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Patient Background

- 72 y/o Caucasian male
- Resides in Appalachia, USA
- Employed in the food-processing industry

Pertinent Medical History:

- 40 pack-years smoking history
- hypertension
- diverticulosis
- Zenker's diverticulum

Disease Timeline

March 2015	Diagnosed with Stage IIIBT3N2cM0 esophagogastric adenocarcinoma
July 2015	Treated with cisplatin, 5-Fu, total esophagogastrectomy
2015-2021	No evidence of disease recurrence
June 2021	Presented with 2-month history of confusion, dysarthria, and word finding difficulties Cranial MRI w/ contrast revealed a T2 hyperintense parietal mass measuring 2.8 x 2.6 x 2.8 cm with invasion of basal ganglia, vasogenic edema, and 8mm midline shift (Figure 1a/1b) Patient had craniotomy with parietal mass resection
July 2021	Underwent gamma-knife radiation therapy to resected cavity
August 2022	Underwent repeat GKRS therapy for disease recurrence

Introduction

- Esophageal adenocarcinoma (EAC) accounts for 4.7/100,000 of all U.S. cancers
- 1.8% of EAC present with concurrent CNS metastasis
- Risk factors: alcohol use, tobacco, and gastroesophageal reflux disease (GERD)
- 5-year disease-specific survival rate of 20%
- Mean time to intracranial metastasis is 22 months (n=11)

Tumor Genetics and Immunohistochemistry

- Genetic Sequencing
 - low mutational burden (4 mutations/Mb)
 - no genomic loss of heterozygosity
 - no microsatellite instability
 - pathogenic mutations in TP53, ARID1A, and FH genes
 - mutation of unknown significance in CDH1 gene
- Immunohistochemistry
 - Cytokeratin 7+, CDX2+ and SATB2+
 - Cytokeratin 20 -, HER2-

Discussion

Isolated brain metastasis from esophageal adenocarcinoma is a very rare phenomenon. Limited data suggests that the survival of patients with isolated CNS lesions is <1 year, however, achieving pathologic complete response after neoadjuvant chemo-radiation therapy has shown to improve survival. These esophageal cancers with isolated CNS metastases may share a unique genomic profile and more research is required to understand their alterations.

Imaging

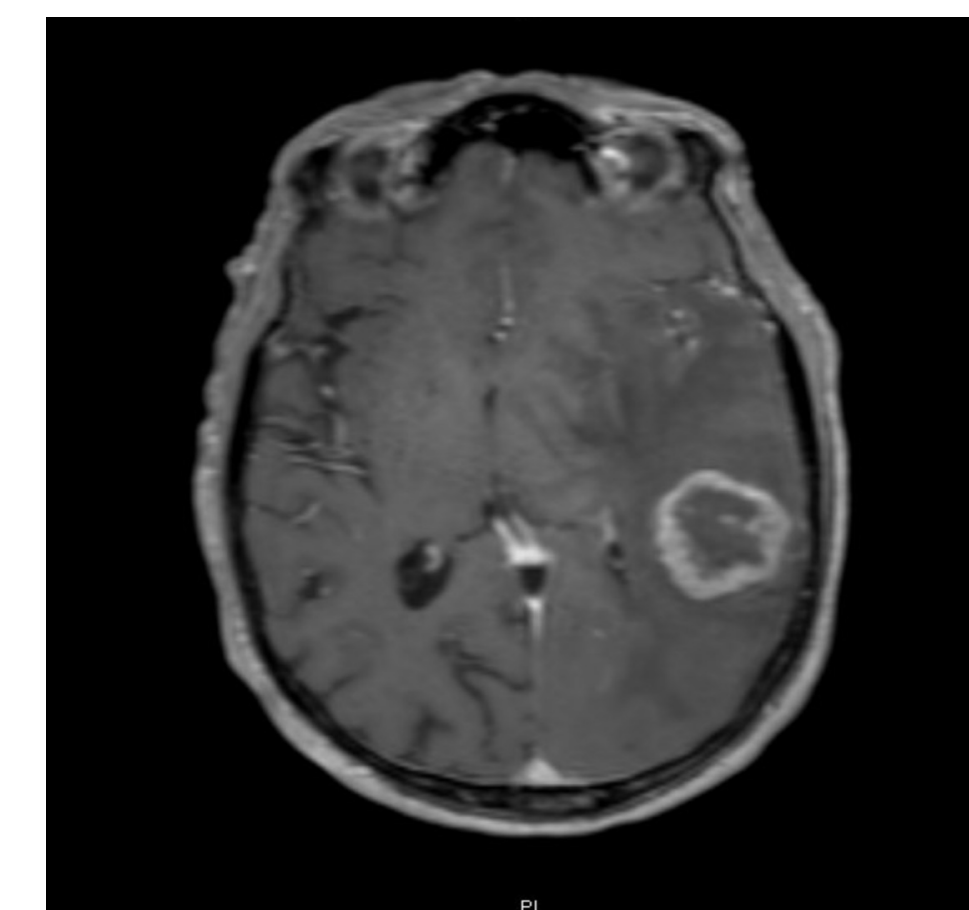


Figure 1a: T1 Axial Rage + Gadolinium (6/1/2021)

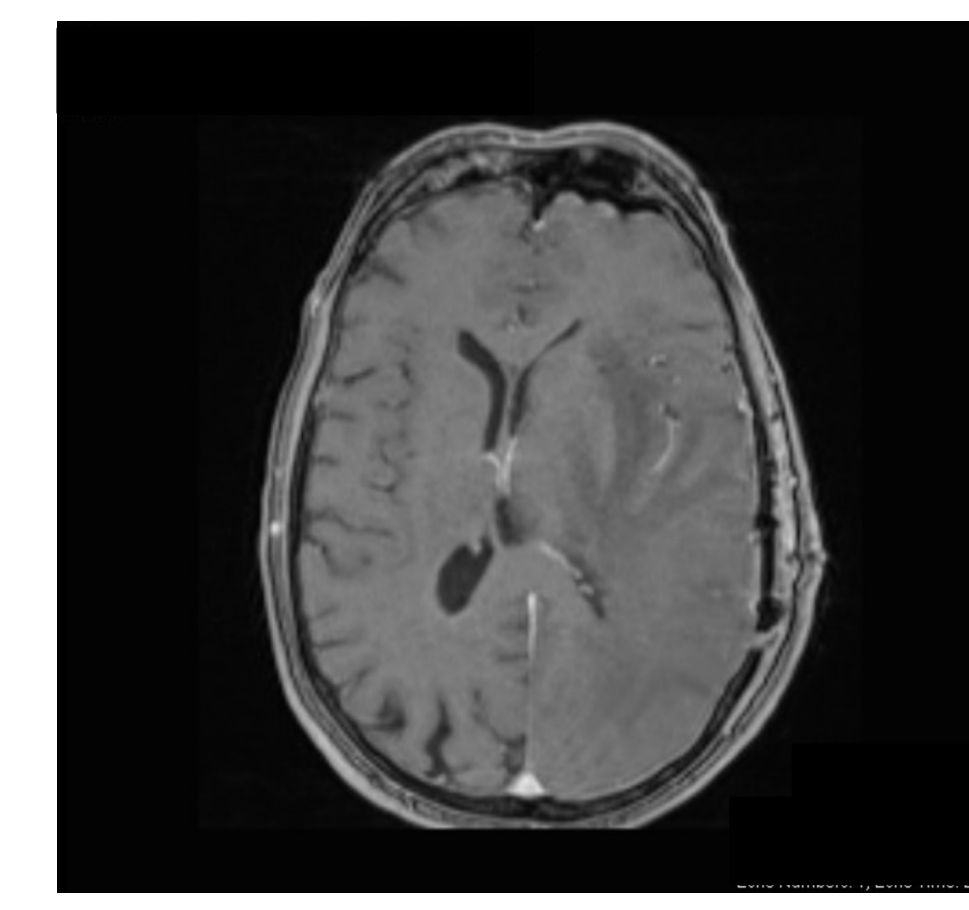


Figure 2a: T1 Axial Rage + Gadolinium (6/3/2021)

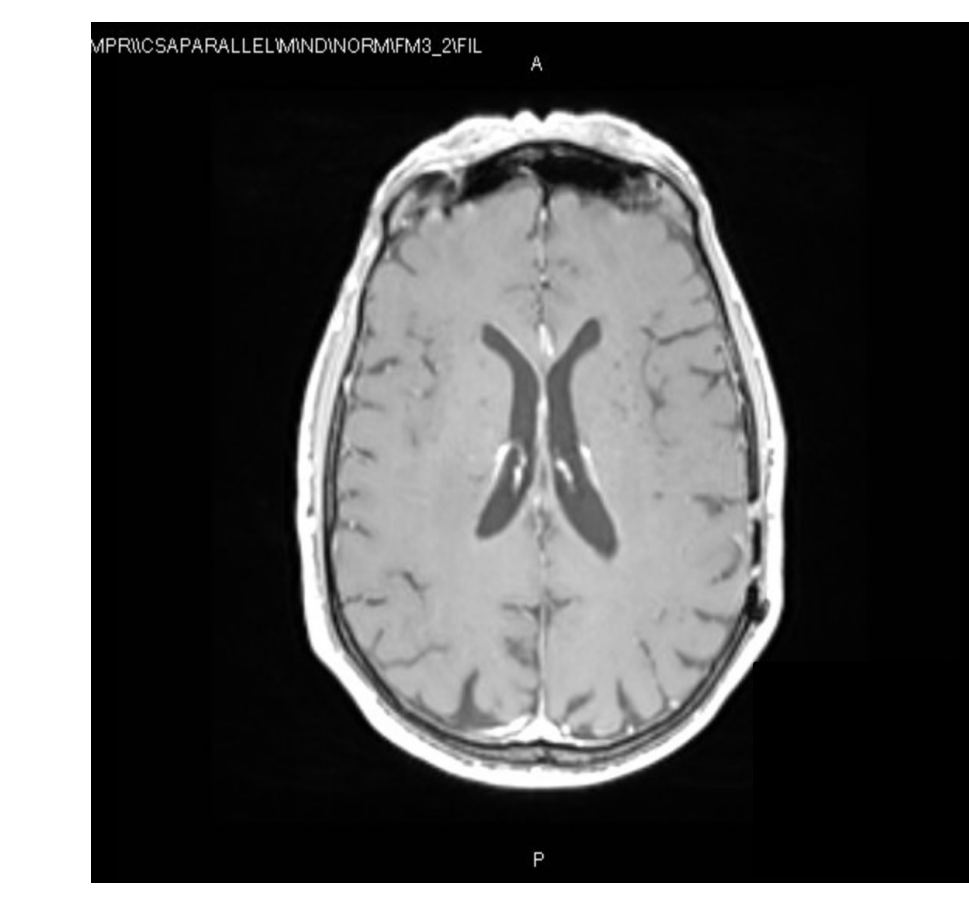


Figure 3a: T1 Axial Rage + Gadolinium (3/22/2022)

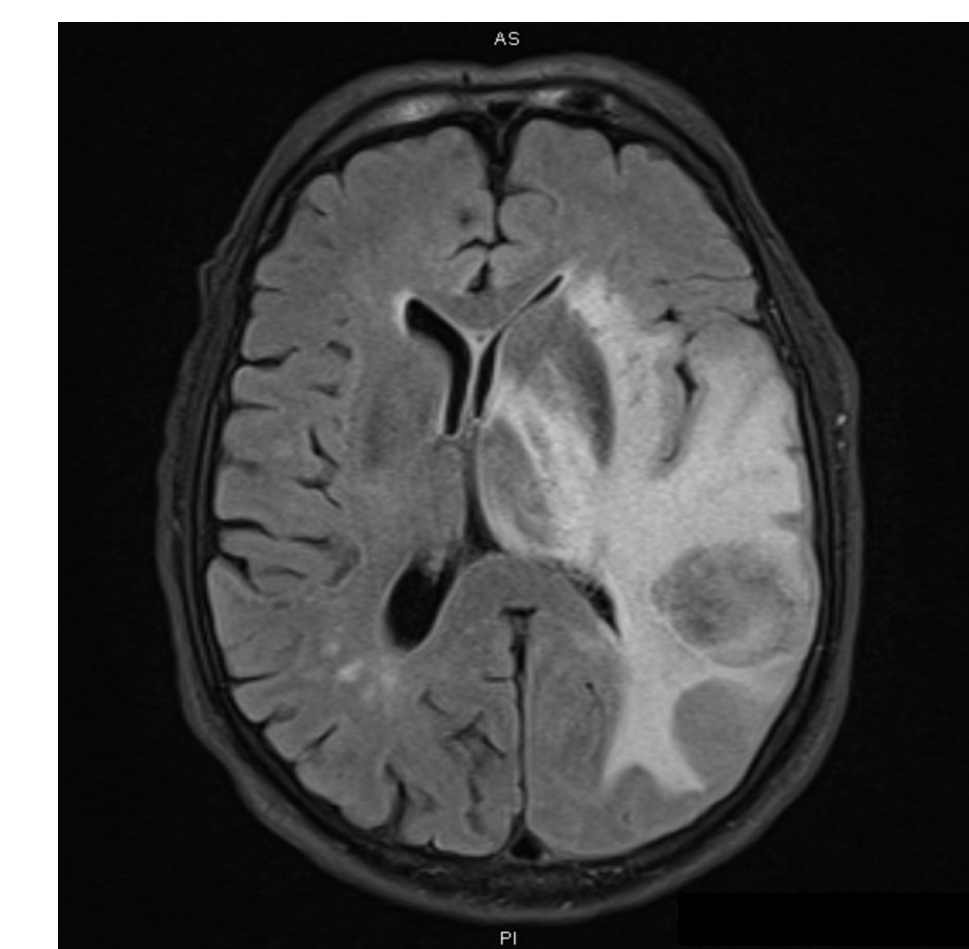


Figure 1b: T2 Axial Flair (6/1/2021)

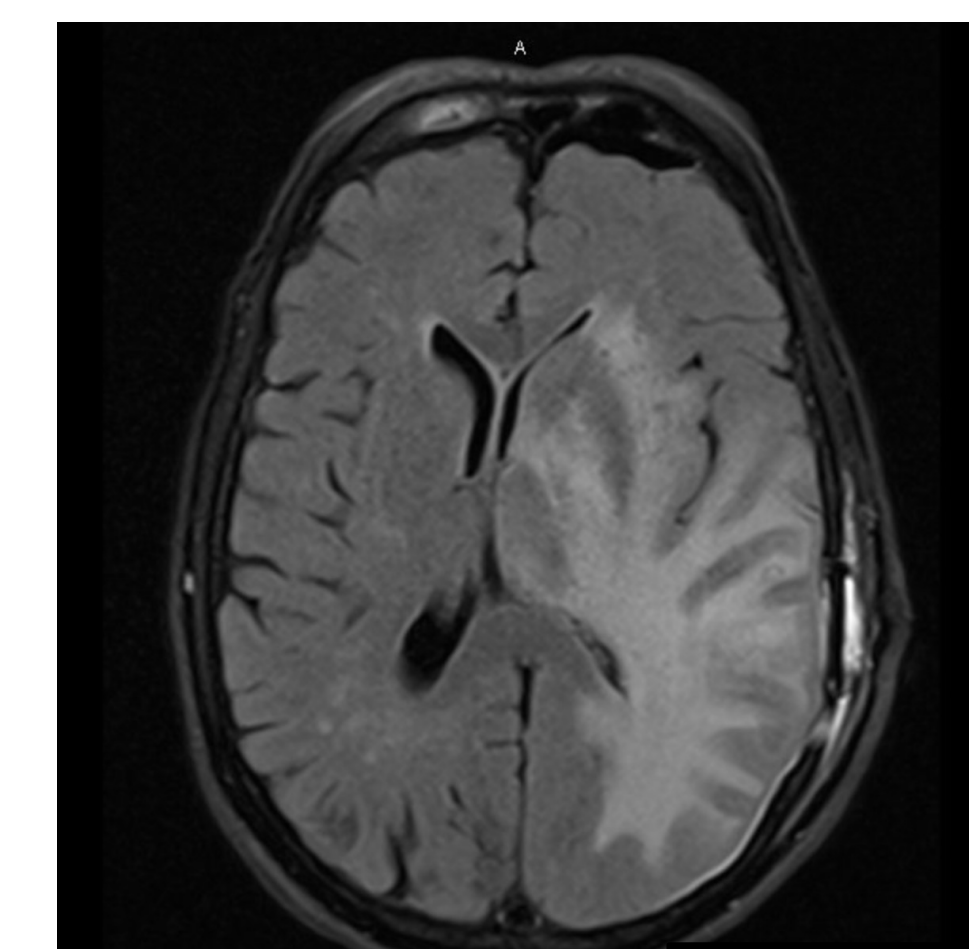


Figure 2b: T2 Axial Flair (6/3/2021)

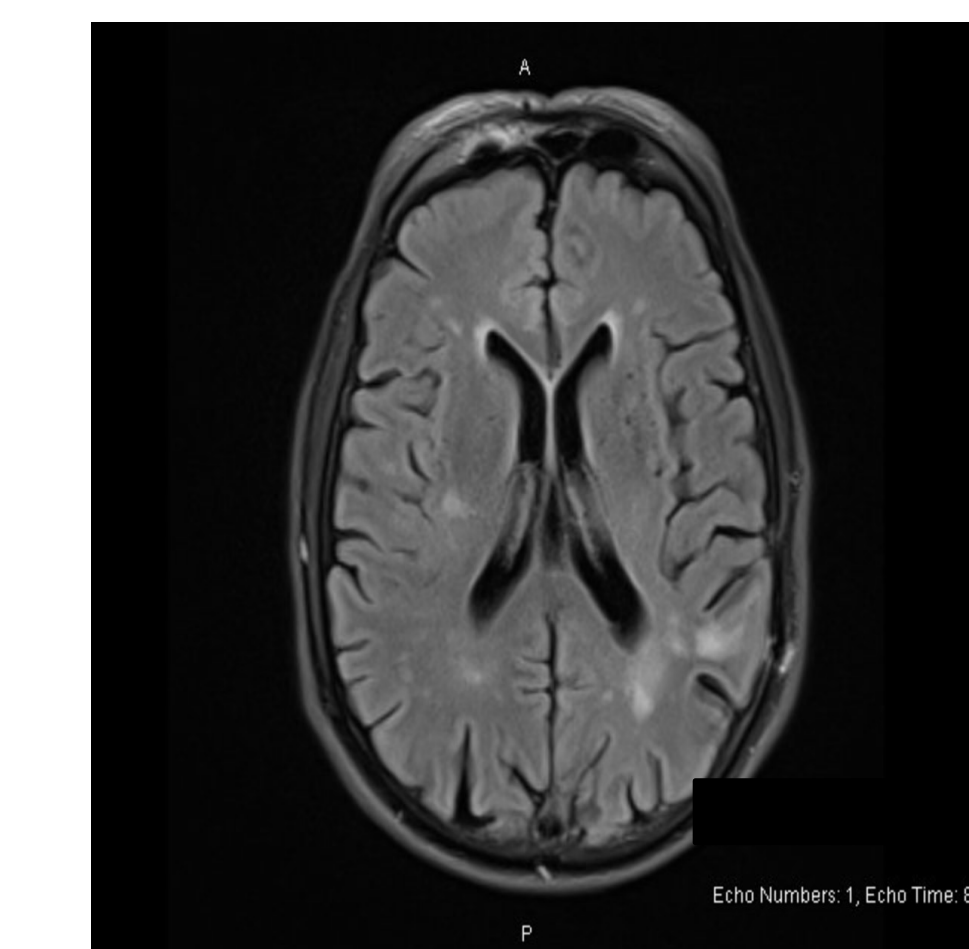


Figure 3b: T2 Axial Flair (3/22/2022)

Conclusion

- The unusual site and time to progression for this case of metastatic disease make this a unique and important addition to the literature.
- The tumor's genomic and cytochemical profile may provide insight into the mechanisms supporting its extended latency before clinical presentation.
- We hope that this discussion will promote further inquiry into the underlying tumor characteristics that may serve to personalize treatment planning and decrease overall mortality.
- Full literature review and manuscript in progress.

Acknowledgments

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