

FMTVDM Myocardial Perfusion Imaging Application Simultaneously Reveals Breast Cancer

¹Richard M. Fleming, PhD, MD, ¹Matthew R. Fleming, BS, NRP, ²Tapan K. Chaudhuri, MD
³William C. Dooley, MD

¹FHHI-OmnificImaging-Camelot El Segundo, CA, USA

²Eastern Virginia Medical School, Norfolk, VA, USA

³Oklahoma University Health Science Center, Oklahoma City, OK, USA.

*Corresponding Author: Richard M. Fleming, PhD, MD, JD, Los Angeles, CA, USA

ABSTRACT

Diagnostic evaluation of chest pain using myocardial perfusion imaging (MPI) is a common method employed to look for coronary artery disease (CAD). The isotopes used in MPI are also useful for imaging cancer, including breast cancer. We present a case where breast cancer was diagnosed using a quantitative method which simultaneously looks for cancer and CAD.

Keywords: FMTVDM, MPI, Breast Cancer, MBI.

INTRODUCTION

Diagnostic evaluation of patients with chest pain may include myocardial perfusion imaging. During the initial stress imaging evaluation, differences in regional blood flow and metabolism differentiates normal coronary blood flow from abnormal – viz. ischemia. Breast cancers are also associated with increased regional blood flow and metabolism and can be seen during the initial imaging as was done in this woman. Awareness of these similarities resulted in identification and successful treatment of her breast cancer prior to further spread of the cancer.

CASE REPORT

A 39-year old woman presented with atypical chest pain. She was referred for myocardial perfusion imaging. Following pharmacologic

stress, her initial images - shown here - were acquired 5-minutes after isotope injection. A mass was identified in her right breast and was surgically removed revealing a Stage IIA breast cancer without LN involvement. Additional workup revealed no evidence of metastatic disease. The patient elected to undergo no further treatment.

DISCUSSION

Quantitative measurement following enhancement of regional blood flow differences, which reflect both changes in metabolism and regional blood flow, can be measured to unmask ischemia and cancers [1]. These changes can reflect CAD, which is itself caused by inflammation [2], as well as pre-cancerous changes, which can also be associated with inflammation.

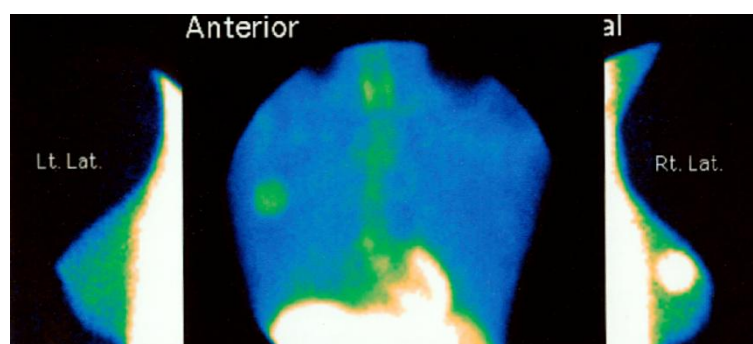


Figure1. Correctly timed acquisition and FMTVDM measurements reveal breast cancer during simultaneous myocardial perfusion imaging [3].

CONCLUSION

By understanding the fundamental differences in tissue resulting from changes in metabolism and regional blood flow differences, nuclear imaging can quantitatively unmask CAD and hidden cancer.

ACKNOWLEDGMENT

FMTVDM issued to first author. Figure reproduced by expressed consent of first author.

REFERENCES

- [1] Fleming RM, Fleming MR, McKusick A, Chaudhuri TK. Semi-quantification limitations: FMTVDM© demonstrates quantified tumor response to treatment with both regional blood flow and metabolic changes. *J Nucl Med* 2018; 59(10):1643-1644 10.2967/jnumed.118.217018 published ahead of print. PMID: 30030345.
- [2] Fleming RM. Chapter 64. The Pathogenesis of Vascular Disease. *Textbook of Angiology*. John C. Chang Editor, Springer-Verlag New York, NY. 1999, pp. 787-798.
- [3] Fleming RM, Dooley WC, Chaudhuri TK (2017) The Development of FMTVDM-BEST IMAGING©: The Answer for Breast Cancer. *Breast Enhanced Scintigraphy Test (BEST©): Quantifying the Detection of Breast Cancer and its Treatment*. *J Nucl Med Radiat Ther* 2017;8(6):350. DOI: 10.4172/2155-9619.1000350.

Citation: Richard M. Fleming et.al., "FMTVDM Myocardial Perfusion Imaging Application Simultaneously Reveals Breast Cancer", *International Journal of Research Studies in Medical and Health Sciences*. 2019; 4(11): 01-02.

Copyright: © 2019 Richard M. Fleming et.al., This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.