

Mammography Education, Inc.



2023

BREAST SEMINAR SERIES

Faculty

LÁSZLÓ TABÁR, MD, FACR (Hon) Course Director
Professor emeritus of Radiology

Advanced Calcification Analysis

Webinar type course

combined with live interaction at the end
of the course

Jan 28th, 2023

Translators:

Dr. Alfonso Frigerio

Dr. Giulia Picozzi

**NEW
course
design**

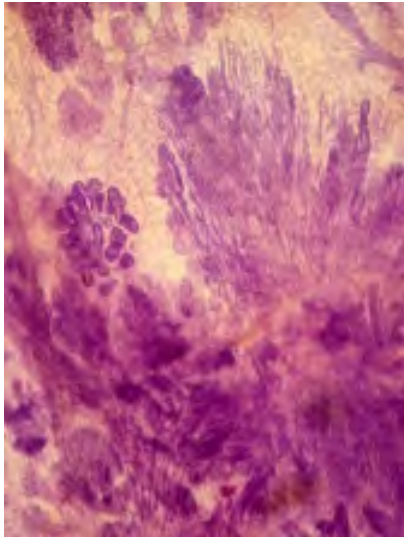
Designed for:

Radiologists • Surgeons • Pathologists

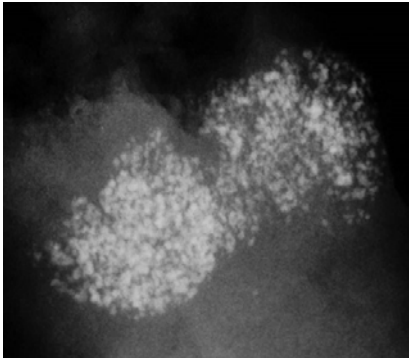
Gynecologists • Radiology

Technologists BREAST

This course provides extensive knowledge about diagnostic breast imaging, differential diagnosis of breast diseases, implications for management and newest diagnostic technologies



3D image of sclerosing adenosis



Mammogram of sclerosing adenosis





2023

BREAST SEMINAR SERIES of MEI

Detection and Diagnosis of Breast Diseases
Using the Multimodality Approach. Webinar type course.

László Tabár, MD, FACR (Hon)
Course Director

FACULTY



László Tabár, MD, FACR (Hon).
Course Director

*Professor emeritus of Radiology,
University of Uppsala
Sweden*

Translators



Alfonso Frigerio, M.D.

*Director of Mammography Screening
Regional Reference Center for
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Torino, Italy*



Giulia Picozzi, MD.

*Radiologist

Oncological Network, Prevention and
Research Institute - ISPRO, Florence, Italy.*



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NEW COURSE DESIGN

- * The lectures of this 4-hours course will 1) Inform the physicians about a new breast cancer classification system that takes into account the site of origin of the cancers. 2) Very detailed **calcifications analysis** using the multimodality approach. Each case will have a supporting large format thin section and often large format thick section histopathology images for thorough correlation of the imaging findings with the underlying histopathology. 3) These skills will lead to **more accurate diagnosis** and greater confidence in discussions with the surgeons and pathologists.
- * **Immediate feedback** and Teaching Points at the end of the cases.
- * Special emphasis will be placed on **finding early phase breast cancers**.

CREDITS

We would like to thank Korilù Congressi srl for the organization of this webinar



Photographs from the collection of the non-profit Tabar Foundation
dedicated to Research and Education for Breast Cancer, Visit:
tabarfoundation.org



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INFORMAZIONI GENERALI:

Il Corso sarà così suddiviso:

1° step: il **09 Gennaio 2023** riceverete 4 lezioni magistrali del Prof Tabar da ascoltare durante la prima settimana

*entro il 15 Gennaio 2023 potrete inviare eventuali domande e considerazioni all'indirizzo mail: alfonso.frigerio@gmail.com

2° step: il **16 Gennaio 2023** riceverete altre 4 lezioni magistrali da ascoltare durante la seconda settimana

*entro il 22 Gennaio 2023 potrete inviare eventuali domande e considerazioni all'indirizzo mail: alfonso.frigerio@gmail.com

3° step: il **28 Gennaio 2023** dalle 09 alle 13 si svolgerà l'incontro on-line della durata di 4 ore con il Prof Tabar nel quale si discuteranno i casi e le problematiche incontrate.

L'evento verrà accreditato per la figura professionale di Medico Chirurgo specializzato in Medicina Generale (Medici di Famiglia), Oncologia, Radioterapia, Chirurgia Generale, Chirurgia Plastica e Ricostruttiva, Ginecologia e Ostetricia, Anatomia Patologica, Radiodiagnostica, Epidemiologia e per Tecnico Sanitario di Radiologia Medica, **ottenendo 4.5 crediti ECM.**

Il costo è di € 150.00+IVA

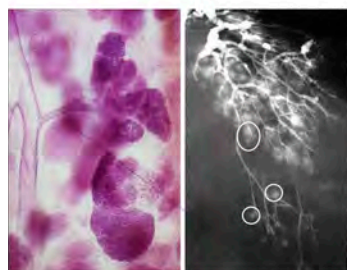
comprende: 8 Letture Magistrali (che, come potete vedere dal sito del Prof Tabar - <https://elearning.mammographyed.com/lectures/> - avrebbero un costo di \$ 40 ognuna) più la partecipazione al webinar con il servizio di traduzione simultanea. Tutto il materiale sarà visibile e fruibile fino al 28 Gennaio 2023

dopo tale data non sarà più possibile visionare le letture.

L'iscrizione al corso sarà perfezionata solo dopo l'avvenuto pagamento della quota di iscrizione e la corretta e completa compilazione della relativa scheda sul sito: www.korilu.it

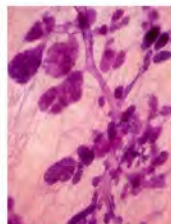
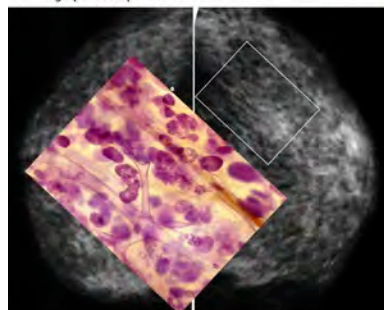
MAMMOGRAPHIC-3D HISTOLOGIC CORRELATION OF THE NORMAL BREAST STRUCTURE

NORMAL BREAST ANATOMY



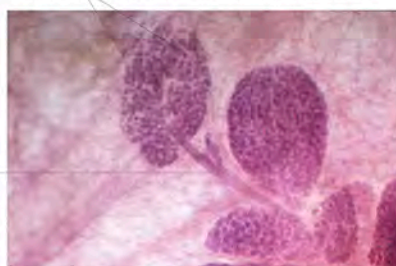
TDLUs on 3D histology and on a galactogram. Terminal duct

Illustration of subgross breast anatomy using 3D histologic-mammographic comparison.

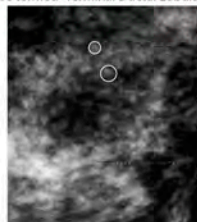


Three of the four basic building blocks (TDLU, ducts and fibrous tissue) are discernable on this 3D histology slice.

A lobule consists of 40-60 ductules / acini. This is the site of milk production and also 75% of breast cancers originate from the cells lining the acini (AAB, acinar adenocarcinoma of the breast).

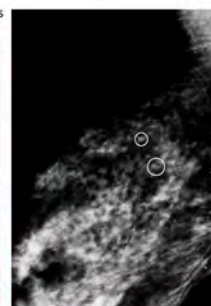


Large format thick section (subgross, 3D) histology image of neighboring TDLUs. The lobule and the terminal duct combined are termed "Terminal Ductal Lobular Unit (TDLU)".

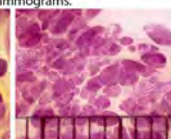
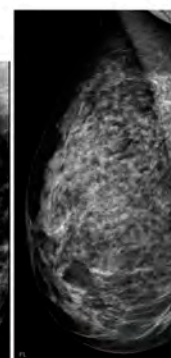


TDLUs

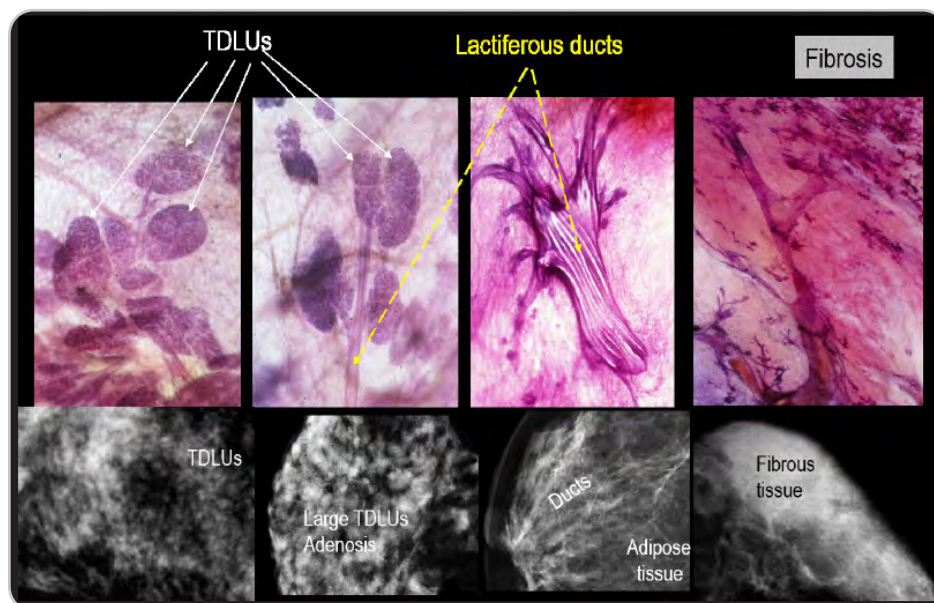
Milk ducts



Three of the four basic building blocks (TDLU, ducts and adipose tissue) are discernable on these mammograms.



The size of a normal TDLU varies between 0.7 - 1.5 mm.

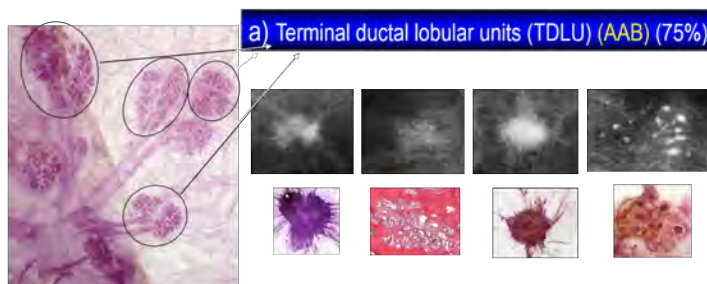


The breast, unlike any other organ, has **five structurally different mammographic parenchymal patterns**.

CLASSIFYING BREAST DISEASES ACCORDING TO THEIR SITE OF ORIGIN

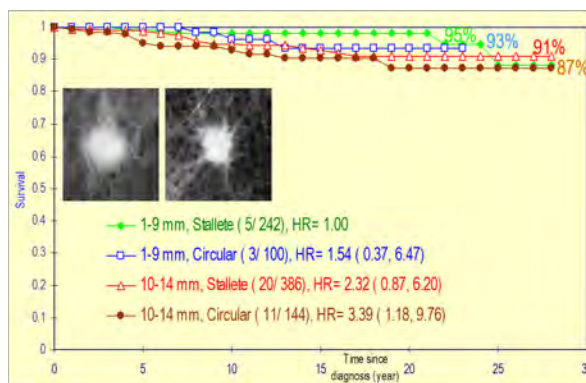
Malignant type calcifications (CIS AAB) stellate and circular/oval-shaped lesions (invasive AAB) originating from the TDLUs (Acinar Adenocarcinoma of the Breast, AAB): clinical presentation, histology, mammographic - MRI - ultrasound appearance and outcome.

We use a classification system which is based on the apparent **anatomic site of origin** of breast cancer since the **long-term patient outcome** appears to be largely determined by the site of origin of breast cancer.



The third generation prognostic features (imaging biomarkers) of Acinar Adenocarcinoma of the Breast (AAB)

Cumulative survival of **circular/oval** and **stellate** breast cancer cases with no associated calcifications on the mammogram. Women 40-69 yrs old, diagnosed in Dalarna county, Sweden between 1977-2006

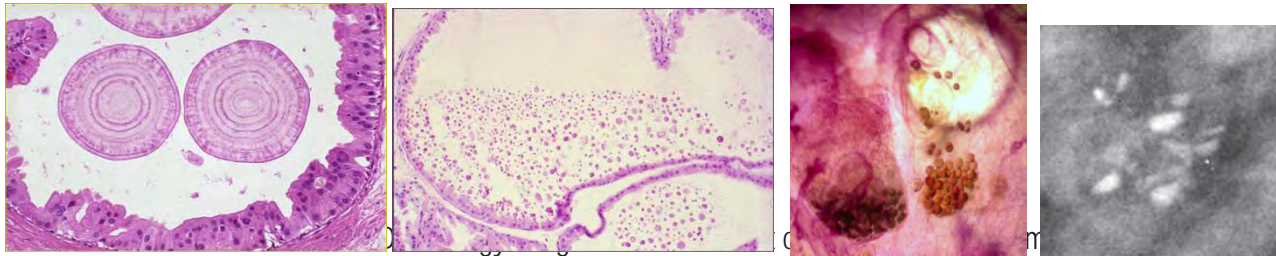


Long-term survival of women with 1-14 mm AAB

HYPERPLASTIC BREAST CHANGES ORIGINATING IN THE TDLU

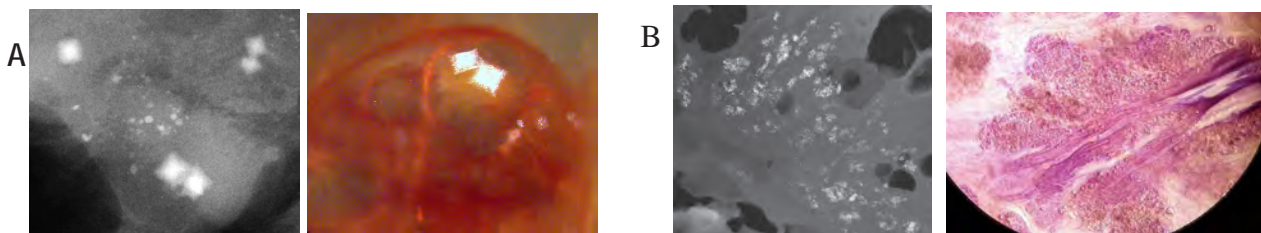
ALGORITHM FOR CLASSIFYING BREAST DISEASES ACCORDING TO THEIR SITE OF ORIGIN

- Benign breast diseases originating in the TDLU and associated with calcifications on the mammogram
 - Fibrocystic change. Fibroadenoma. Different types of adenosis. Understanding pathophysiology leading to calcified and non-calcified hyperplastic breast changes.

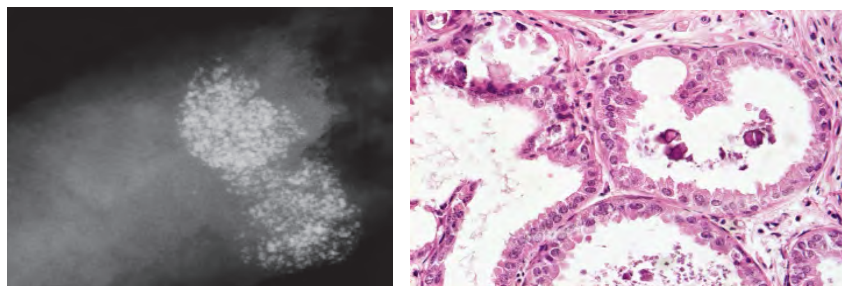


body-like calcifications, seen as "teacup-like calcifications on the mammogram.

- Detailed analysis of calcifications associated with hyperplastic breast changes: Weddellites (A), powdery calcifications (B), cluster skipping stone-like calcifications on the mammogram.



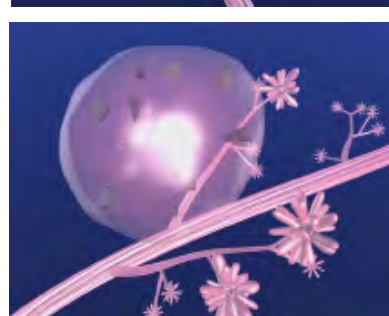
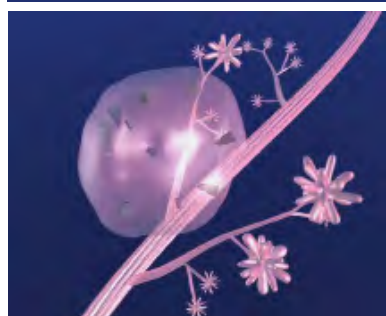
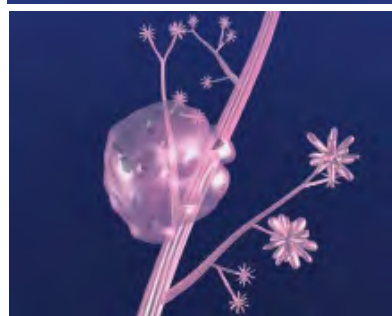
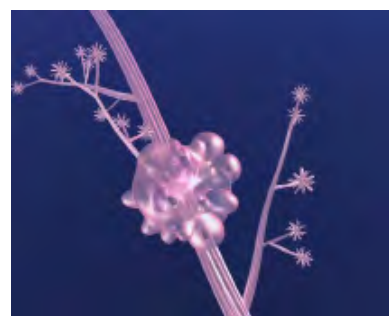
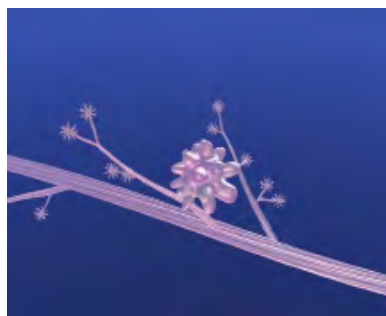
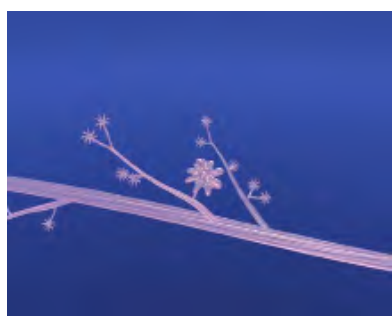
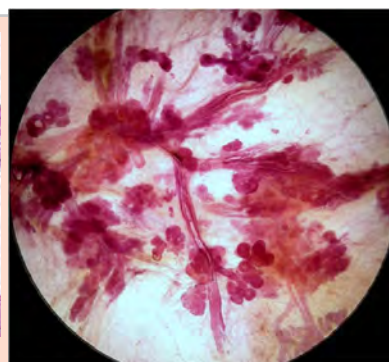
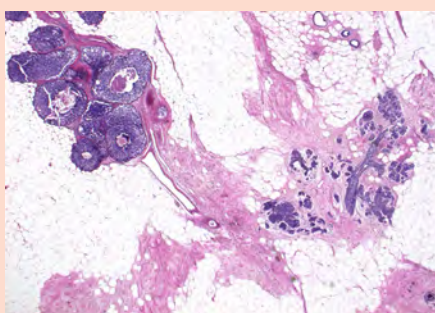
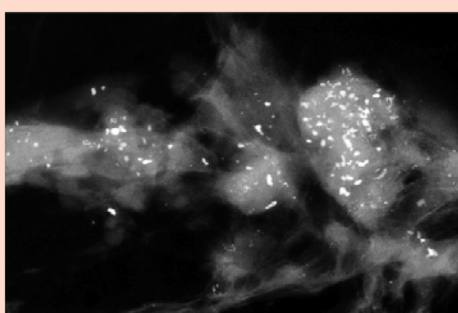
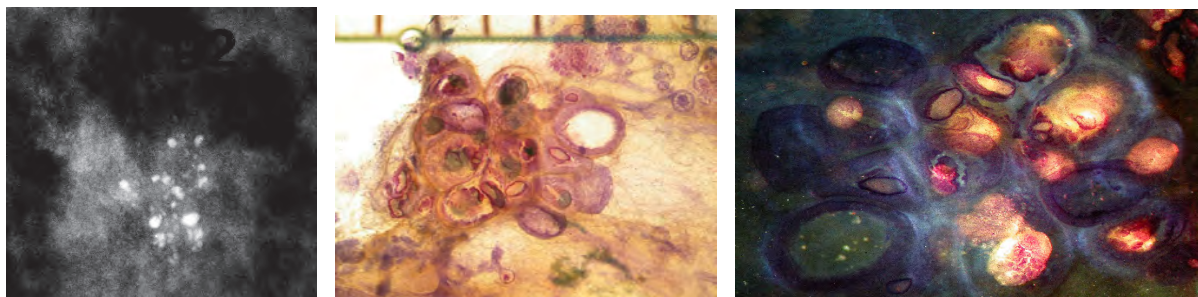
- The morphologic analysis of calcifications representing a less aggressive carcinoma:
Grade 1 / well differentiated CIS



Grade 1 *in situ* carcinoma:
Mammographic / 3D histologic / MRI correlation
of cases with powdery calcifications on the mammogram.

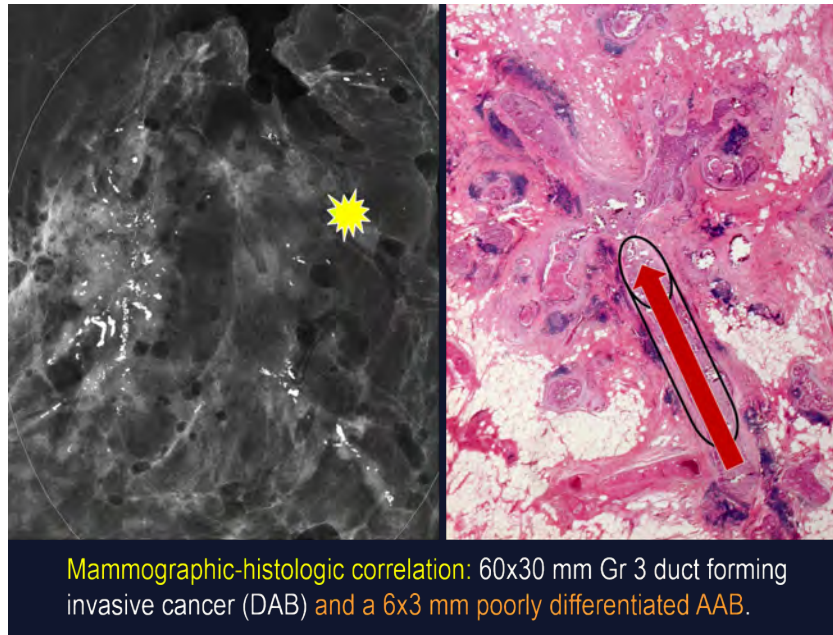
BREAST CANCERS ORIGINATING IN THE TDLU

Mammographic / histopathologic correlation of pleomorphic calcifications representing Gr 2 CIS within the TDLU

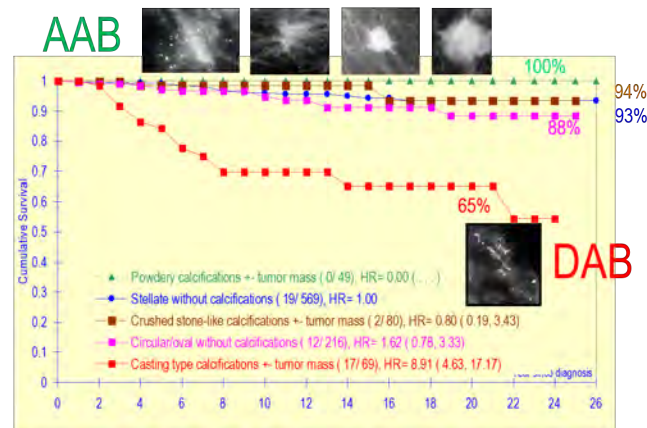


Computer simulation images of the development of Grade 2 *in situ* carcinoma within the TDLU. The lobule becomes gradually distended and deformed. Calcifications are formed within the necrotic debris and are seen on the mammogram as **crushed stone-like calcifications**.

Diffuse breast cancer originating from the major lactiferous ducts (DAB) (duct forming invasive carcinoma, not "DCIS")

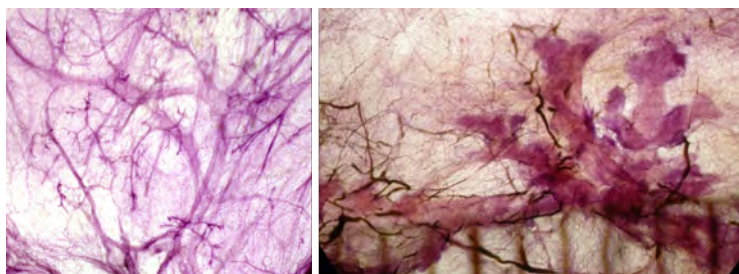


Cumulative survival of women aged 40-69 years with 1-14 mm invasive breast cancers by mammographic tumor features. Dalarna county, Sweden.



Long-term survival of women with 1-14 mm AAB without and with associated DAB

Normal,
atrophic ducts



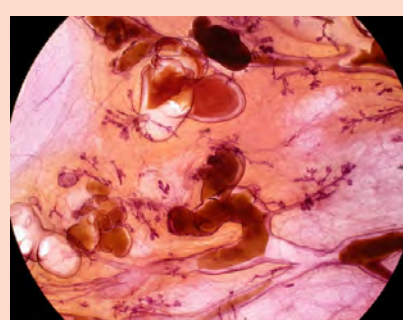
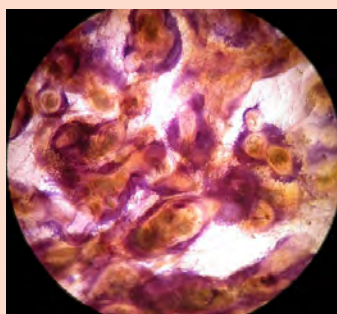
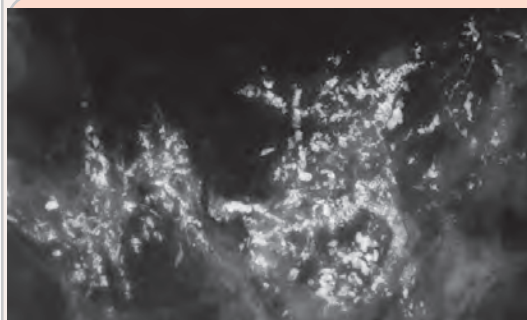
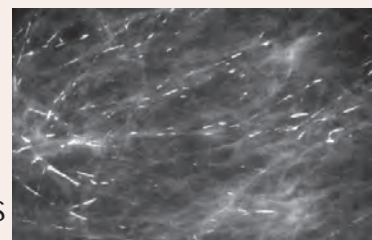
Neoductogenesis
and
angioneogenesis

Diffuse breast cancer originating from the major lactiferous ducts (DAB) (duct forming invasive carcinoma, not "DCIS")

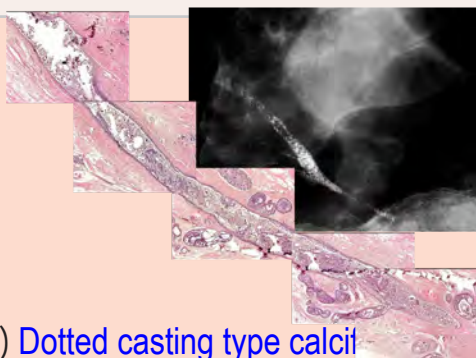
ALGORITHM FOR CLASSIFYING BREAST DISEASES ACCORDING TO THEIR SITE OF ORIGIN

Breast diseases originating in the major ducts

- **Benign type calcifications** originating in the major ducts
 - a) Secretory disease type calcifications
- **Malignant type calcifications** originating in the major ducts



a) **Fragmented casting type calcifications.**



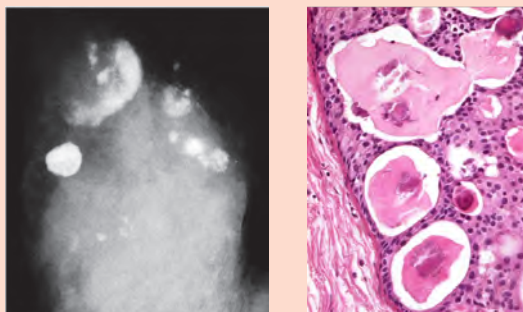
b) **Dotted casting type calcifications**

* **Four different malignant type calcifications** developing in the major ducts: **a)** fragmented casting type **b)** dotted casting type **c)** skipping stone-like **d)** pearl necklace-like.

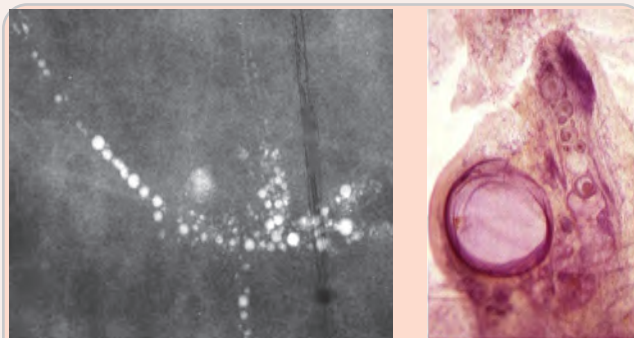
* The concept of **neoductogenesis**. Long-term follow-up results. New aspects, correct terminology.

* The role of breast MRI examination in demonstrating the extent of Gr 3 in situ carcinoma.

* Mammographic/3D histologic correlation helping to explain the underlying pathophysiology and outcome.



c) **Skipping stone-like calcifications**



d) **Pearl necklace-like calcifications**

Diffuse breast cancer originating from the major lactiferous ducts (DAB) (duct forming invasive carcinoma, not "DCIS")

<p>MALIGNANT: Necrosis, no fluid</p> <p>Ca++ in necrosis</p>	<p>Ductal Origin Ca++ on the mammogram</p>		<p>MALIGNANT: Necrosis, no fluid</p> <p>Ca++ in necrosis</p>	<p>Ductal Origin Ca++ on the mammogram</p>	
<p>Type 1 FRAGMENTED CASTING (solid bars)</p> <p>Diffuse, lobar disease</p> <p>Grade III solid cell proliferation</p>		<p>Fragmented casting</p>	<p>Type 2 DOTTED CASTING-TYPE (snakeskin-like)</p> <p>-Diffuse, lobar disease</p> <p>- Grade III</p> <p>-micropapillary cell proliferation</p>		<p>Dotted casting</p>

<p>Duct</p>	<p>Duct</p>
-------------	-------------

<p>MALIGNANT: No necrosis, fluid</p> <p>Ca++ in proteinaceous fluid</p>	<p>Ductal Origin Ca++ on the mammogram</p>		<p>MALIGNANT: No necrosis, fluid</p> <p>Ca++ in proteinaceous fluid</p>	<p>Ductal Origin Ca++ on the mammogram</p>	
<p>Type 3 "DISCOID" (skipping stone-like)</p> <p>-Diffuse lobar disease</p> <p>-Grade II</p> <p>-Micropapillary or/and cribriform</p>		<p>Skipping stone-like calcifications</p>	<p>Type 4 "PEARL NECKLACE"</p> <p>-large psammoma body-like calcifications within ducts</p> <p>-Grade I or/and 2</p> <p>- Micropapillary, cribriform.</p>		<p>Pearl necklace-like casting</p>

Live webinar discussion Jan 28th 9:AM - 1:00 PM with Dr. László Tabár, Dr. Giulia Picozzi and Dr Alfonso Frigerio



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Course Director

Detection and Diagnosis of Breast Diseases
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Per ulteriori informazioni e per l'iscrizione i partecipanti italiani possono contattare:

Korilù srl, Via Belmeloro 5, 40126 Bologna

Tel (0039) 051 385328 - 051 387615

Per ulteriori informazioni e per l'iscrizione si prega di contattare:

Mammography Education, Inc. 4429 E. Spur Drive CAVE
CREEK, AZ 85331, USA

Tel: (001) 480 419 0227 Fax: (001) 480 419 0219

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A photograph from the collection of the non-profit Tabar Foundation dedicated to Research
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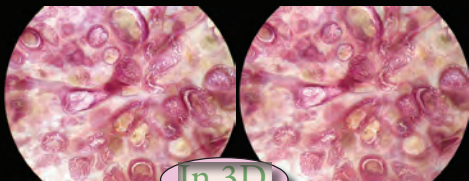


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László Tabár, MD
Tibor Tot, MD, Peter B. Dean, MD

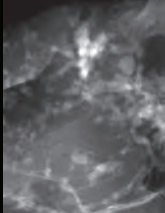
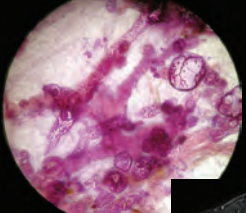
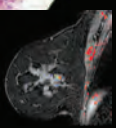


In 3D

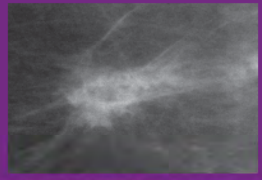
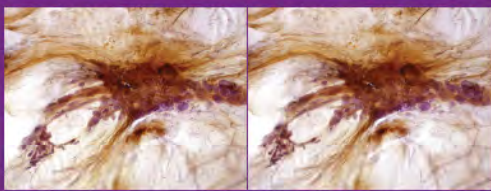
Breast cancer originating from the major ducts

Ductal Adenocarcinoma of the Breast (DAB), Part 7

Architectural distortion on the mammogram without calcifications or nipple discharge






Mammographic-MRI-subgross (3D) histologic correlation of this extensive micropapillary cancer originating from the major ducts presenting as architectural distortion.

Architectural distortion on the mammogram without calcifications or nipple discharge

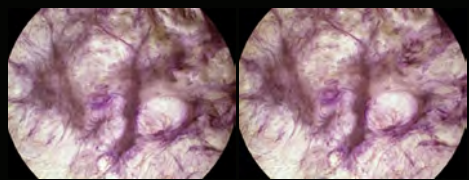
In 3D



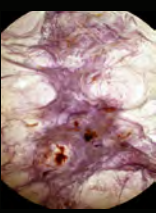
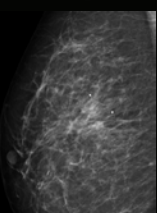
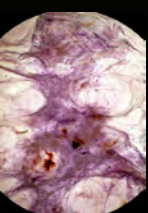

There are two main groups of diffuse breast cancers presenting on the mammogram as large regions of architectural distortion; these account for about 25% of all breast cancers and tend to have a poor outcome: 1) **Neoductogenesis**, i.e. "duct forming invasive carcinoma", the topic of this volume, often erroneously diagnosed as "DCIS", and 2) **Diffusely infiltrating breast cancer**, the topic of Vol. XI.

This volume demonstrates the DAB subgroup where the unnaturally high concentration of abnormal, tumor-filled ducts results in an asymmetric density with architectural distortion on the mammogram and often causes a palpable "thickening". Detecting architectural distortion on the mammogram and diagnosing the underlying disease correctly is a challenge for the radiologist. Breast cancers originating from the major ducts (DAB) are characterized by the formation of new, duct-like structures through the process of Neoductogenesis.

László Tabár, MD
Tibor Tot, MD, Peter B. Dean, MD
Olga Puchkova, MD



Diffusely infiltrating breast cancer, Part 1

In 3D



Stereoscopic subgross (3D) image pair of a diffusely infiltrating breast cancer



In 3D




Extensive diffusely infiltrating breast cancer: the dominant feature is the extreme amount of connective tissue with concave contours.

This volume describes a breast cancer subtype that is a substantial challenge for the entire breast cancer team. The clinical, imaging and outcome observations indicate that diffusely infiltrating breast cancer represents a very unusual breast malignancy, regardless of whether it is E-cadherin negative or positive. All aspects of the diffusely infiltrating breast cancer suggest that it may have a site of origin different from all other breast cancers. We propose that it originates from the mesenchymal stem cells/progenitors through a complex process of epithelial-mesenchymal transformation and predominantly mesenchymal-epithelial transformation. Control of this unusual malignancy requires new approaches to earlier detection and entirely new therapeutic innovations.