third cranial nerve involvement in the right cavernous sinus.



A) Complete right sided ptosis. B) Right pupil dilated and nonreactive to light with a consensual response in left eye C) abducted and depressed right eye. D) Unable to perform adduction in the right eye. E,F&G) MRI brain cross sectional, coronal and sagittal view showing ring like enhancement involving hypothalamus and upper pituitary stalk.

CAVERNOUS SINUS ANATOMY



- MRI with gadolinium showed ring-like enhancement involving the hypothalamus and upper pituitary stalk, wider in comparison to previous scans, measuring 9 mm as opposed to 7 mm previously.
- She was transferred for neurosurgical decompression and biopsy. Pituitary stalk biopsy with partial resection of pituitary and bone showed involvement by lung cancer with negative PD-L1 and molecular profile.
- She was treated with stereotactic radiotherapy to the pituitary area.
- Though her third nerve palsy continues, she has had no other lung cancer progression to date.

DISCUSSION

- Case series and reports have been published describing pituitary metastasis from lung cancer leading to panhypopituitarism and visual loss though other cancers such as breast and melanoma can metastasize to the pituitary as well.
- Our patient's presentation with an isolated third cranial nerve palsy is an unusual manifestation.

CONCLUSION

- This is a rare case where pituitary metastasis with invasion of the cavernous sinus resulted in compression of the third cranial nerve leading to a complete palsy.
- Surgical management was not an option for our patient. In such cases radiation therapy can be used for palliation and prognosis is typically poor.

References:

- Fujimori T, Okauchi M, Shindo A, et al. *No Shinkei Geka*.2014;42(10):943-949. doi:10.11477/mf.1436200010
- Pelletier J, Coudurier M, Kelkel E, Frappat V, Pernot J. Métastase hypophysaire symptomatique révélant un cancer bronchique [Pituitary metastasis revealing a lung cancer]. *Rev Mal Respir*. 2015;32(9):945-948. doi:10.1016/j.rmr.2014.11.071