ISSN: 2577 - 8005

Medical & Clinical Research

PPT

Tumors of lung and pleura

Daniel Benharroch*

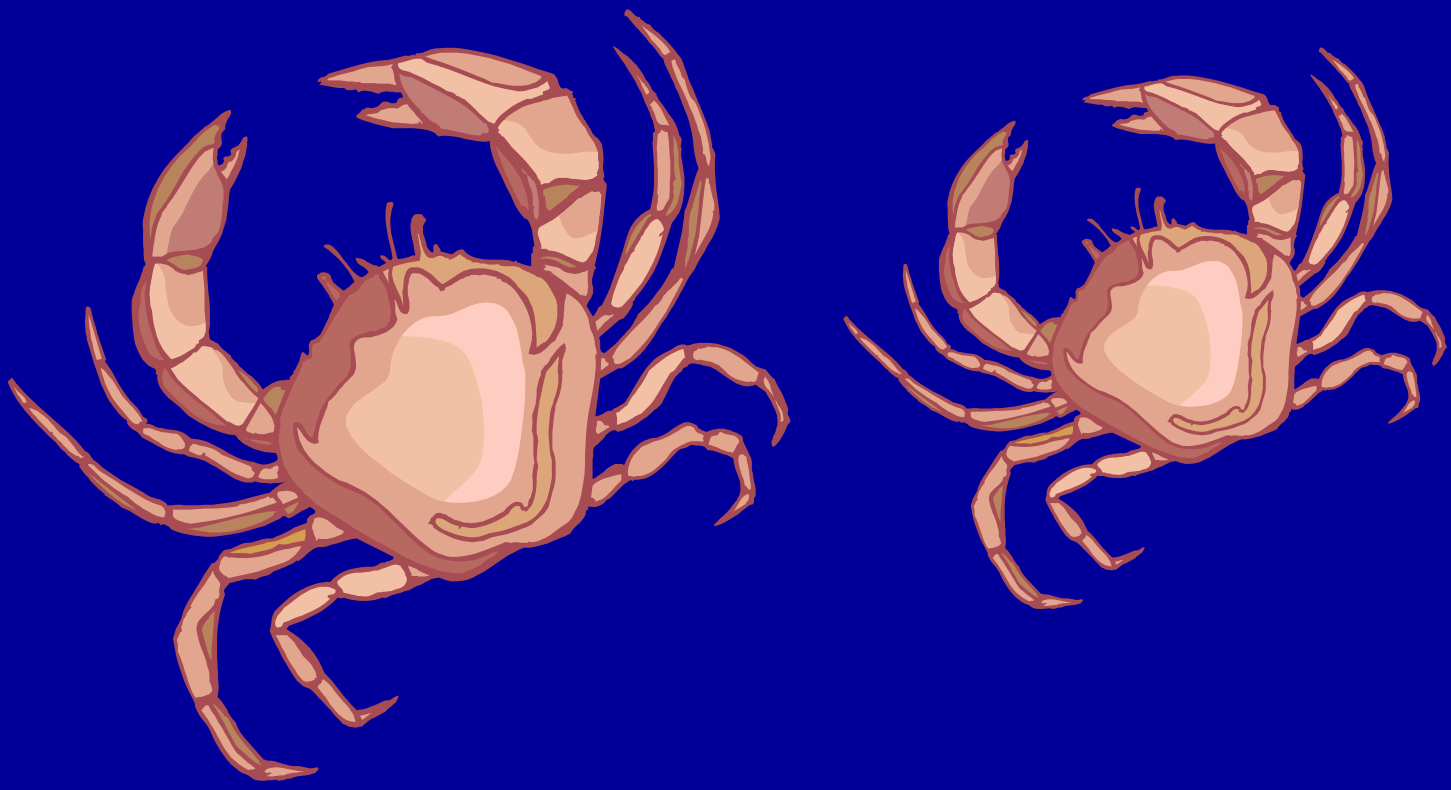
Department of Pathology, Soroka University Medical Center, Ben Gurion University of the Negev, Beer Sheva, Israel.

***Corresponding author**
Daniel Benharroch, Department of Pathology, Soroka University Medical Center, Ben Gurion University of the Negev, Beer Sheva, Israel.

Submitted: 28 Aug 2022; **Accepted**: 30 Aug 2022; **Published**: 01 Sep 2022

Citation: *Daniel Benharroch (2022) Tumors of lung and pleura. Medical & Clinical Research 7(9):01.*

TUMORS OF LUNG AND PLEURA



Primary Tumors of Lung

- **Carcinoma** (90%-95%)
- Bronchial carcinoid (5%)
- Mesenchymal and other miscellaneous tumors (2%-5%)

LUNG CANCER

- Near 1/3 mortality from cancer
- 84% will die within 5 years
- Most will be diagnosed after age 40 (98%)
- Cigarette smoking – main risk factor (87%)
- 75% are centrally located

CARCINOMA

- Frequent invasion to neighboring organs - Pleura, mediastinum.
- Involvement of regional lymph nodes – 50%.
- Distant spread – lymphatic or hematogenic.
- Metastases as presenting symptoms – frequent.

Bronchogenic carcinoma

Frequent location of metastases: •

Adrenals – more than 50% •

Liver – 30-50% •

Brain – 20% •

Bone – 20% •

Clinical vs histological classification

- **Squamous cell carcinoma (M32%-F25%)**
- **Adenocarcinoma (M37%-F47%)**
- **Large cell carcinoma (M18%-F10%)**
- **Small cell carcinoma (M14%-F18%)**

Non small cell carcinoma

Non squamous non small cell carcinoma (EGFR)

Small cell carcinoma

10% - combined carcinoma

Precursor lesions

- Squamous dysplasia and carcinoma in situ
- Atypical adenomatous hyperplasia
- Diffuse idiopathic pulmonary neuroendocrine cell hyperplasia

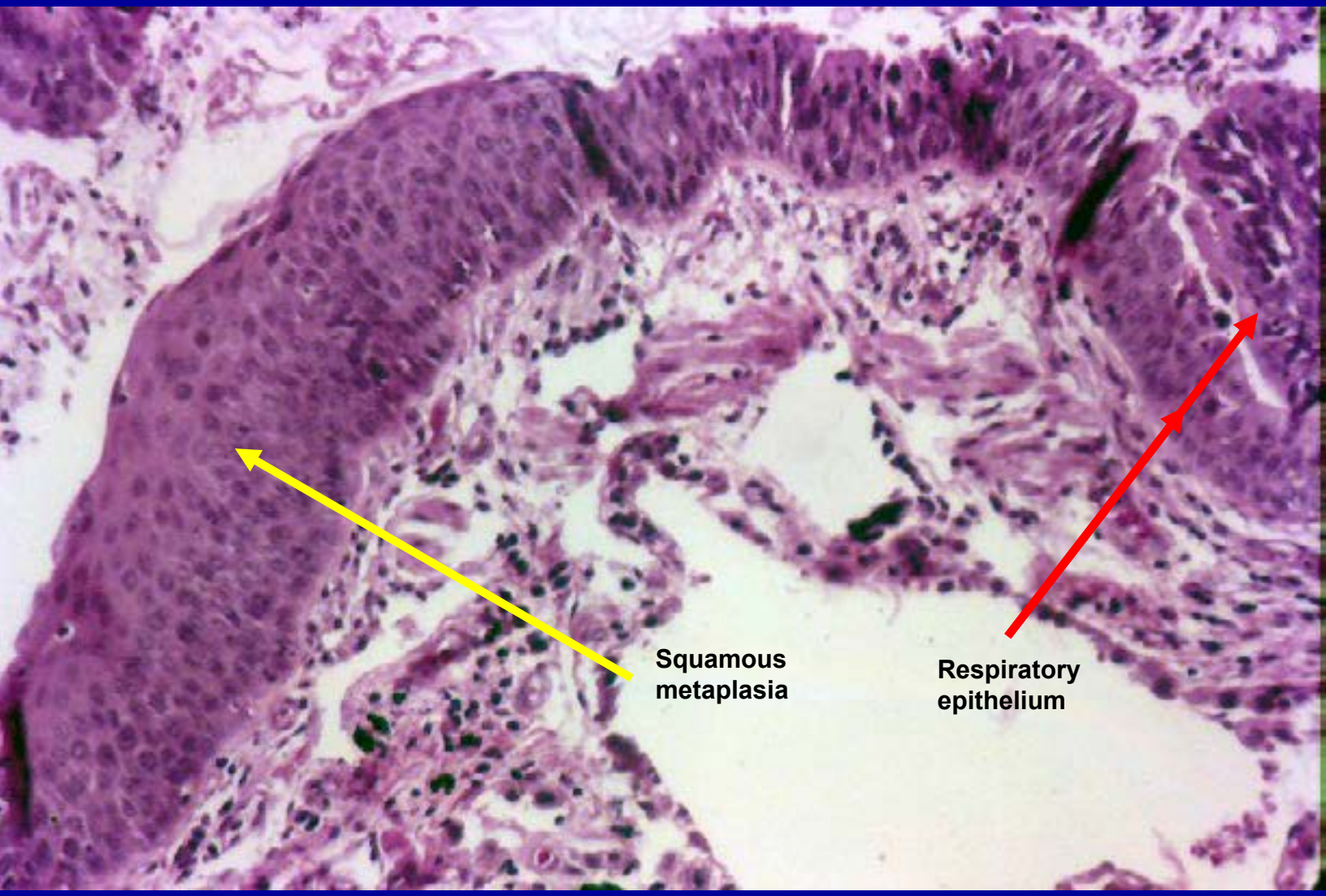
A precursor condition does not always imply a cancer.

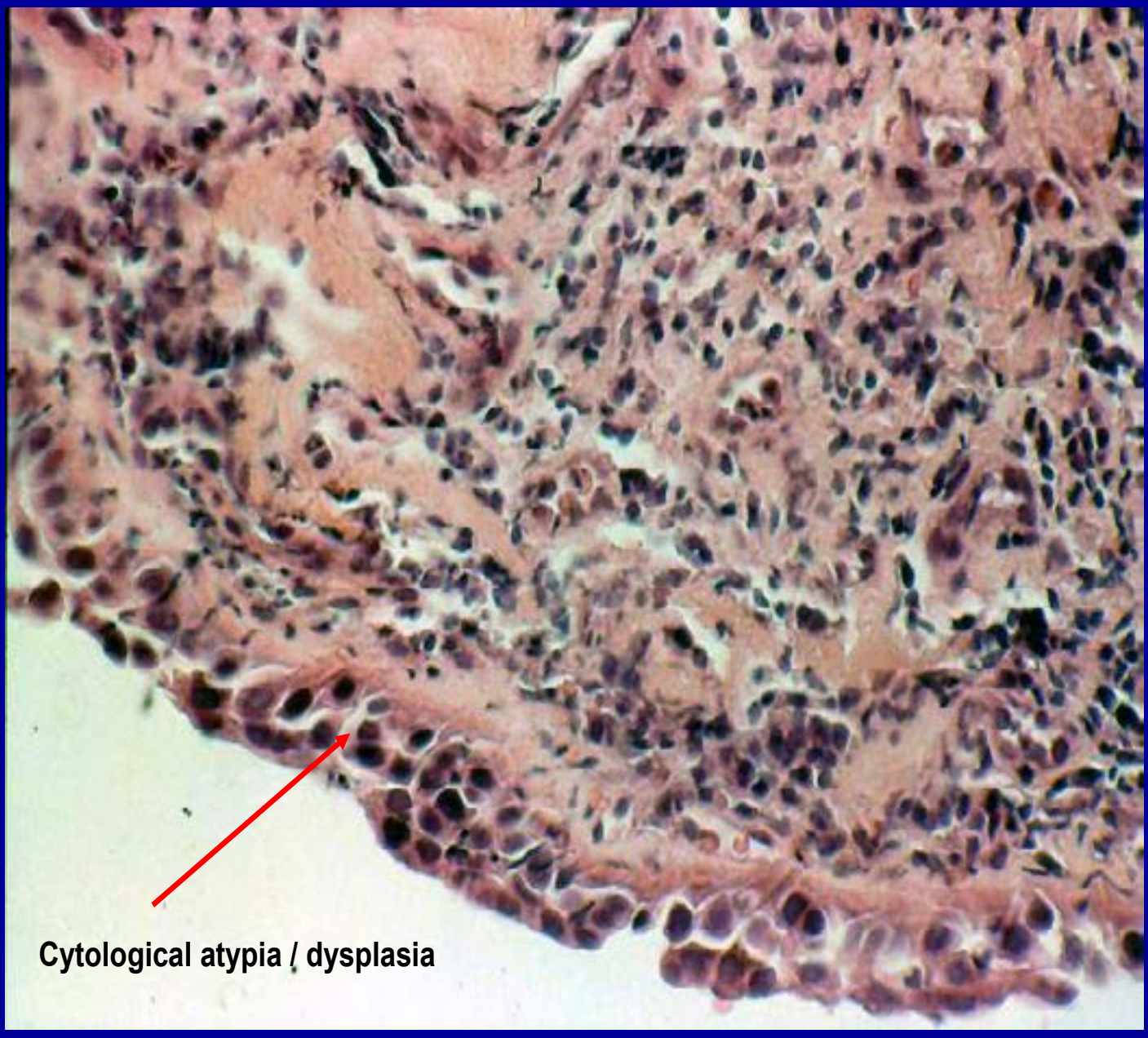
Its transformation is rarely preconceived.

DEVELOPMENT OF BRONCHIAL CARCINOMA

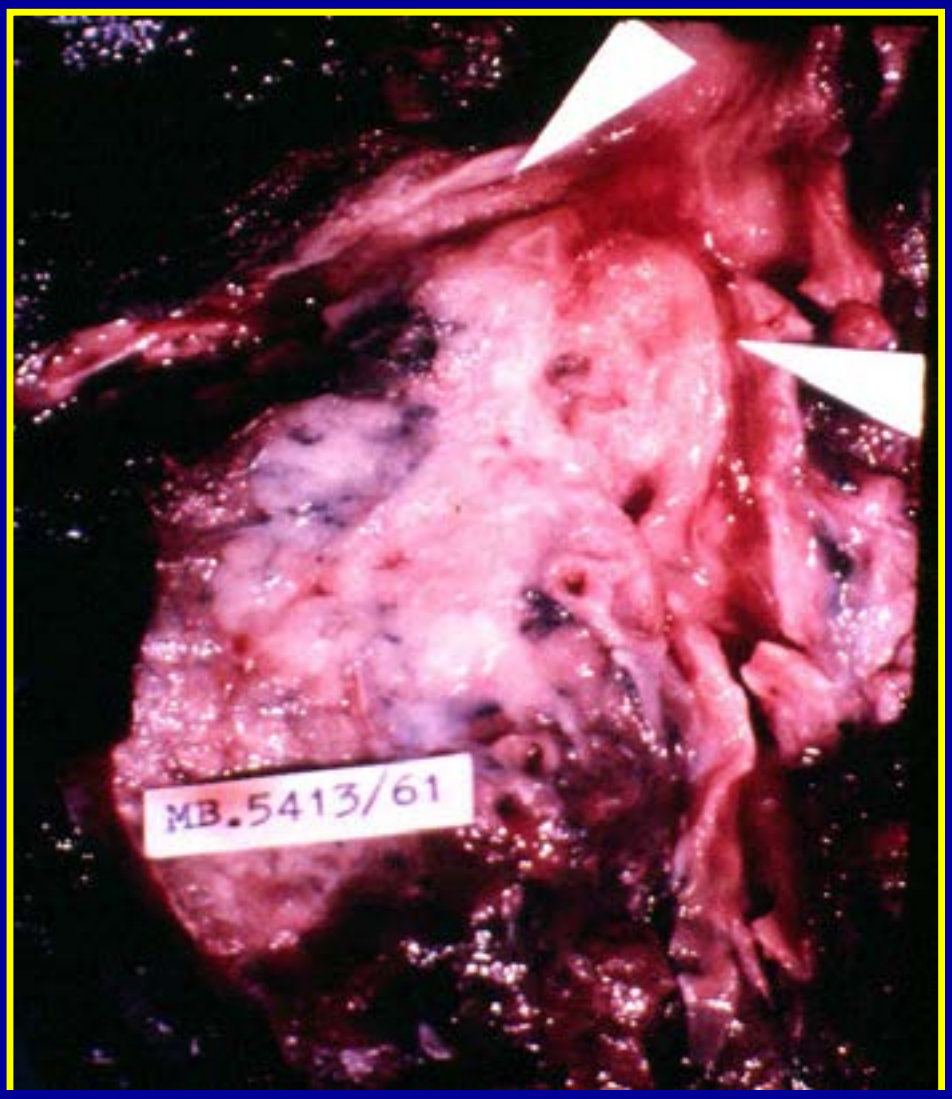
- **Area of cytological atypia**
- **Thickening of bronchial mucosa**
- **Warty excrescence and erosion**
  - a. Fungating into bronchial lumen
  - b. Infiltration along peribronchial wall
  - c. Producing intraparenchymal mass

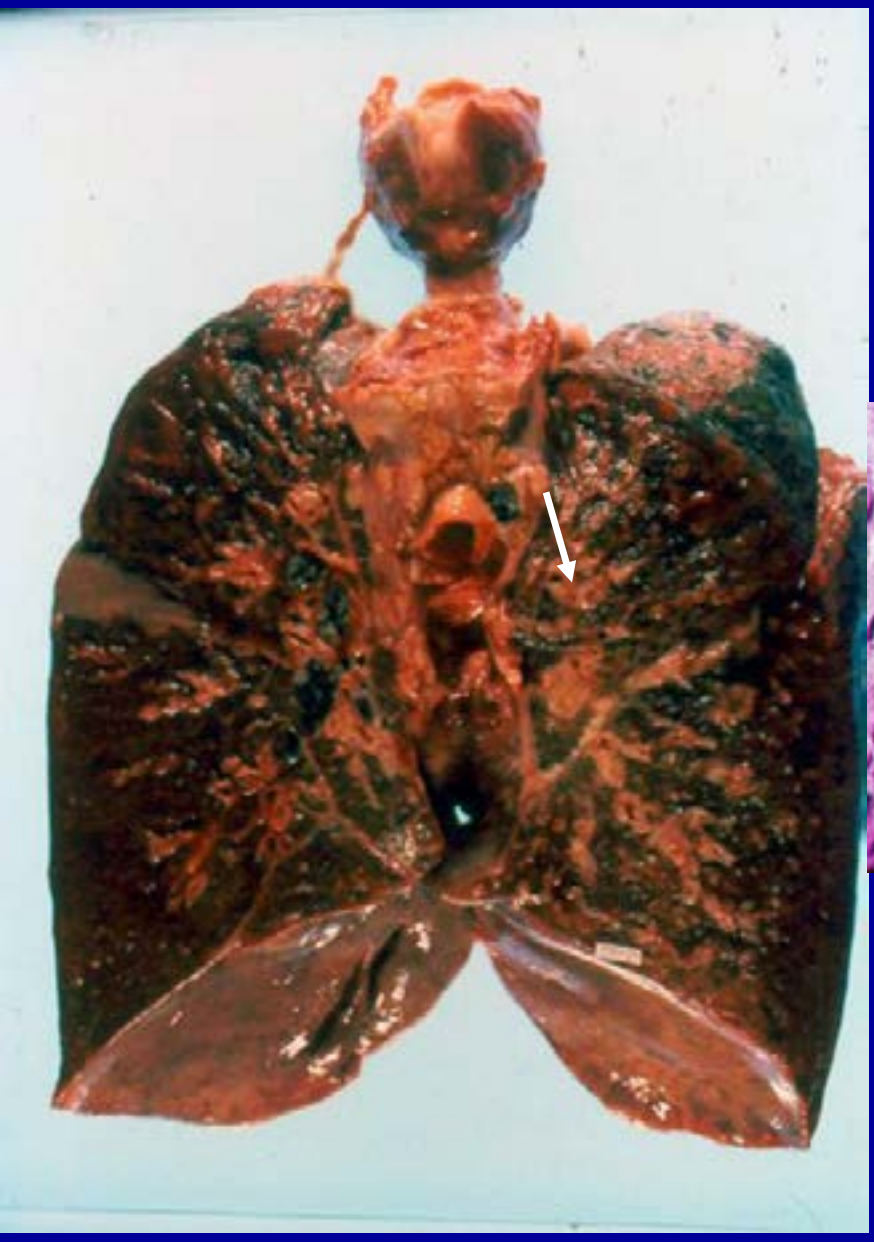
Development of squamous cell carcinoma



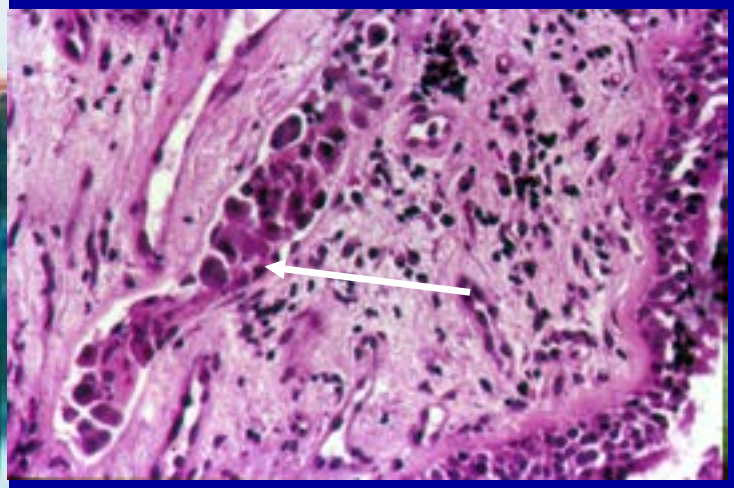

Cytological atypia / dysplasia

Bronchogenic carcinoma





Peribronchial infiltration



Squamous cell carcinoma

90%
central

Frequent
P53
mutations

IHC
supporting
P63
CK 5-6

overexpressio
80%EGFR-
mutations are
rare

Cigarette
smoking

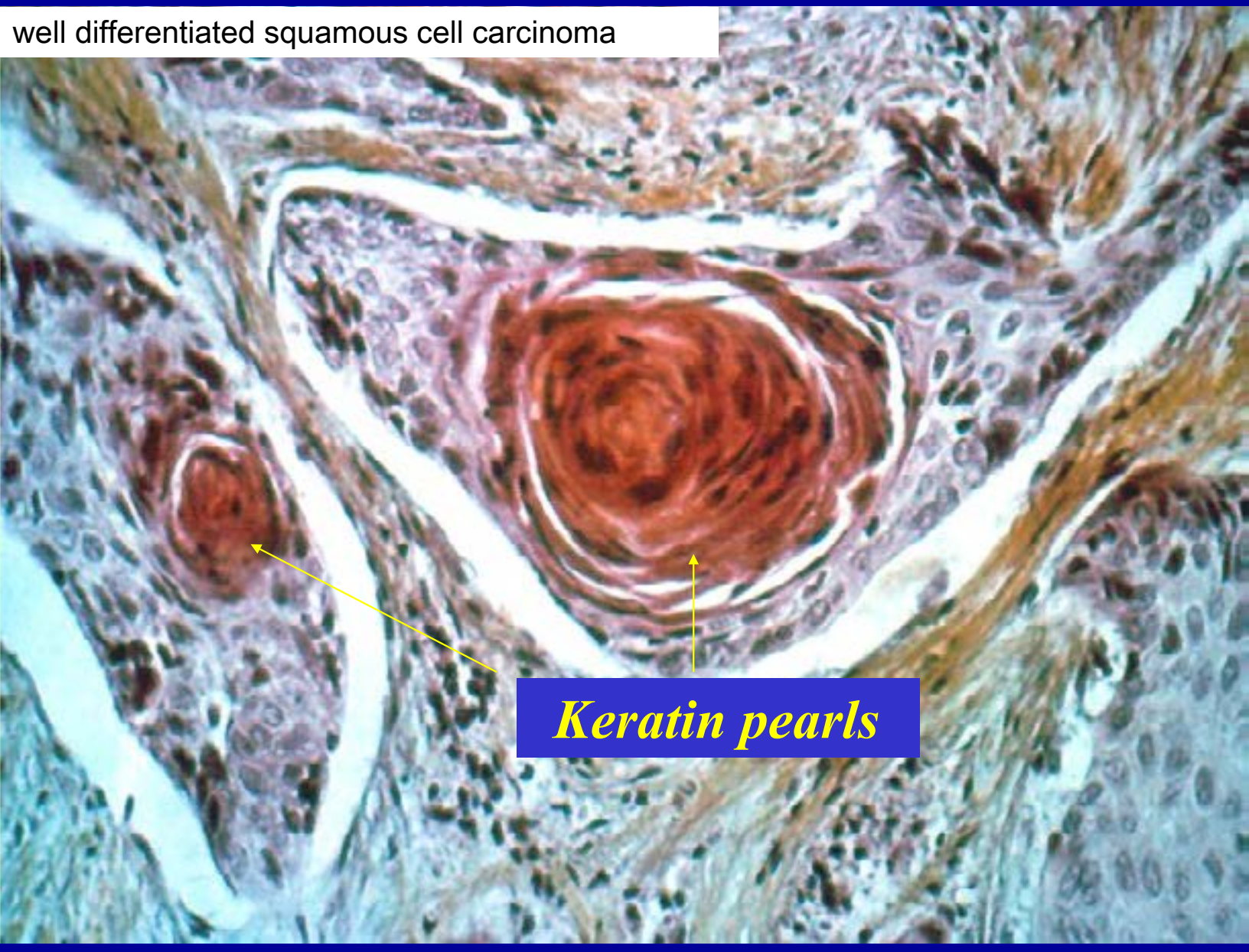
Squamous cell carcinoma

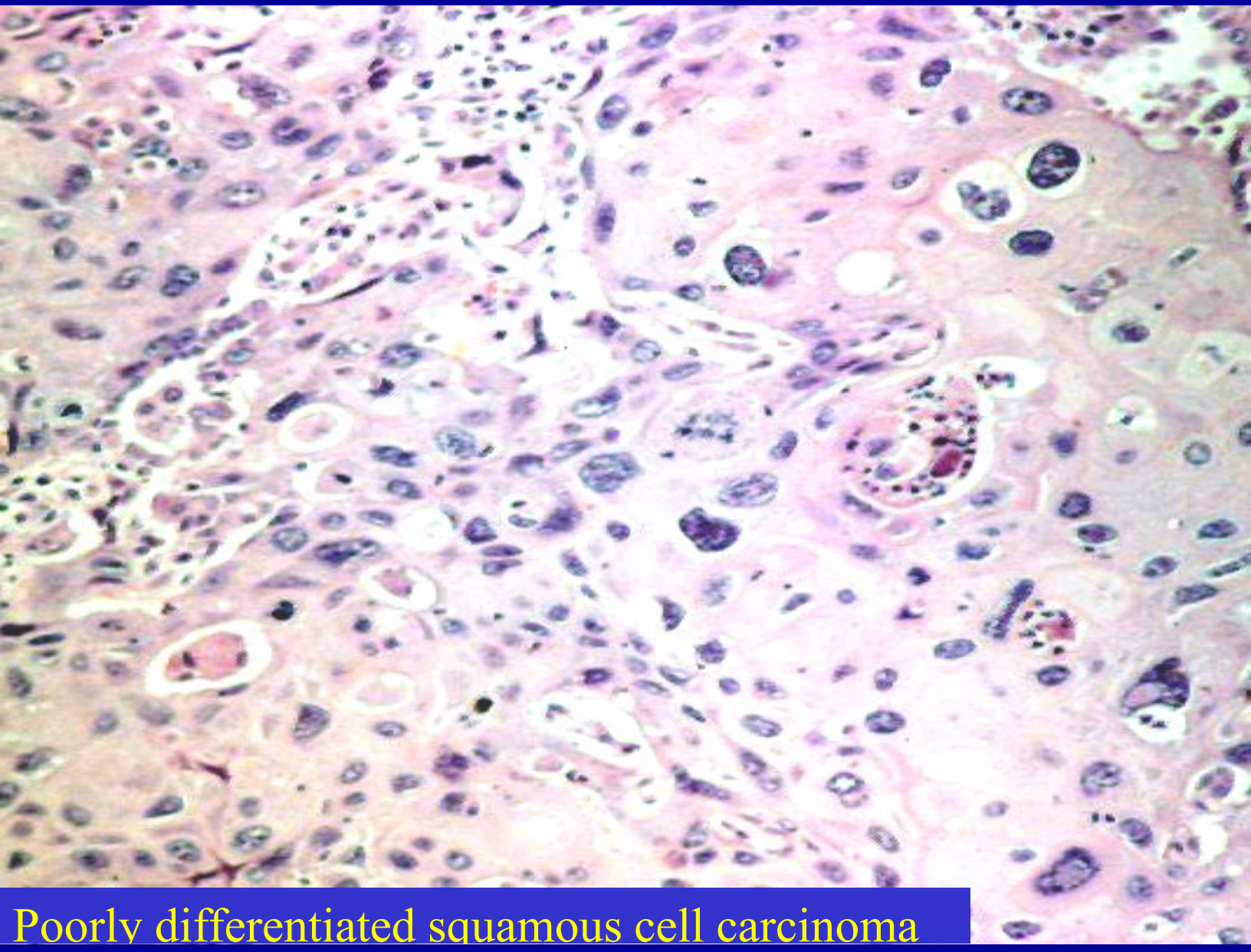
Histopathological characteristics:

Keratin formation.

Marked intercellular bridges (desmosomes).

well differentiated squamous cell carcinoma





Poorly differentiated squamous cell carcinoma


Desmosomes

Adenocarcinoma

- **Usual Adenocarcinoma**
- **Bronchioloalveolar carcinoma**

No link with smoking❖

Good prognosis❖

Adenocarcinoma (Usual)

mutations

K-RAS

EGFR

Mostly in women and non-smokers

TTF1 NAPSIN A

Supporting IHC

Next to scar

peripheral 75%

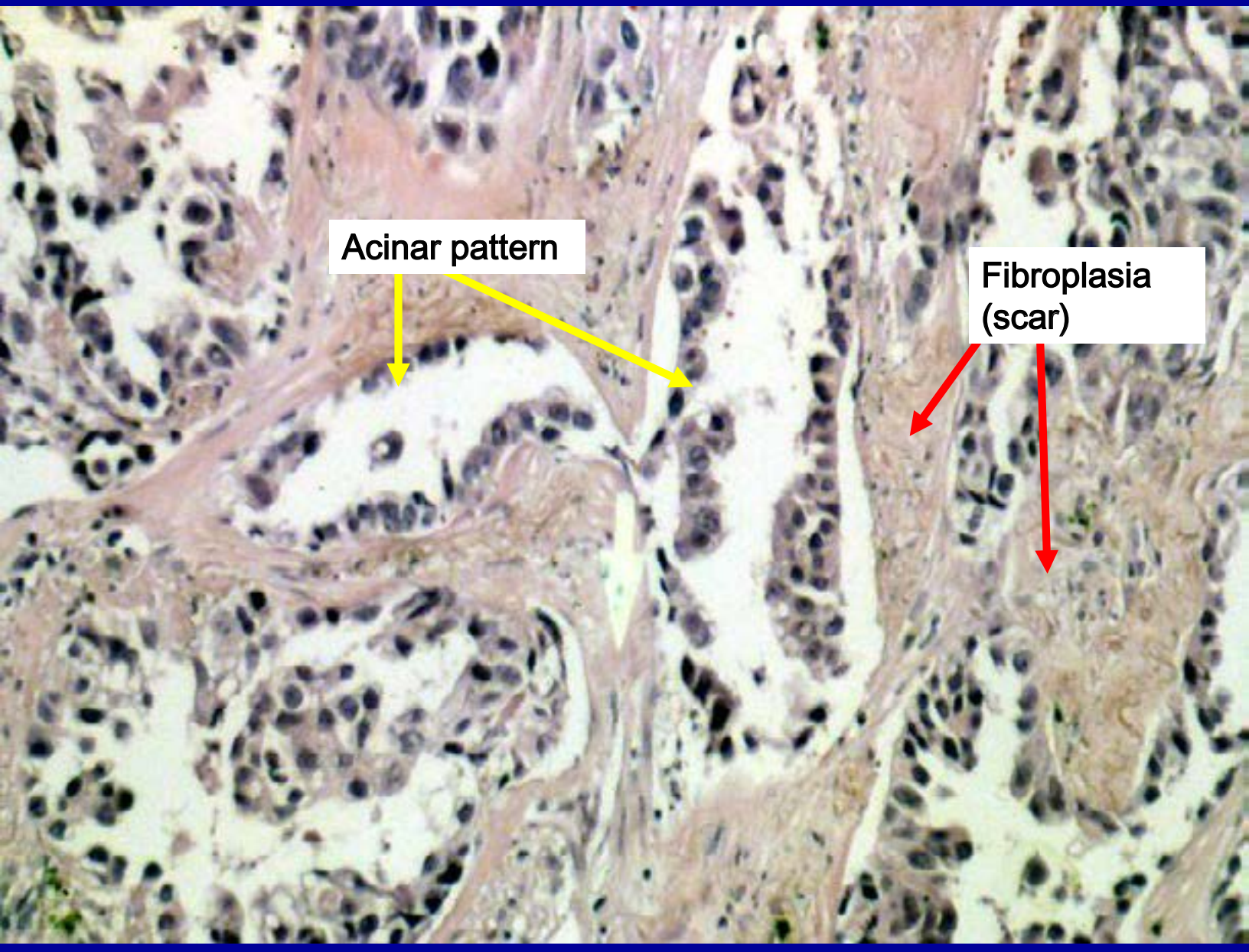
Usual Adenocarcinoma

ACINAR –

PAPILLARY –

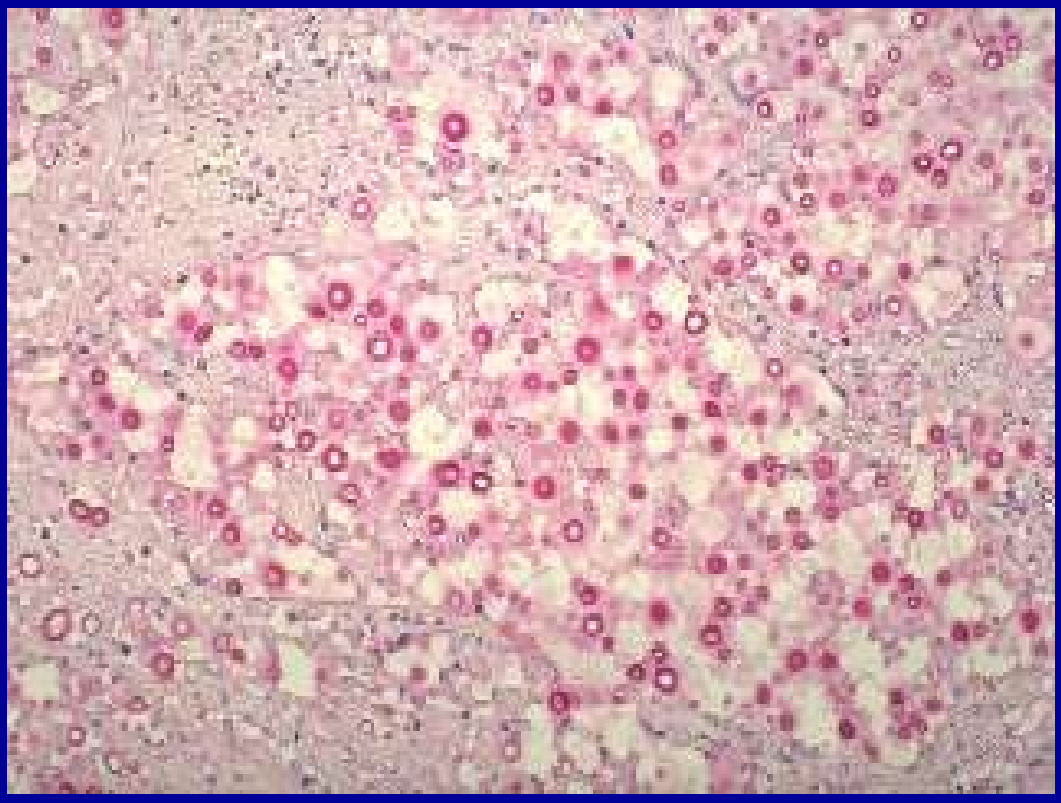
SOLID –

Glandular differentiation or mucus formation. –


Acinar pattern
Fibroplasia
(scar)

Mucous staining- (Mucicarmine)

80%Positive



Bronchioloalveolar carcinoma

1-9% of lung cancers –

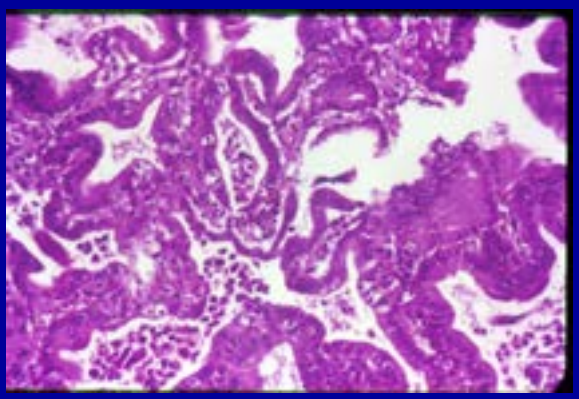
Nodular formation –

Or pneumonia-like consolidation. –

HISTOPATHOLOGY: –

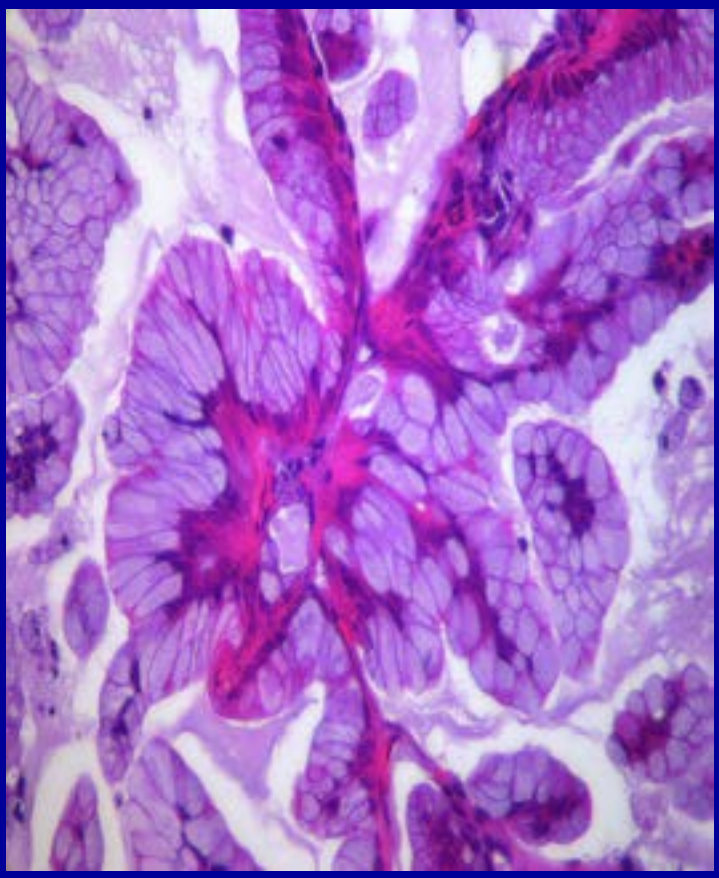
Spreads along preserved alveoli (Lepidic) –

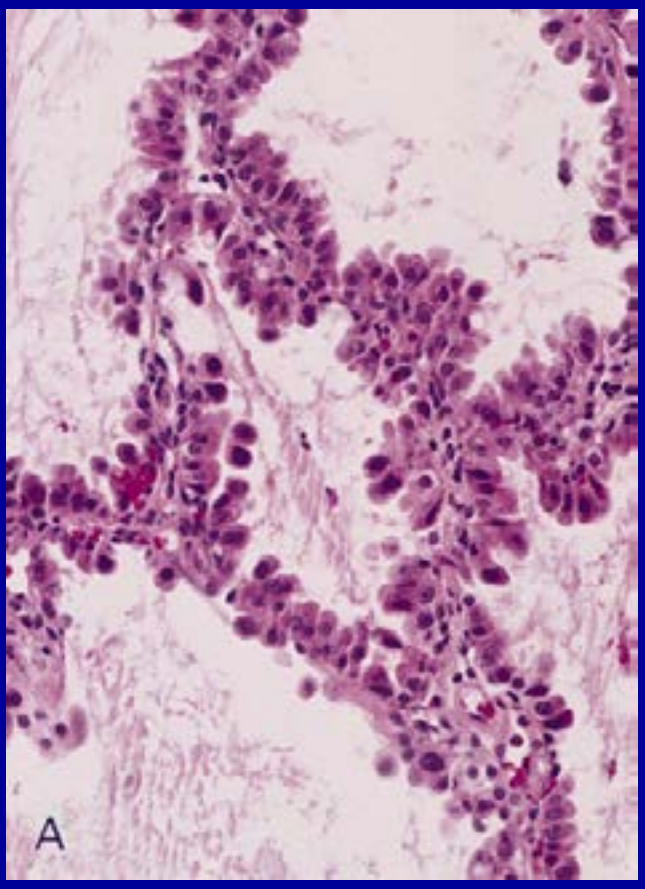
Composed of cuboidal or columnar cells. –



Bronchioloalveolar carcinoma

- **Non mucinous** (adenocarcinoma in situ)
  - Columnar, peg shaped, cuboidal
  - Peripheral lung nodule
- **Mucinous**
  - Tall columnar with cytoplasmatic and intra alveolar mucin
  - Aerogenously spread forming satellite tumors
  - May resemble lobar pneumonia




A

Non-Small Cell Lung Cancer (NSCLC)

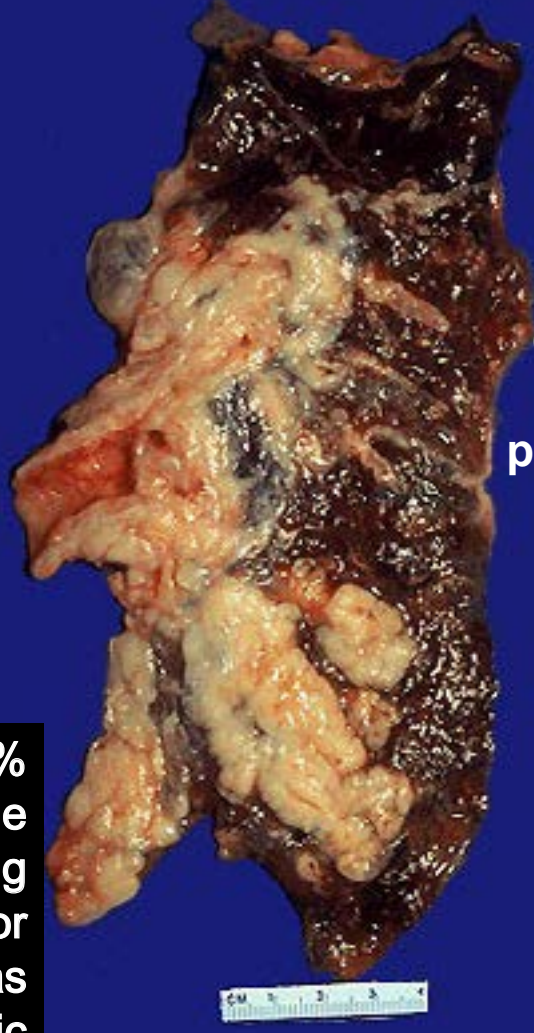
- NSCLC differs from Small Cell Lung Cancer by a variety of histomorphological features, by a diverse biological activity, and therefore, by a changing response to chemotherapy, to biological and to radiotherapy.
- A standard NSCLC case, displaying metastases, a positive expression for PD-L1, and no abnormal EGFR or ALK expression, may respond best to biological therapy with nivolumab, and with ipilimumab.

SMALL CELL LUNG CANCER (SCLC)

- Small cell lung cancer is highly sensitive to radiotherapy. However, this mode of treatment is insufficient, due to the very high stage of this malignancy at diagnosis.
- Therefore, it is highly advised to
- append treatment with EGFR tyrosine kinase inhibitor, as well as with an antiangiogenic mode of therapy.

75% hormone producing or paraneoplastic syndromes

Small cell carcinoma



Central or peripheral

99% -Link with smoking

Small cell carcinoma

(POORLY DIFFERENTIATED NEUROENDOCRINE CARCINOMA)

Microscopic features:

Small epithelial cells, scant cytoplasm, fine granular nuclear chromatin

High mitotic activity

Extensive necrosis

Electron microscopic studies:

Dense-core neurosecretory granules in some of tumor cells

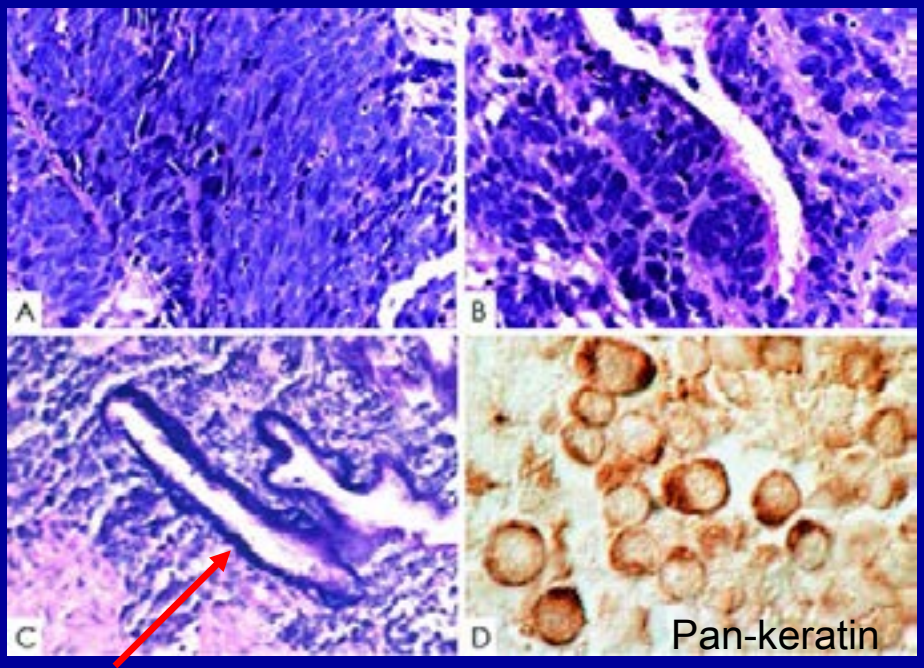
Molecular studies :

Mutant expression: 80-100% RB, 50-80% p53

High levels of BCL-2 (anti apoptotic) - 90%

Reduction of BAX (proapoptotic gene) expression

Small cell carcinoma

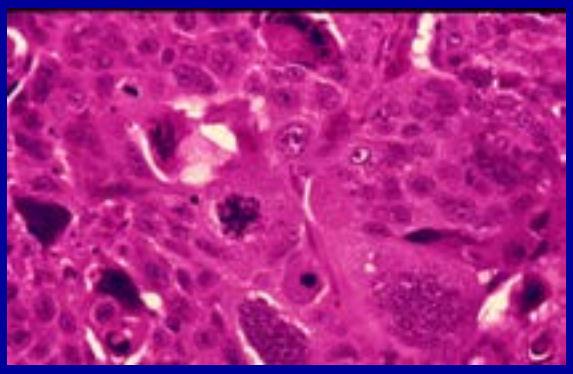


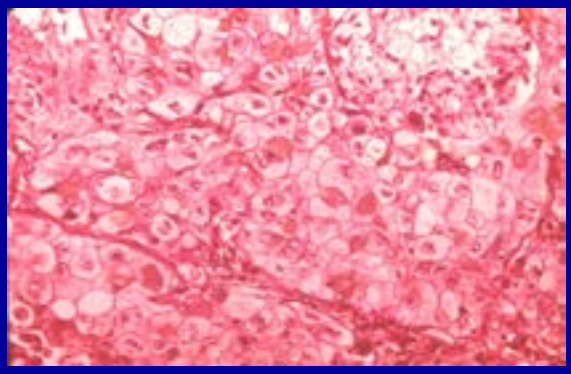
Azzopardi effect

Large cell carinoma

Composed of large, undifferentiated, malignant cells.

A neuroendocrine variant is described.





Bronchial Carcinoid

No relation with smoking; good prognosis; mostly below age 40.

May present as a button in the bronchial wall.

Classification:

Typical carcinoid (well differeniated neuroendocrine carcinoma)

Atypical carcinoid (moderately differentiated neuroendocrine carcinoma)

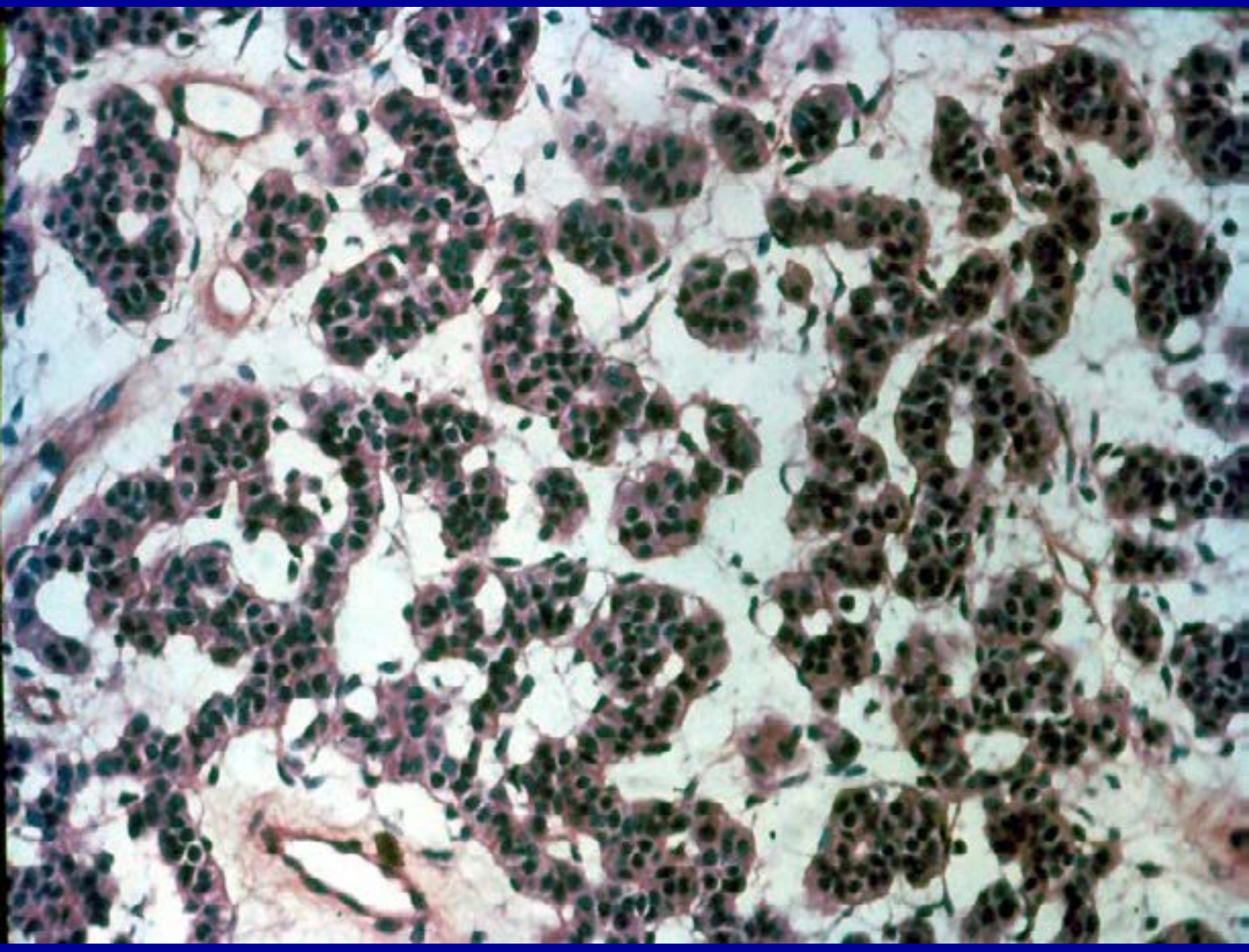
Bronchial Carcinoid

MICROSCOPIC FEATURES:

Organoid (growing organ-like).
Surrounded by delicate connective tissue.

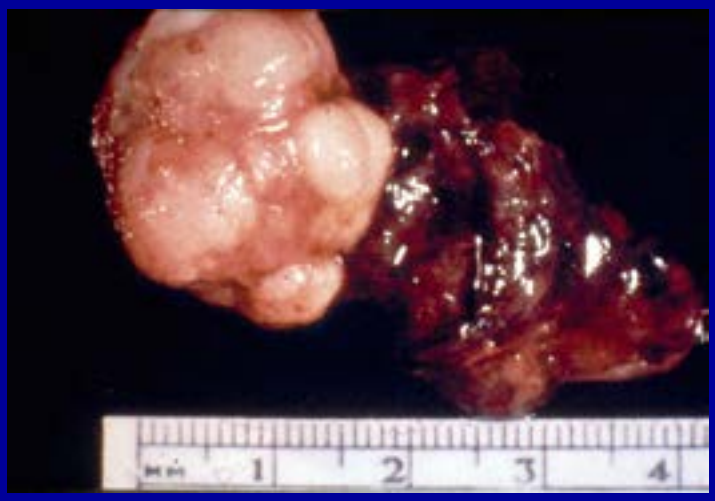
Nests or cords, with uniform cells.

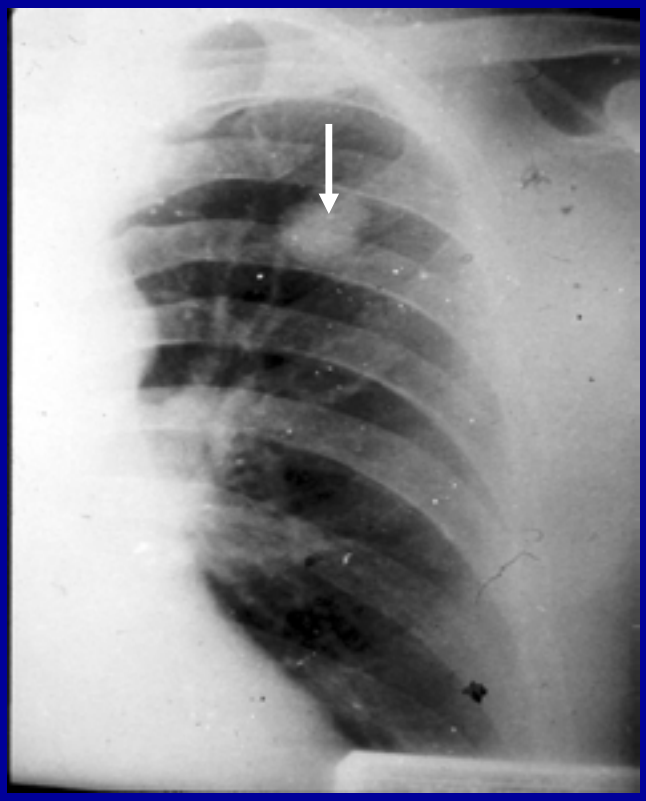
Positive for neuroendocrine markers.



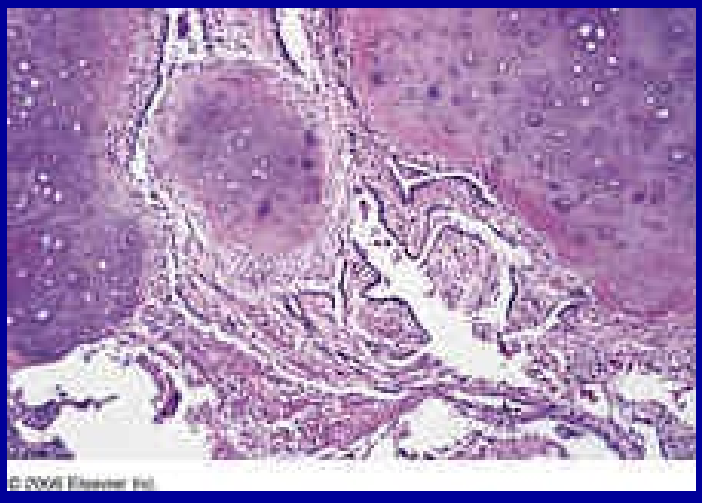
Neuroendocrine carcinoma	**5y survival** (%)	**10y survival** (%)
Typical Carcinoid	**87**	87
Atypical carcinoid	56	35
Large cell neuroendocrine carcinoma	27	9
Small cell carcinoma	**9**	5

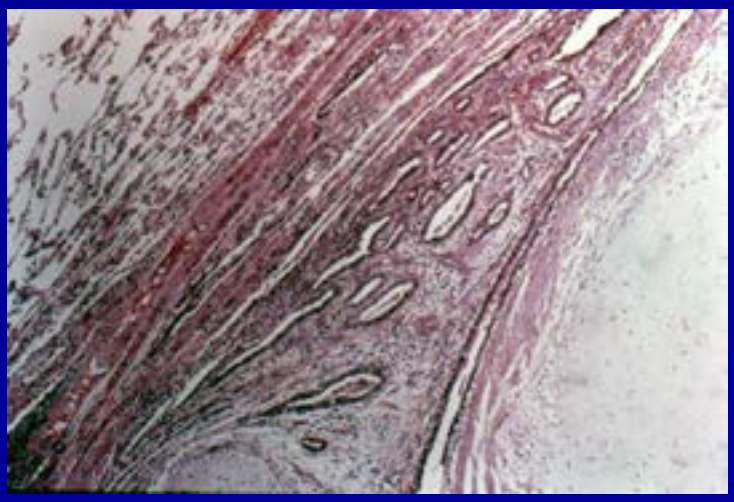
Pulmonary Hamartoma



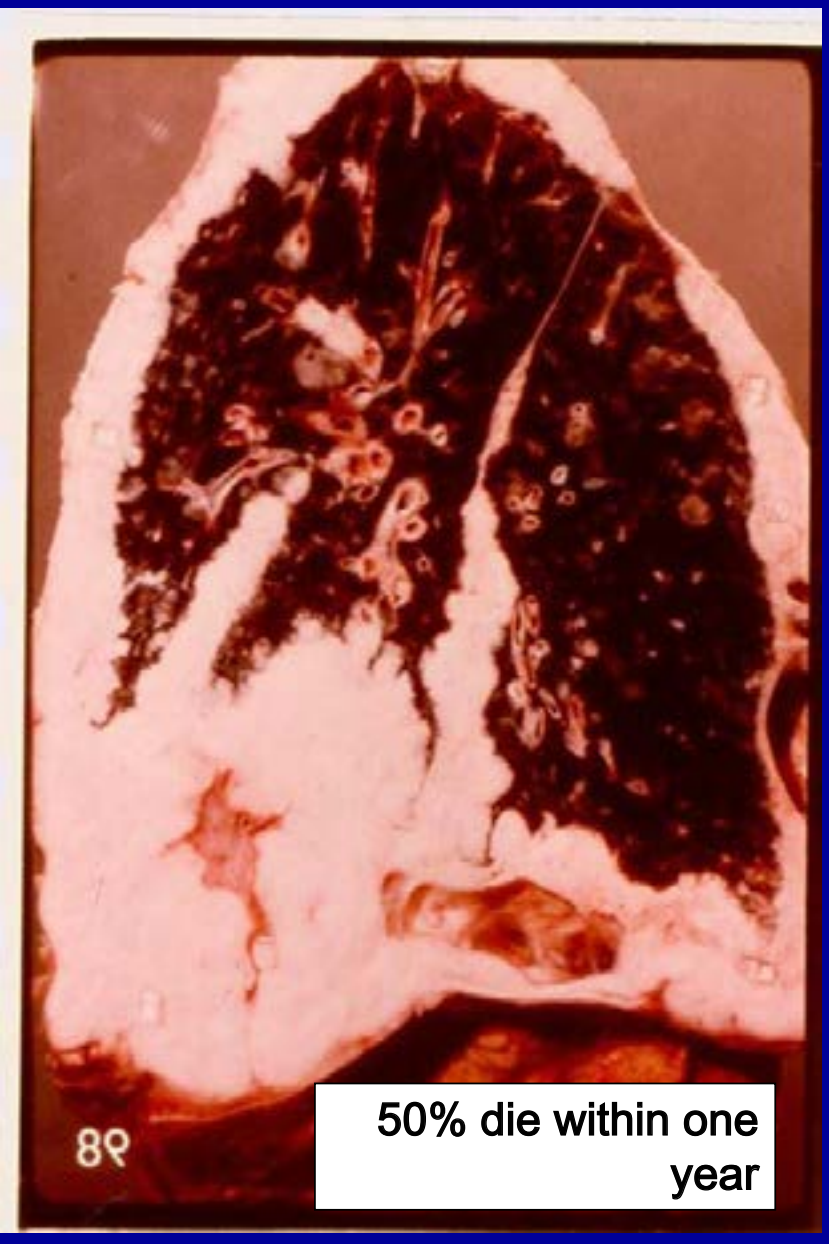


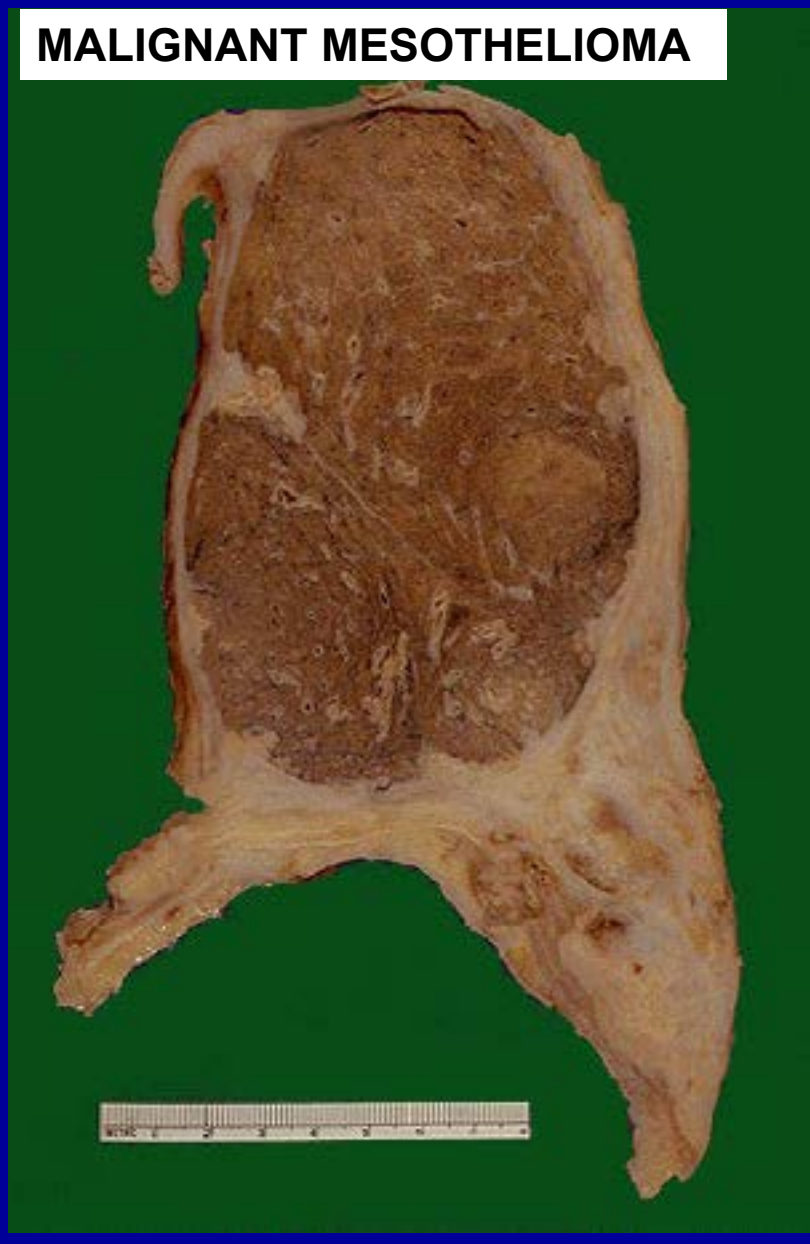
Pulmonary Hamartoma





Pleural Tumors


50% die within one year


MALIGNANT MESOTHELIOMA

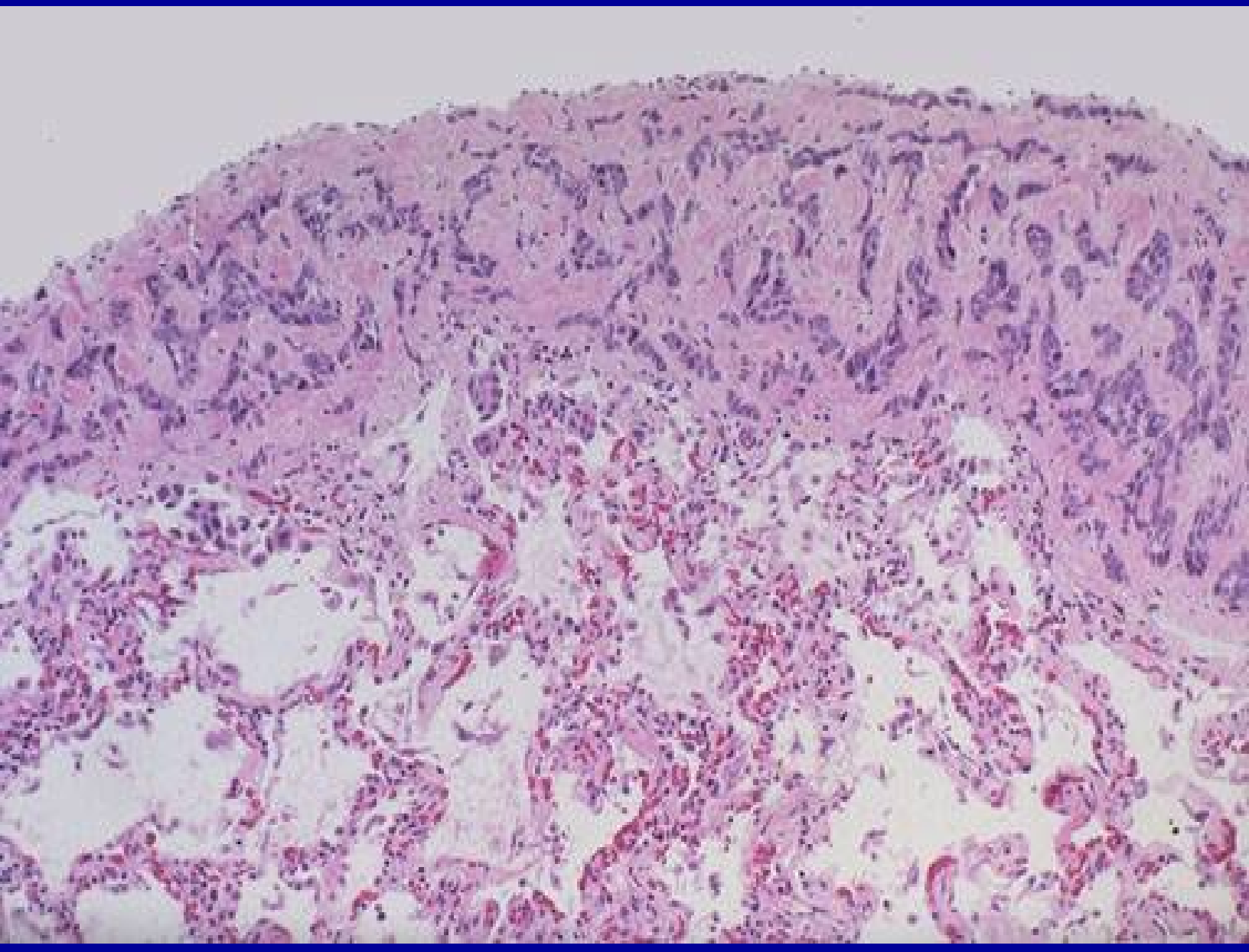
MALIGNANT MESOTHELIOMA

Microscopic types:

- **Mesenchymal (20%)** (sarcomatoid) – spindle cells
- **Epithelioid (60%) –** forming tubular and papillary structures
- **Mixed (20%)**

E.M examination:

- Long microvilli (gold standard)



MALIGNANT MESOTHELIOMA