

A Case of Stage I Esophageal Adenocarcinoma Diagnosed Using A Multi-Cancer Early Detection Test

AACR Special Conference
Precision Prevention, Early Detection,
and Interception of Cancer
November 17 - 19, 2022
Austin, TX

David DeAtkine Jr¹
¹MDVIP, Birmingham, AL, USA

INTRODUCTION

- There is no guideline-recommended screening test for esophageal cancer, a cancer that occurs in approximately 1 in 125 men and 1 in 417 women in the United States (US)¹
- The 2 most common types of esophageal cancer are squamous cell carcinomas and adenocarcinomas²
 - In the US, squamous cell carcinomas are more common in African Americans and adenocarcinomas are more common in Whites¹
- Risk factors for esophageal adenocarcinoma include gastroesophageal reflux disease (GERD), Barrett's esophagus (BE), obesity, and smoking²
 - Screening for BE with standard upper endoscopy is recommended by the American Gastroenterological Association in individuals with at least 3 of the following risk factors: male, non-Hispanic white, age >50 years, history of smoking, chronic GERD, obesity, or a family history of BE or esophageal adenocarcinoma³
- A multi-cancer early detection (MCED) test (Galleri®, GRAIL, LLC, Menlo Park, CA) that analyzes methylation patterns of cell-free DNA in the blood using a sequencing assay and machine-learning classifiers is available as a complement to existing single-cancer screening tests^{4,5,6}
 - The MCED test reports either (1) 'cancer signal detected' with 1 or 2 cancer signal origin (CSO) prediction(s) or (2) 'cancer signal not detected'

OBJECTIVE

- A case of esophageal adenocarcinoma is presented here to demonstrate early detection using the MCED test and to review the diagnostic journey following a cancer signal detected (positive) test result

SUPPORTING INFORMATION

Supporting Data

- In the third and final Circulating Cell-free Genome Atlas (CCGA) study (NCT02889978), this MCED test detected a shared cancer signal with a specificity of 99.5% and a sensitivity of 51.5% and predicted CSO with an accuracy of 88.7%⁶
- Sensitivity of cancer signal detection was 12.5% in stage I esophageal cancer⁹ (Table S1)

Table S1. Sensitivity Of Cancer Signal Detection In Esophageal Cancer By Stage

Cancer	Clinical stage	Total	Test positive	Sensitivity (95% CI)
Esophagus	All	100	85	85.0% (76.7%–90.7%)
	I	8	1	12.5% (0.6%–47.1%)
	II	17	11	64.7% (41.3%–82.7%)
	III	34	32	94.1% (80.9%–98.4%)
	IV	40	40	100.0% (91.2%–100.0%)
	Missing	1	1	100.0% (5.1%–100.0%)

KEY RESULTS: MCED TESTING DETECTED CANCER SIGNAL AND DIRECTED DOWNSTREAM DIAGNOSTIC EVALUATION OF A STAGE I ESOPHAGEAL ADENOCARCINOMA

White Male (BMI: 27 kg/m²)
63 Years With a History of
Peptic Ulcer Disease

CSO1 = Stomach/Esophagus



Male



63 Years



No Prior
Cancer



Non-Smoker



Moderate
Alcohol Use
(6/week)



Colonoscopy
(5 years prior)



No Genetic
Cancer
Predisposition



CSO
Prediction
was Correct

DAY 1

Cancer Signal
Detected
and Results
Communicated

CSO1 = Stomach/
Esophagus



DAY 13

CT (Chest,
Abdomen, Pelvis)
With Contrast



Clinical Notes

- No significant findings

DAY 15

Upper
Endoscopy



Clinical Notes

- A submucosal bulge just below the gastroesophageal junction (GEJ) was noted
- No abnormalities seen in esophagus or duodenum

DAY 29

Biopsy



Clinical Notes

- The lesion and area above the GEJ were extensively biopsied
- Pathologic evaluation confirmed diagnosis of **Clinical Stage I esophageal adenocarcinoma** with superficial focally invasive adenocarcinoma arising in a background of intestinal metaplasia with high grade dysplasia

DAY 29

Diagnosis

Diagnosis

Esophageal Adenocarcinoma,
Stage I

Treatment and Status

- Total gastrectomy without complications (Day 104)
- Abdominal incision healed well, and J-tube site was clean and secure

CONCLUSIONS

- The MCED test detected a cancer signal and predicted a stomach/esophagus CSO for an asymptomatic individual with Clinical Stage I esophageal adenocarcinoma
- Diagnostic resolution was achieved within 1 month and treatment was provided with curative intent
- Given that there is no guideline-recommended screening test available for esophageal cancer, the use of this MCED test detected cancer early, directed diagnostic workup, and potentially improved outcomes for this asymptomatic patient

References

- Esophagus cancer: Esophageal cancer. American Cancer Society. <https://www.cancer.org/cancer/esophaguscancer/about/key-statistics.html>. Accessed October 20, 2022.
- Domper Arnal MJ, et al. *World J Gastroenterol*. 2015;21(26):7933-7943.
- Muthusamy VR, et al. *Clin Gastroenterol Hepatol*. 2022;S1542-3565(22)00599-7.
- Galleri® Multi-Cancer Early Detection Test. <https://www.galleri.com>. Accessed October 20, 2022.
- Liu MC, et al. *Ann Oncol*. 2020;31(6):745-759.
- Klein EA, et al. *Ann Oncol*. 2021;32(9):1167-1177.

Disclosures

DD has no financial relationships to disclose.

Acknowledgements

Funded by GRAIL, LLC, a subsidiary of Illumina, Inc.* Writing provided by Grace Wang (GRAIL, LLC, Menlo Park, CA). Editorial and graphic assistance provided by Prescott Medical Communications Group (Chicago, IL).

*GRAIL, LLC, is currently held separate from Illumina, Inc. under the terms of the Interim Measures Order of the European Commission dated 29 October 2021.



CSO1, top-predicted CSO; BMI, body mass index; CT, computerized tomography