

A Day in the Life of a Breast Cancer Doctor: Integrating Omics to Optimize Patient Outcomes



CANCER
PROGRESS
by Defined Health

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A Day in the Life of a Breast Cancer Doctor: Integrating Omics to Optimize Patient Outcomes

Moderator:

Otis Webb Brawley, MD, FACP, Chief Medical and Scientific Officer, Executive Vice President, Research, American Cancer Society

Panelists:

- *Brad Gray*, President & CEO, NanoString Technologies, Inc.
- *Amy Krie, MD*, Medical Oncology and Hematology, Avera Cancer Institute
- *Manfred Lehnert, MD*, VP and Head, Innovation, Oncology Therapeutic Area Unit, Takeda Pharmaceuticals International Co.
- *Brian Leyland-Jones, MB BS, PhD*, VP, Molecular and Experimental Medicine, Avera Cancer Institute
- *John J. Sninsky, PhD*, Chief Scientific Officer, CareDX

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Disclosures

- Employment:
 - American Cancer Society
 - Emory University
 - Turner Broadcasting (CNN)
- Consulting
 - National Institutes of Health
 - Centers for Disease Control
 - Department of Defense

HOW WE DO HARM

A DOCTOR BREAKS RANKS

ABOUT BEING SICK

IN AMERICA



OTIS WEBB BRAWLEY, M.D.
with Paul Goldberg



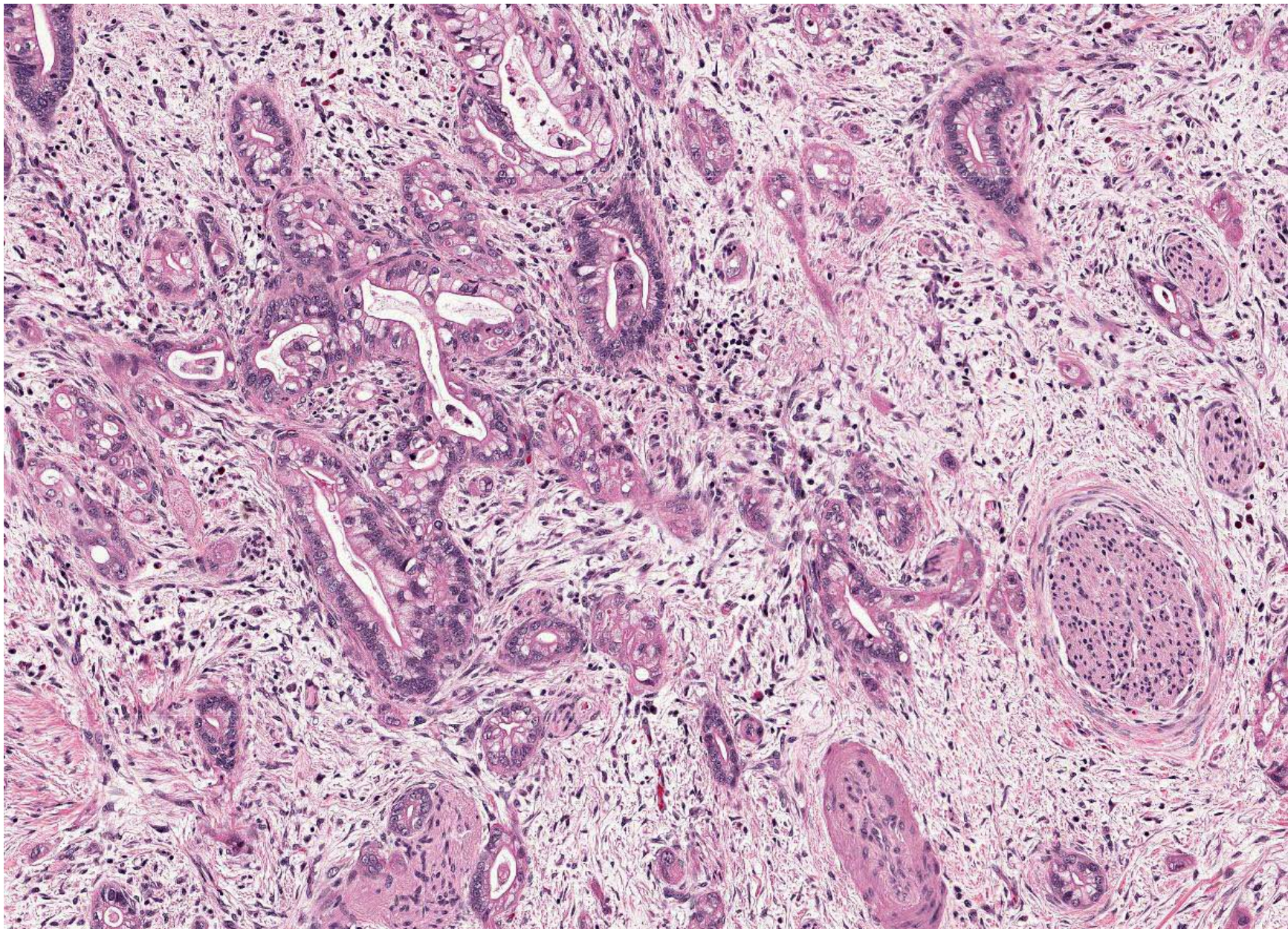
Rudolph Ludwig Karl Virchow

1821- 1902



Virchow's Accomplishments

- Virchow's node
- Defined conditions that cause thrombosis
- One of the first cellular pathologists
- Defined cancer as a disease involving uncontrolled cell growth
- The initial description of leukemia
- Defined cancer using a light microscope on specimens obtained on autopsy



Adenocarcinoma



Virchow's Accomplishments

The definition of cancer used in 2015 is largely that of Virchow with minor modifications

More than 160 years later, we still use his definitions using a light microscope.

The Definition of Cancer

- **Currently based on morphology and histology defined in the mid 19th century by Rudolf Virchow using biopsies done at autopsy and a light microscope-these “cancers” obviously killed**
- **Small “localized cancers” found today morphologically look like cancers that kill (profiling)**
- **Advances in cancer diagnosis:**
 - X-ray - 1895
 - Mammogram - 1960's
 - CT scanner - 1970's
 - MRI - 1980's
 - Stereotactic biopsy methods – 2000's to present



A 21st Century Definition of Cancer

An understanding of the varying biologic behaviors of cancer based on histology and genomics.

An understanding of the varying vulnerabilities of cancers to medical interventions.

Numerous molecular targets have and are being defined. Many are drugable targets.



A 21st Century Definition of Cancer

Pathology and Genomic analysis

- What genes are present
- What genes are activated
- What genes are over expressed

Early Genomic Tests

- What cancers need aggressive treatment
- What drugs are most likely effective