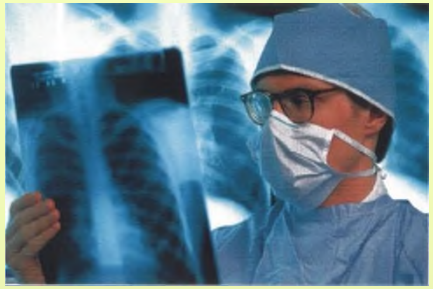
TUMOR OF BREATH ORGANS.
Part 1. Lung Cancer

Department of Oncology and Medical Radiology



lung cancer

- 1st place among malignant tumors (13%) in the world (more than 1.35 million per year)

Morbidity in Ukraine is 37.9 ‰ (17600 patients per year), for men - 68.0 ‰, for women - 12.2 ‰.

Dnepropetrovsk region - 38,7 ‰

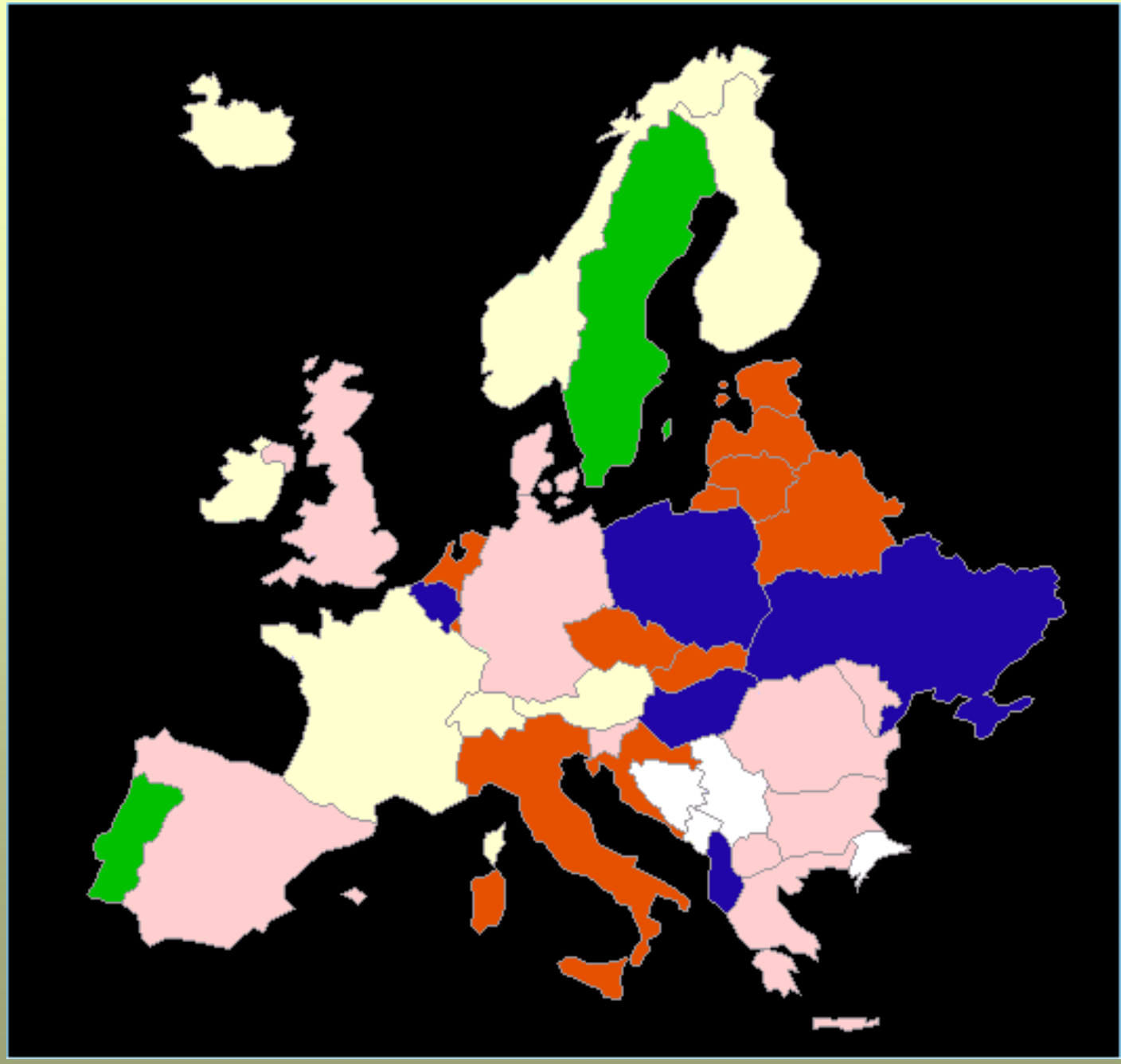
The growth rate in the world is 3-3.5%, for women - 6% per year.

LUNG CANCER

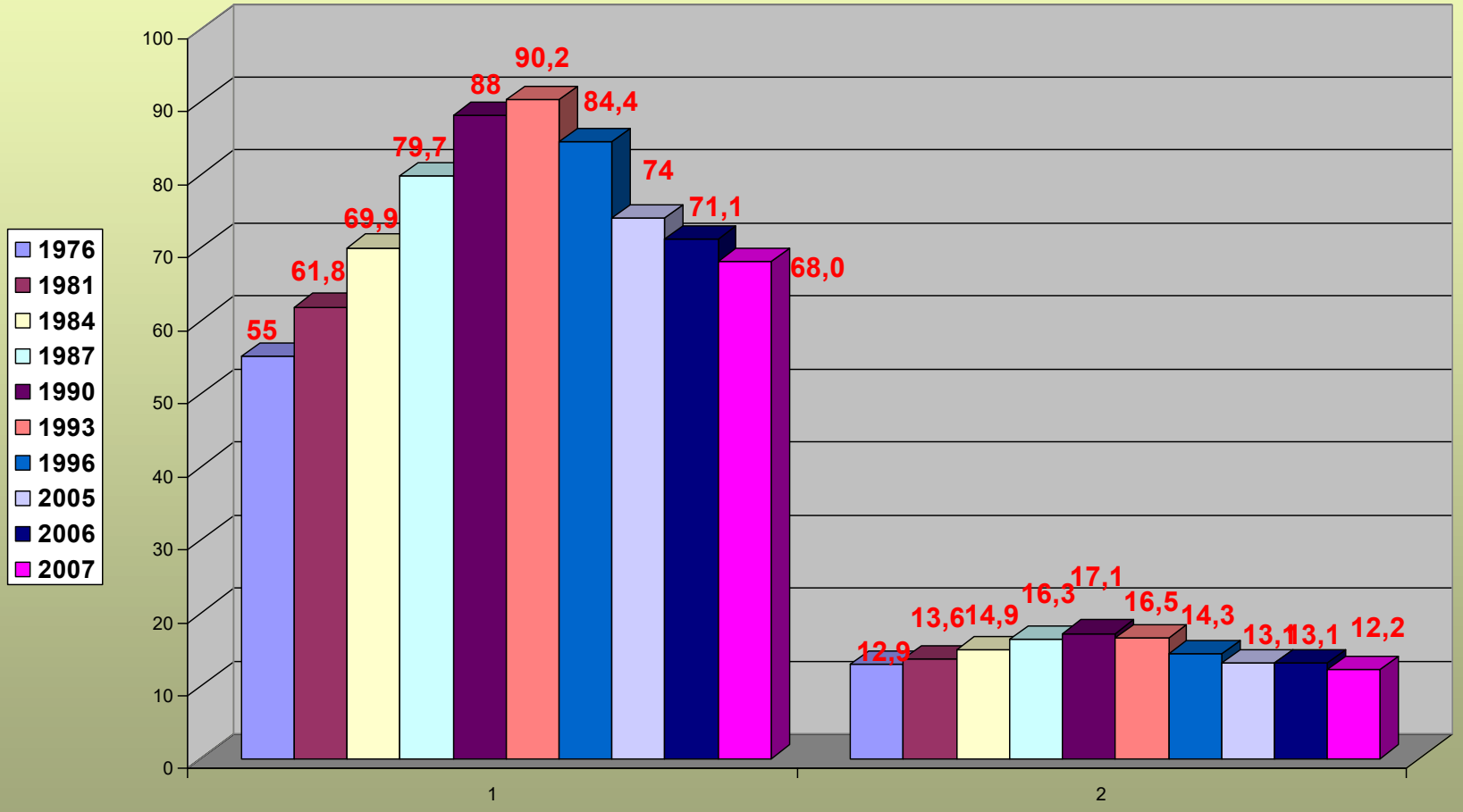
Worldwide incidence

Western Europe	Male	54.8
	Female	8.1
Eastern Europe	Male	75.9
	Female	10.3
Japan	Male	39.3
	Female	11.2
Australia New Zealand	Male	47.6
	Female	16.1
China	Male	34.7
	Female	13.4
Northern Africa	Male	12.9
	Female	2.6
Southern Africa	Male	29.1
	Female	7.7
North America	Male	69.6
	Female	32.9
Central America	Male	19.3
	Female	7.9
Temperate South America	Male	55.1
	Female	7.6

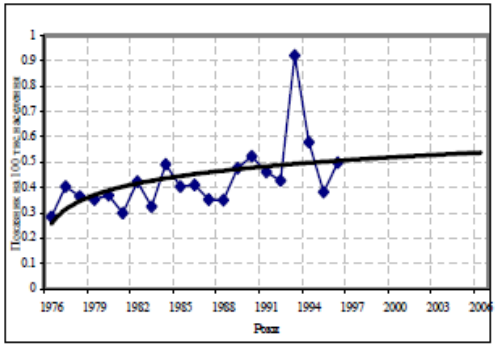
Incidence NSCLC in Europe (2003, Males)



Incidence of lung cancer in Ukraine



Prognosis of incidence of lung cancer in men



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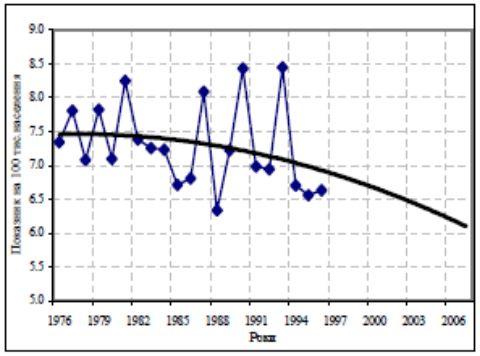

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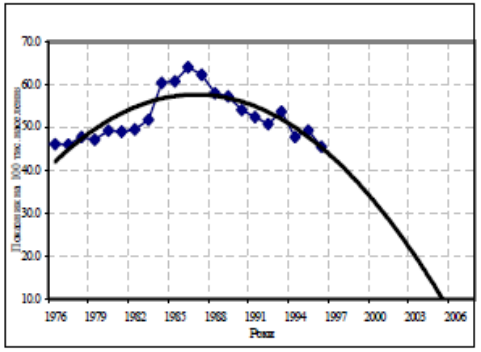

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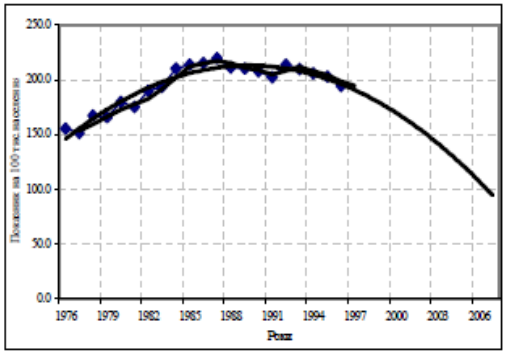

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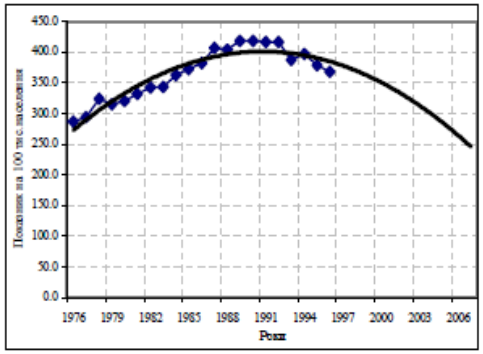

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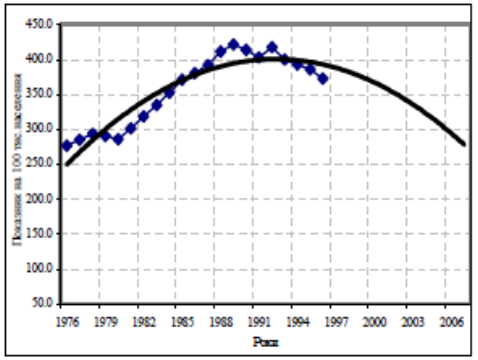
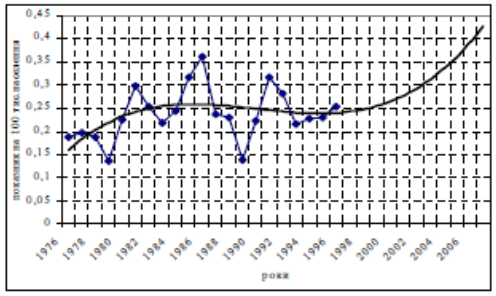


70+

Рисунок I.10 - Прогнозований рівень захворюваності на рак легені серед чоловічого населення України по віковим групам в 1997-2006 рр..

Prognosis of incidence of lung cancer in women



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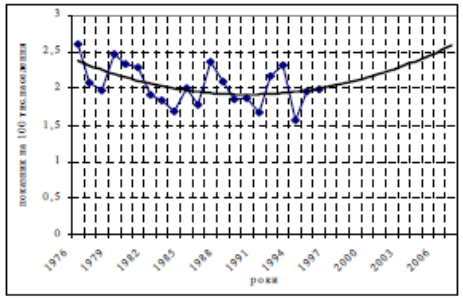

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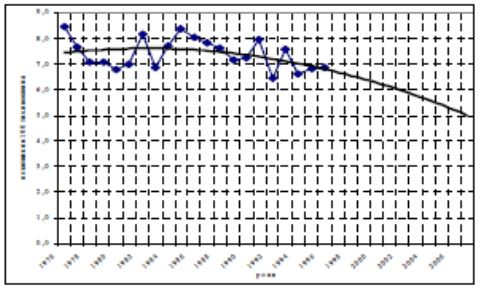

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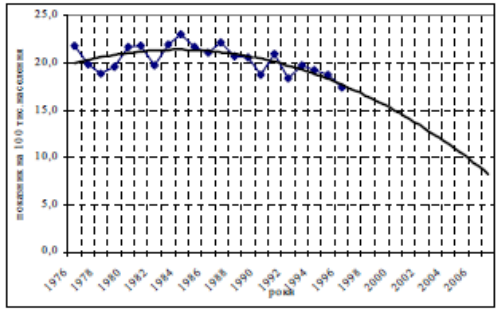

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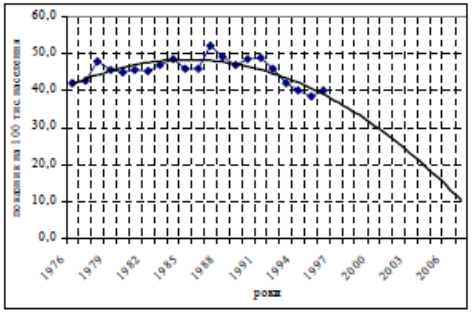

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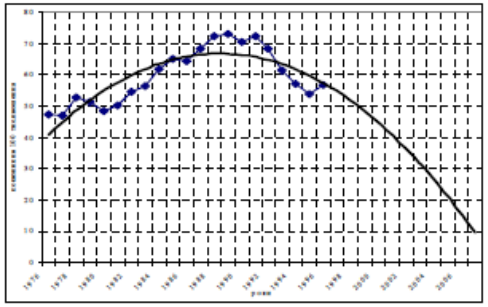
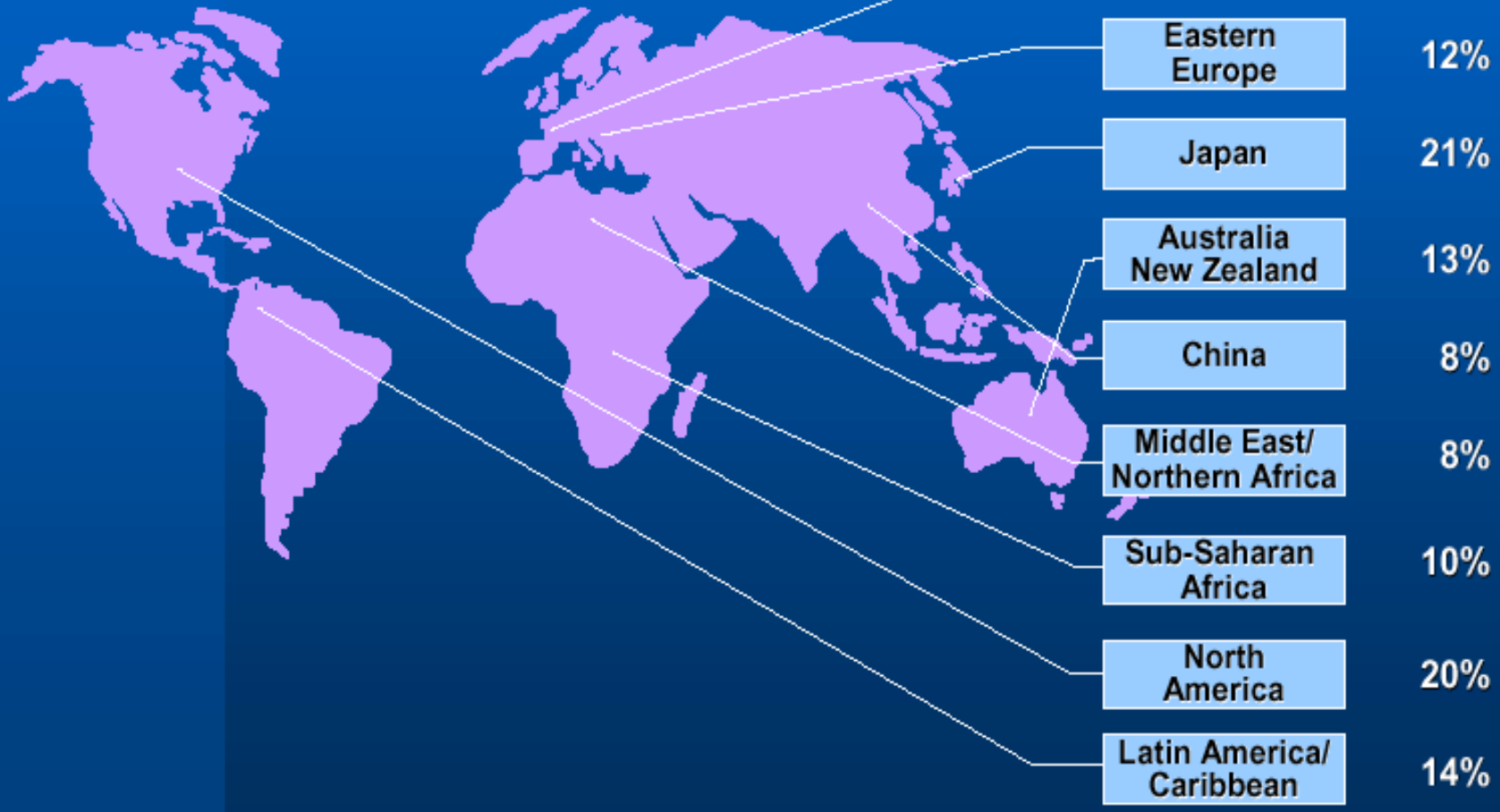


70+

Рисунок І.9 - Прогнозований рівень захворюваності на рак легені серед жіночого населення України по віковим групам в 1997-2006 рр..

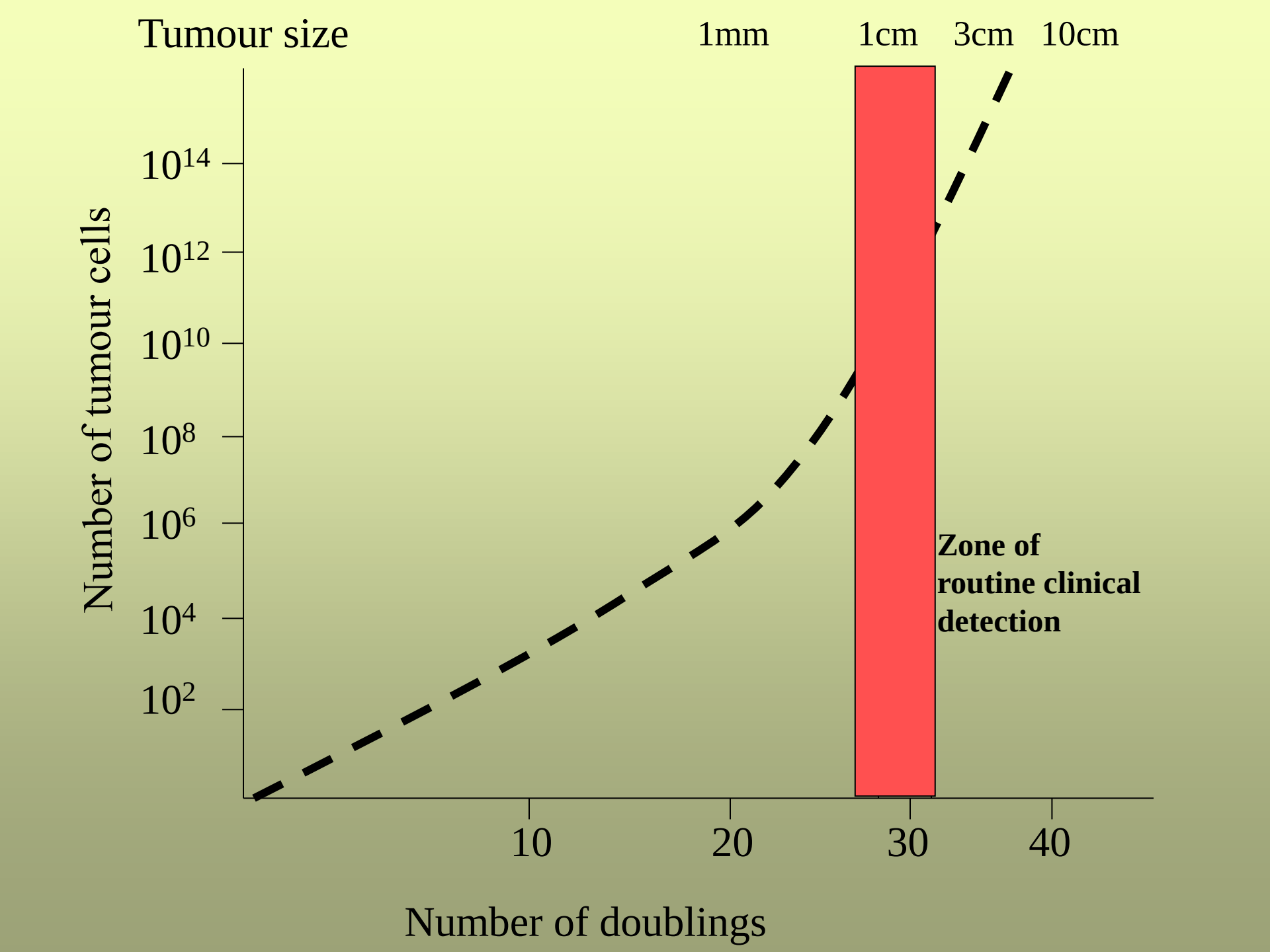
LUNG CANCER

5-year survival rates



Cancer Statistics 2003 in UK

Primary site	New cases (no.)	Deaths (no.)	5 Year Survival 1974-76	1998-02
Lung	171,900	157,200	12	15
Colorectal	147,500	57,100	50	62
Breast	212,600	40,200	75	86
Pancreas	30,700	30,000	3	4
Prostate	220,900	28,900	67	97


Tumour size
1mm
1cm
3cm
10cm
Number of tumour cells
10^{14}
10^{12}
10^{10}
10^{8}
10^{6}
10^{4}
10^{2}
Zone of routine clinical detection
10
20
30
40
Number of doublings

Risk factors

Smoking (including "passive")

Ionizing radiation

Radon

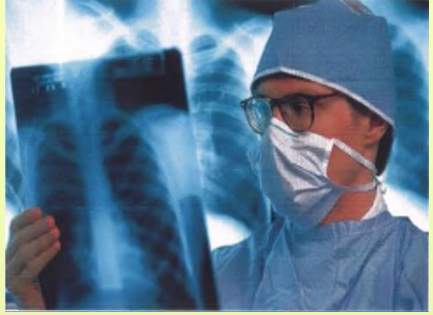
Arsenic

Nickel

Asbestos

Polycyclic aromatic

Hydrocarbons, resins



Lung cancer

Risk factors - smoking

80% are the cause of RH in men, 75% in women

17% is a reason for non-smokers

28% - for all types of cancer

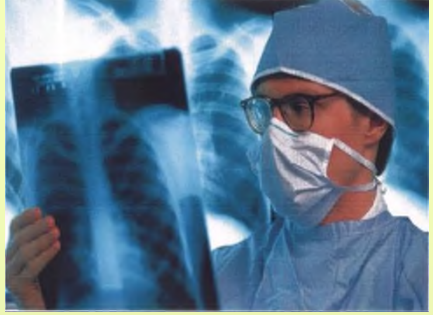
10-30 times - an increased risk of RL

For a 35 year old man (> 25 cents / day)

28% are the risk of smoking-related illnesses

13% - RL risk under the age of 75 years

10% - the risk of cardiovascular disease



Lung cancer

Other risk factors

general demographic characteristics (gender, age, race);

professional impacts (asbestos, rhodonium, chromium, nickel ...);

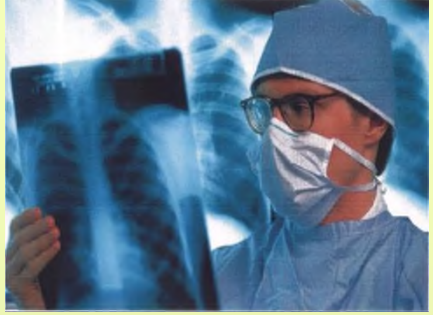
industrial and climatic conditions of the environment;

ionizing radiation;

individual features of the organism (heredity, hormonal and immunological disorders, psychosomatic constitution);

infectious diseases of the upper respiratory tract (influenza, tuberculosis, fungal and parasitic diseases, AIDS);

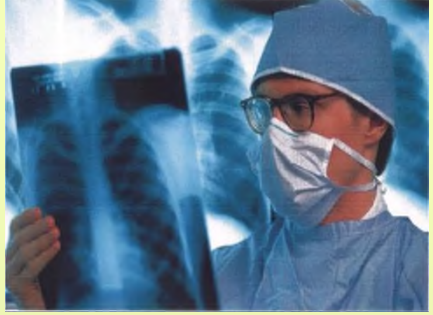
additional modifying factors (trauma, anomalies).



Lung cancer

Molecular pathogenesis of lung cancer

carcinogens → genetic instability → Proliferation and accumulation mutations → Cancer



Lung cancer

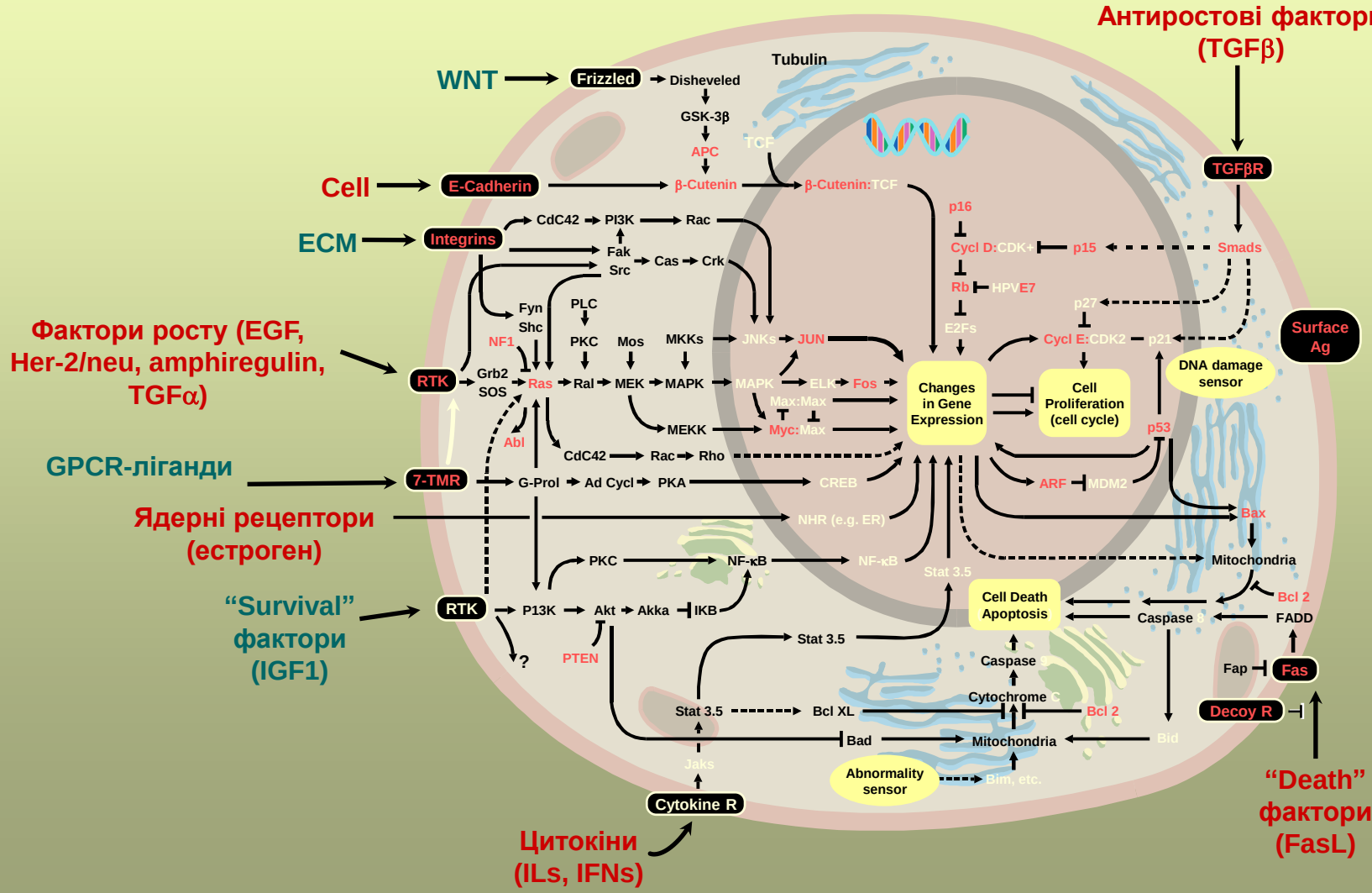
Molecular pathogenesis of lung cancer

Complex of cytogenetic changes

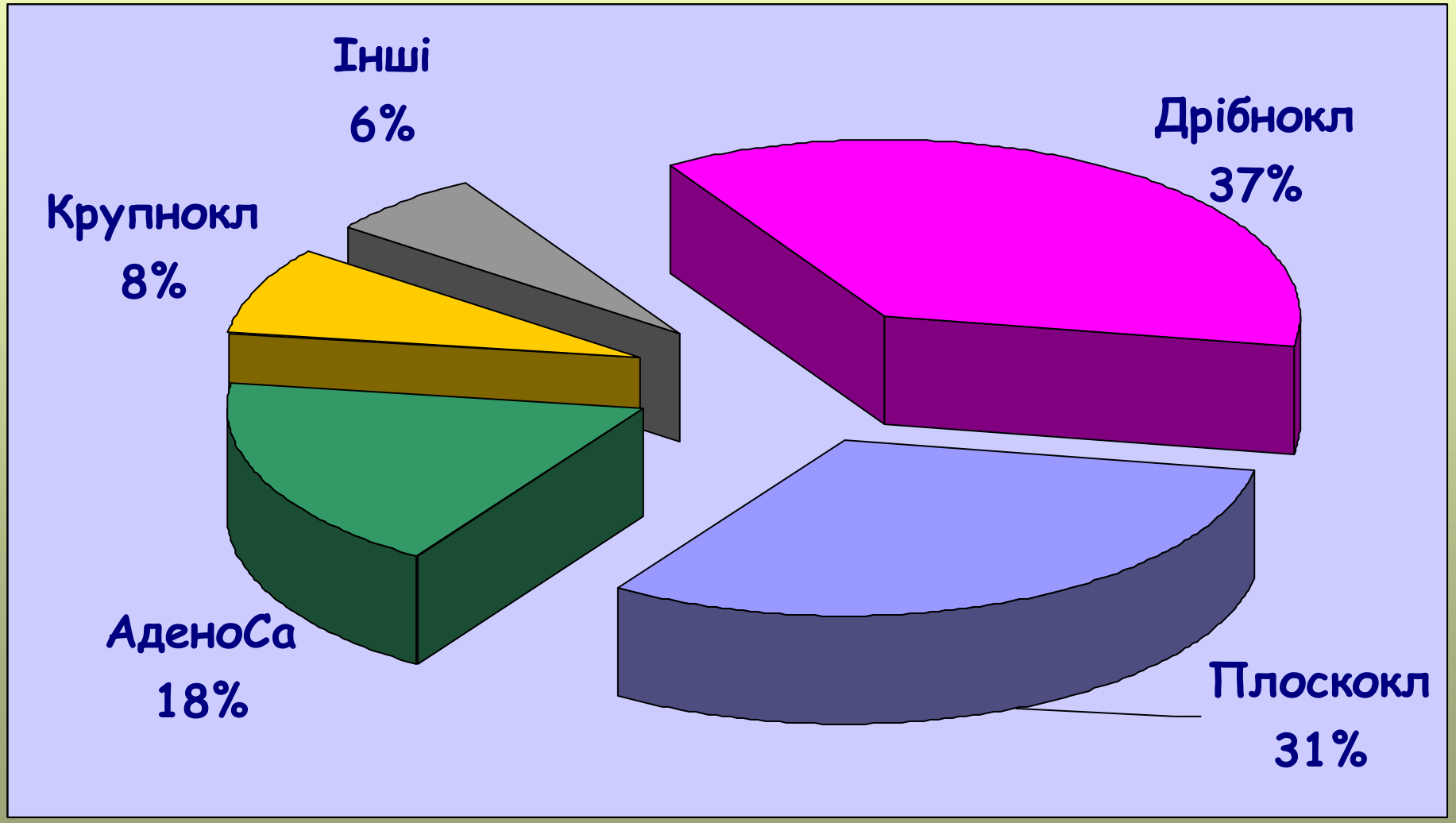
The result of genetic mutations (10-20) of oncogenes of suppressor genes (p53, Bcl-2, bax, K-ras, etc.)

Activation of "signaling pathways" and growth factors (EGFR, Her-2 / neu, VEGF, etc.)

Molecular pathogenesis of lung cancer



Histogenesis of lung cancer



Diagnosis and treatment tactics is based

- Histogenesis

Stage of the disease

General condition of the patient

Estimation of other factors of the forecast (considered)

Classification of lung cancer

Clinical and anatomical

Central cancer is a major tumor,

segmental bronchi

- endobronchial
- Peribronchial

2. Peripheral cancer - a tumor of small bronchi, bronchioles, alveoli

- nodular form
- pneumonia-like
- cancer of the apex of the lung (Pancosta)

3. Atypical forms (mediastinal, carcinomatosis)

TNM-CLASSIFICATION OF NRLL

Tx	It is impossible to evaluate the primary tumor, or the tumor is detected by the presence of malignant tumors in the sputum / bronchial rinsess but not visualized by these radiological methods or bronchoscopy
T0	There is no evidence of the presence of the primary tumor
Tis	Cancer in sit (CIS)
T1	A tumor <3 cm in the largest dimension, surrounded by a lung or visceral pleura, without bronchoscopic signs of invasion proximal to a partial bronchus
	T1a - Tumor <2 cm T1b - Tumor> 2 cm, ae <3 cm
T2	A tumor> 3 cm, but <7 cm, or has one of the following features2: the affected main bronchus> 2 cm distal to the keel; invasion of the visceral pleura; accompanied by atelectasis or obstructive pneumonitis, which extends to the region of the root, but does not involve the entire lung
	T2a - Tumor> 3 cm but <5 cm T2b - Tumor> 5 cm but <7 cm

TNM- classification

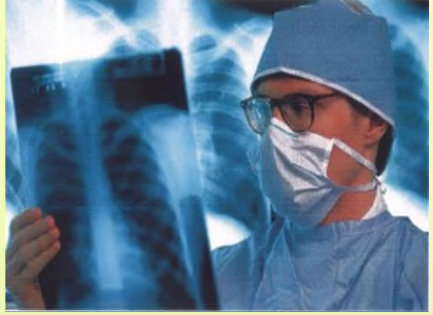
T3	Tumor> 7 cm, or direct invasion in any of the following structures: chest wall, diaphragm, n. phrenicus, mediastinal pleura, parietal pericardium; the tumor in the main bronze <2 cm is distal to the keel1, but without the involvement of the keel; the tumor is accompanied by atelectasis, or obstructive pneumonitis of the entire lung; presence of> 1 separate tumor node in the same particle lung
T4	A tumor of any size with an invasion of any of the following structures: mediastinum, heart, large vessels, trachea, n.reccurens n.vagi, esophagus, vertebral body, bone fracture of the trachea; presence of> 1 separate tumor node in another lupus of the ipsilateral lobe

TNM-classification

Nx	Regional lymph nodes can not be evaluated
N0	Metastases in regional lymph nodes are absent
N1	Metastases in the ipsilateral per-bronchial and / or ipsilateral portal lymph nodes and intrapulmonary lymph nodes , including cases of direct distribution of the tumor on the lymph nodes
N2	Metastases in the ipsilateral mediastinal and / or bifurcation lymph nodes
N3	Metastases in the counterlateral mediastinal lymph nodes, the contralateral portal lymph nodes, the ipsilateral or counterlateal chancre or supraclavicular lymph nodes

TNM-classification

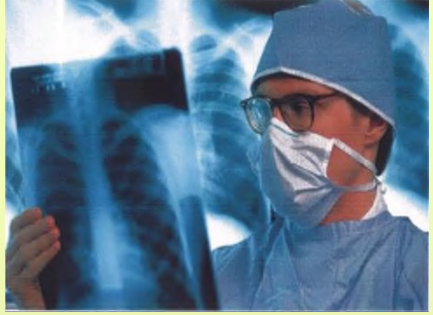
Mx	Distant metastases can not be estimated
M0	Distant metastases are absent
M1	Detected metastatic distances
	M1a - At least 1 separate tumor node in the contra-particle lung; tumor with pleural nodes or malignant pleural (or pericardial) effusion
	M1b - Distant metastasis



Lung cancer

Classification TNM (2010)

Occult Ca	TxN0M0
0	TisN0M0
IA	T1N0M0
IB	T2aN0M0
IIA	T1N1M0; T2aN1M0; T2bN0M0
IIB	T2bN1M0; T3N0M0
IIIA	T1-2N2M0; T3N1-2M0; T4N0-1M0
IIIB	любое T N3 M0; T4N2-3M0
IV	любоеT любоеN M1



Lung cancer

Survey algorithm

Anamnesis, objective examination

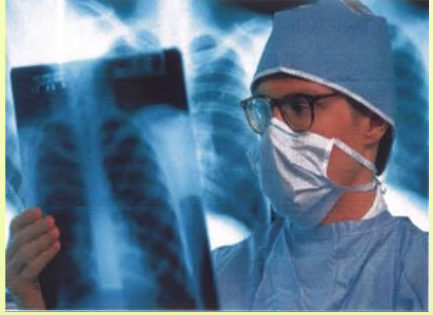
ROG OGP

General clinical examinations

Sputum examination

Fibro-Broncho scopy

CT scan OGP + OBP



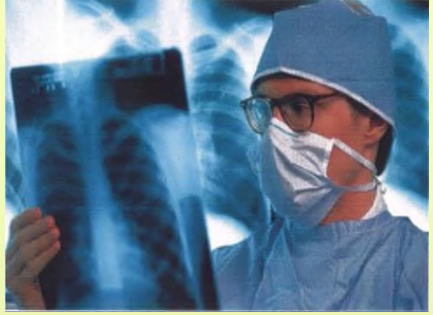
lung cancer

Screening

Early detection is not a guarantee of improved survival

Ro-diagnostics, FBS, sputum examination are not effective enough

New tests: spiral CT, molecular markers of RL in sputum and blood (examined)



Lung cancer

The clinic depends:

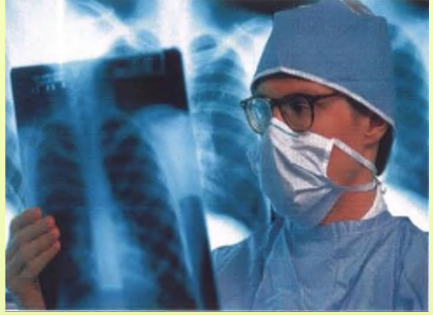
Tumor localization

Presence of infestation

Intrathoracic metastasis (hemato-, lympho-, intra-alveolar)

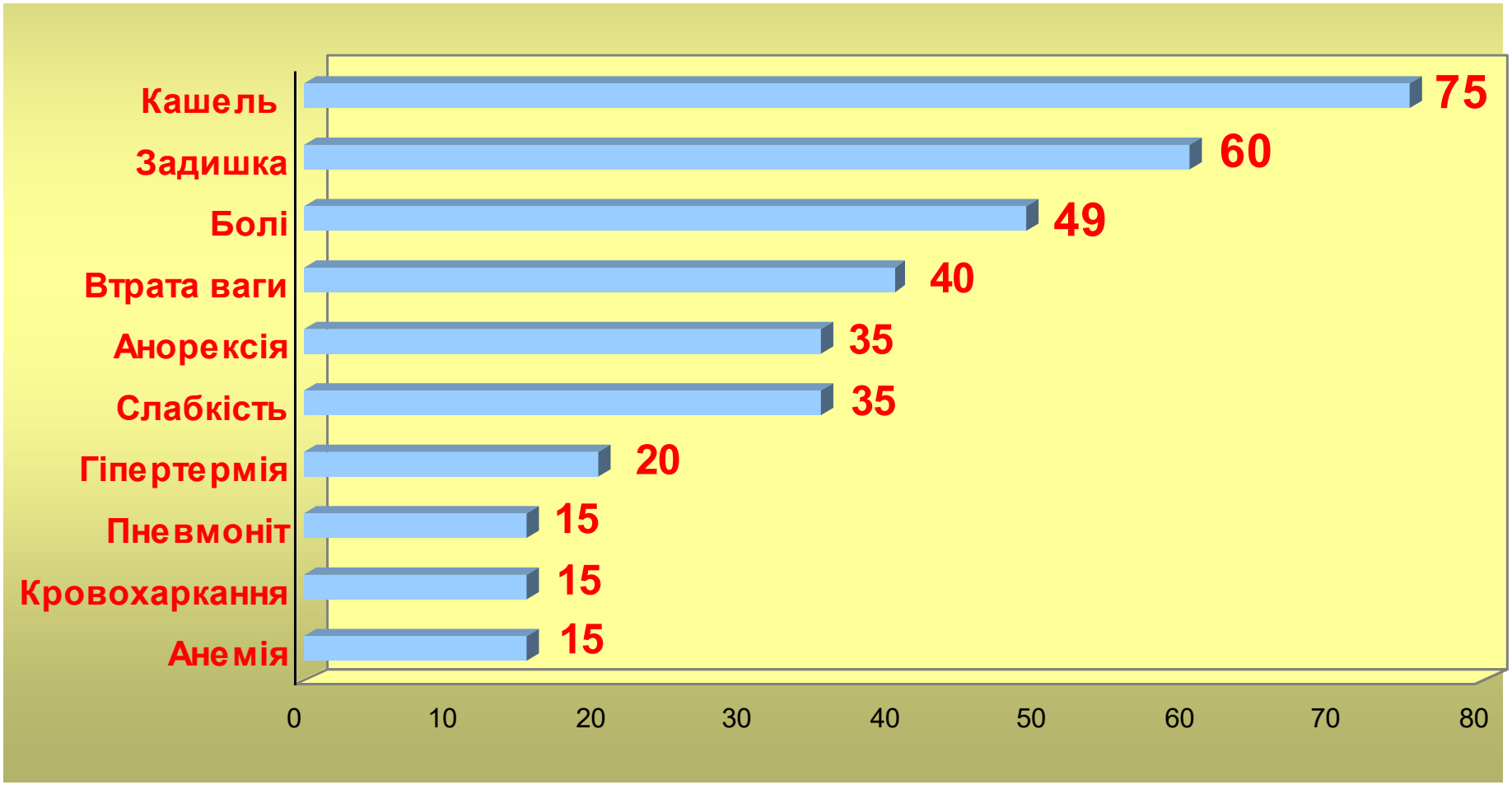
Extrathoracic metastases

Paraneoplasia



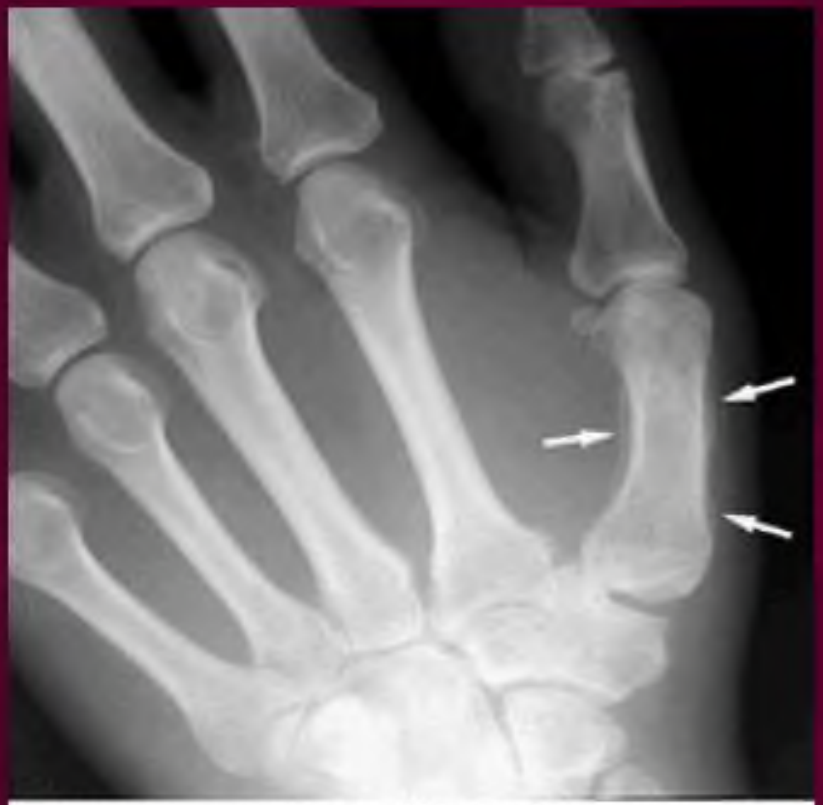
Luncg cancer

Clinical symptoms



Lung cancer

- **Skin syndromes - Dermatomyositis, black acanth, Lezera-Trela syndrome (common seborrheic keratosis), multiform erythema, hyperpigmentation, psoriatic acrokeritis**
- **Nervous-muscular syndromes - Polymyositis, myasthenic syndrome (Lambert-Euton), peripheral neuropathy, myelopathy**
- **Skeletal-Muscular Syndromes - Hypertrophic Osteoarthropathy, Symptom of Drum Sticks, Rheumatoid Arthropathy, Arthralgia**
- **Endocrine syndromes - Cushing's pseudo-syndrome, gynecomastia, galactorrhea, carcinoid syndrome, hyperthyroidism and hypoglycemia, hypercalcemia, STH production, TSH**
- **Cardiovascular syndromes - Surface and deep thrombophlebitis, arterial thrombosis, marathon endocarditis, orthostatic hypotension, disseminated intravascular coagulation syndrome**
- **Neurological syndromes - Subacute cerebellar degeneration, sensory-motor neuropathy, encephalopathy, transverse myelitis, dementia, psychosis**
- **Hematologic syndromes - Anemia, erythrocytes aplasia, dysproteinemia, leukomoid reactions, granulocytosis, eosinophilia, plasmacytosis, leukoterotroblastosis, thrombopenia, thrombocytosis**
- **Immunological syndromes - Immunodeficiency states, autoimmune reactions.**
- **Other syndromes - Nephrotic syndrome, amyloidosis, amylase secretion, anorexia - cachexia.**

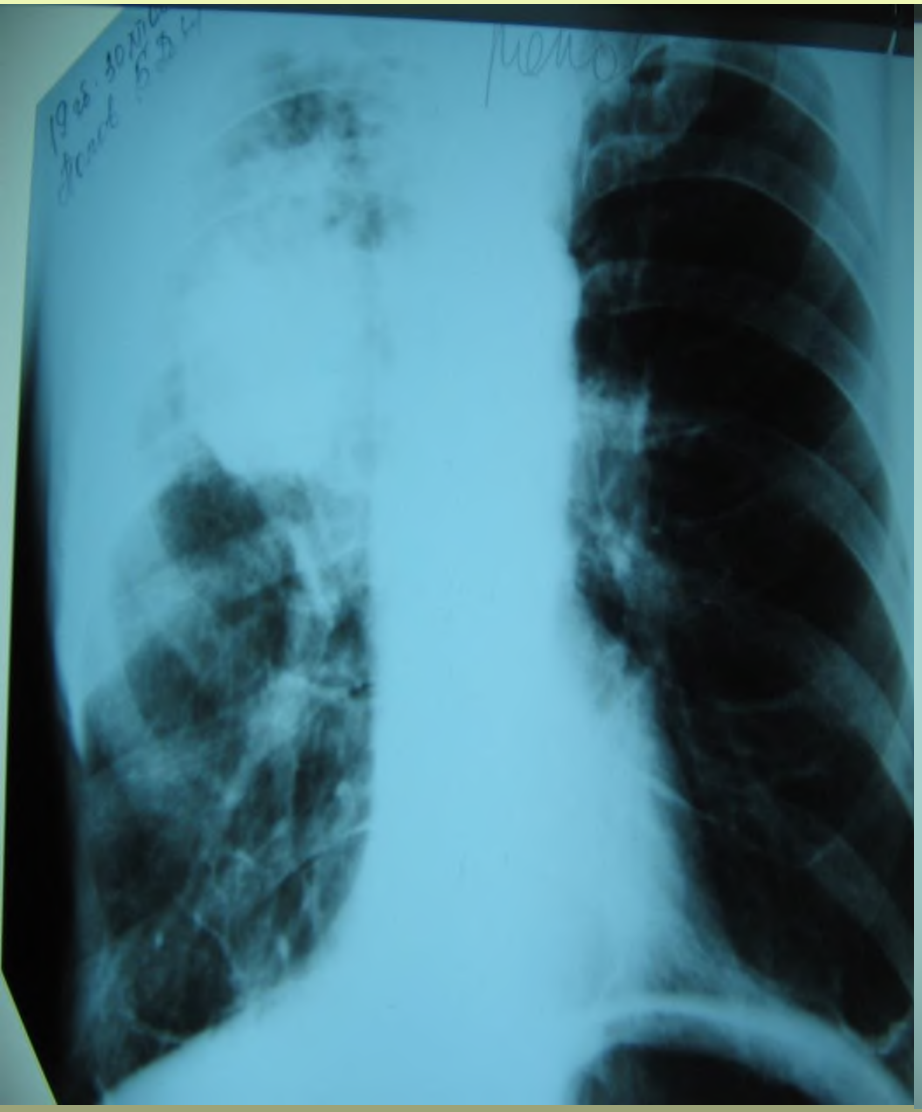


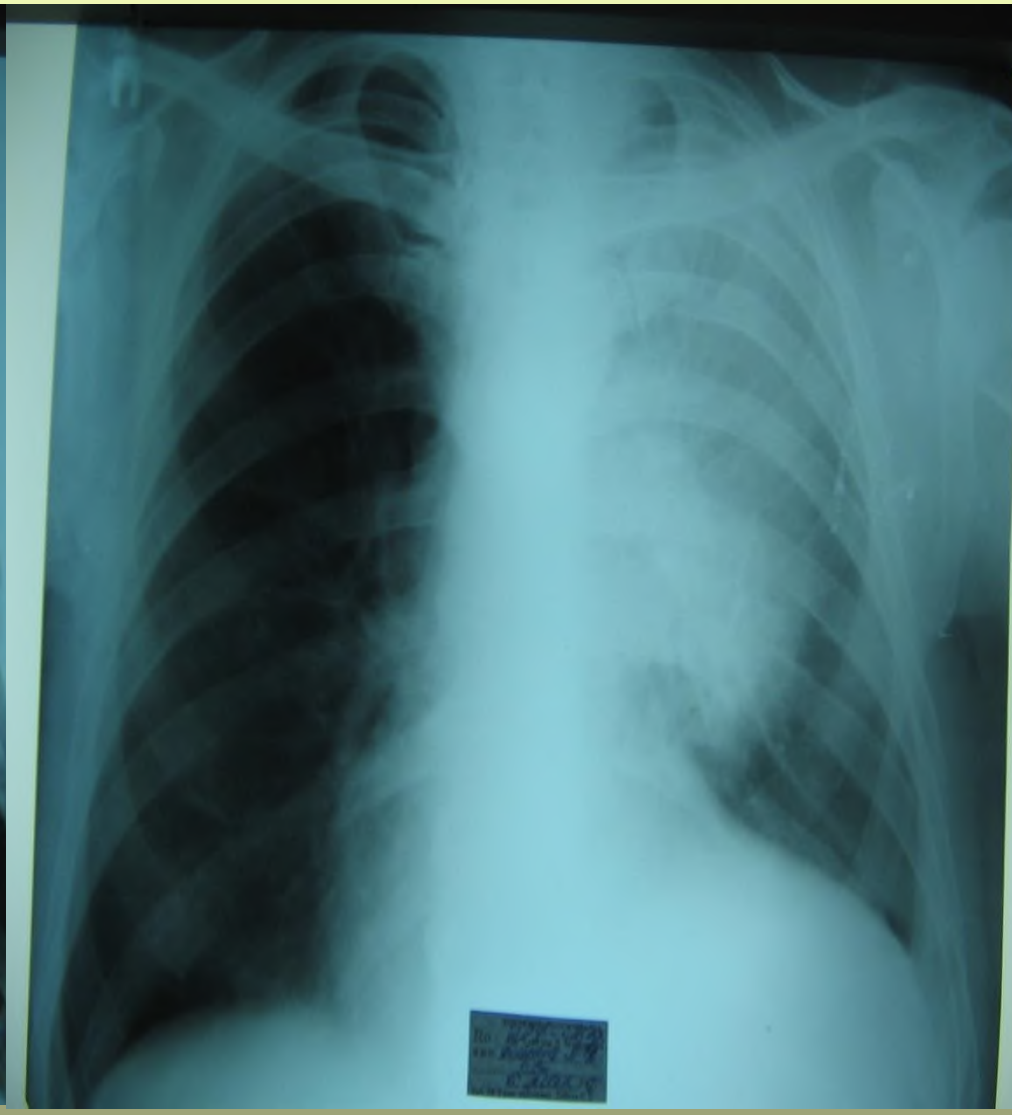
Pulmonary osteoarthropathy This plain film of the hand in a 41 year old woman who presented with severe hand and ankle pain demonstrates marked periosteal new bone formation adjacent to the first metacarpal bone (arrows). A chest radiograph revealed a large, solitary mass subsequently shown to represent an adenocarcinoma. Courtesy of Jonathan Kruskal, MD, PhD.

Basic diagnostic methods

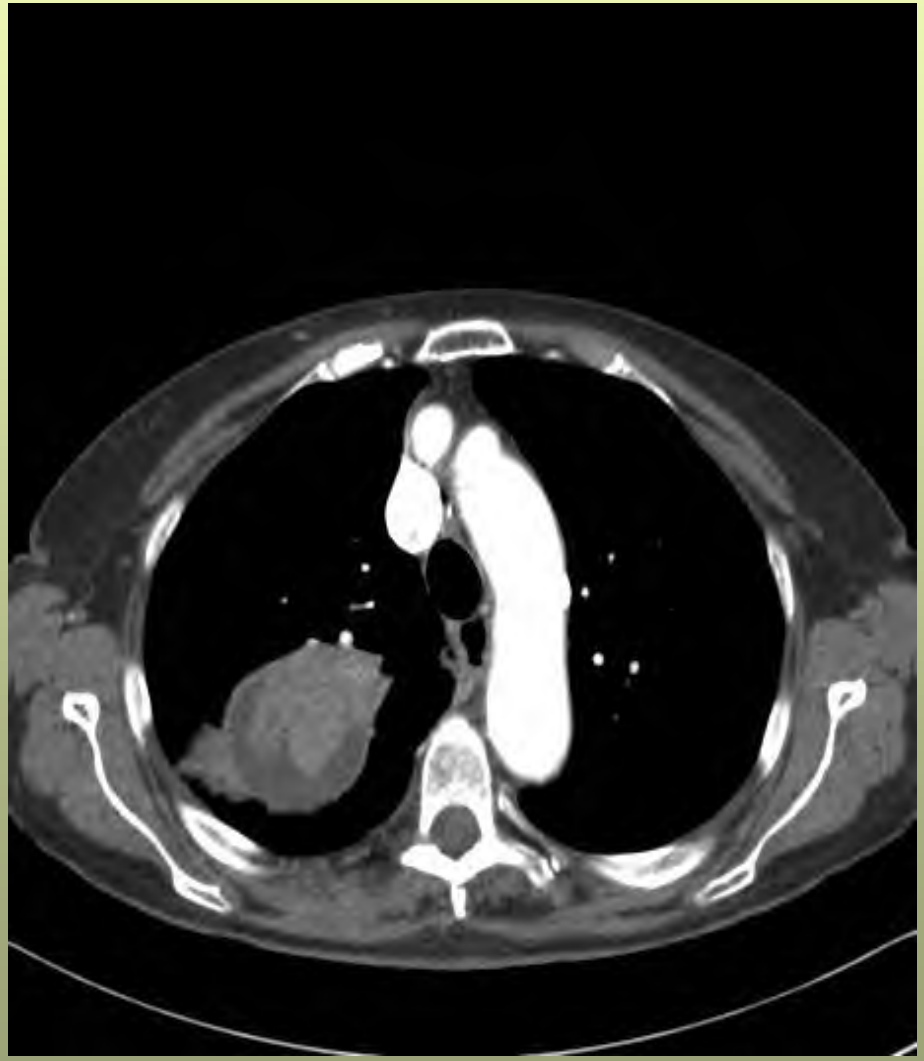
- Radiological (RoG OGP, SKT UGP, OBP and pelvic organs, CT of the brain, NMR-TG)
- Endoscopic (FBS, FEGDS)
- Ultrasound (USP ULP, UZ-trans-bronchial and trans-esophageal TB)
- Osteoscintigraphy
- Positron Emission Tomography

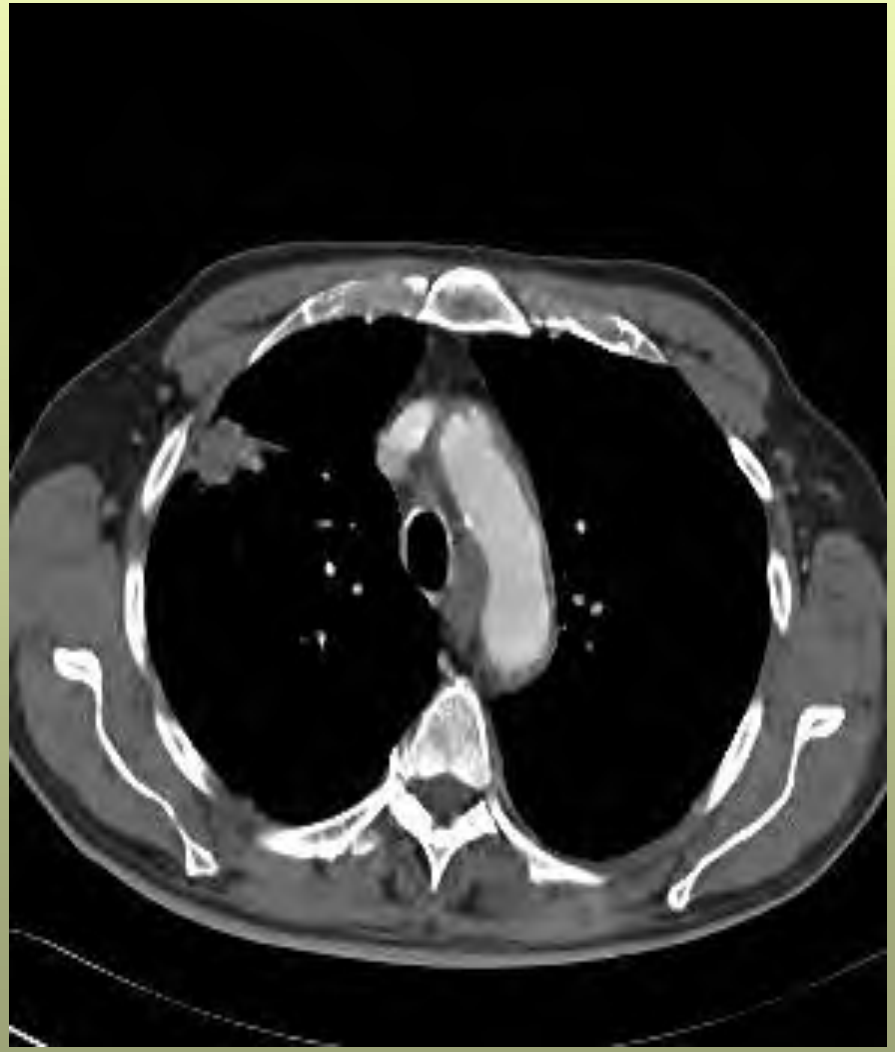
Radiography





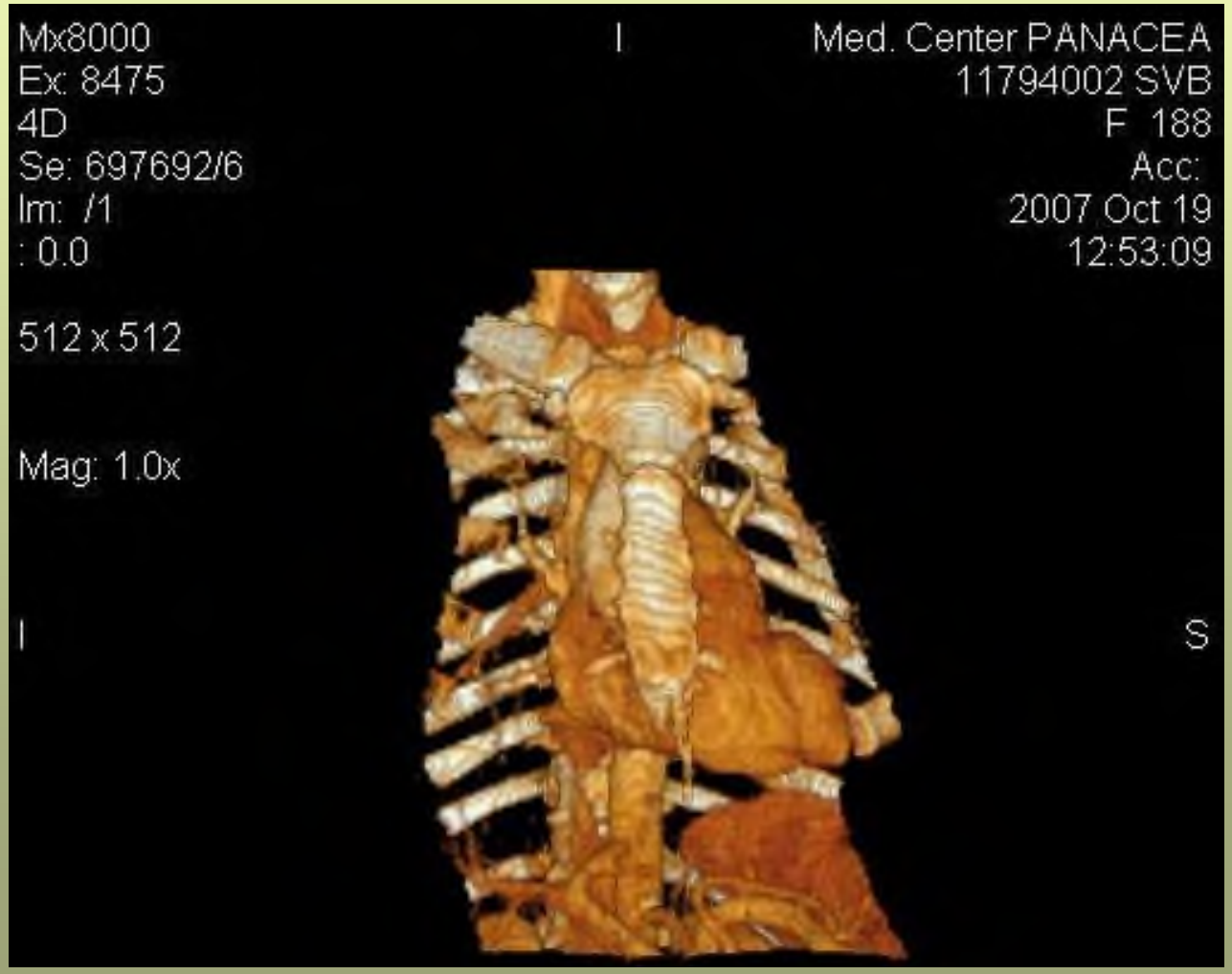
CT scan



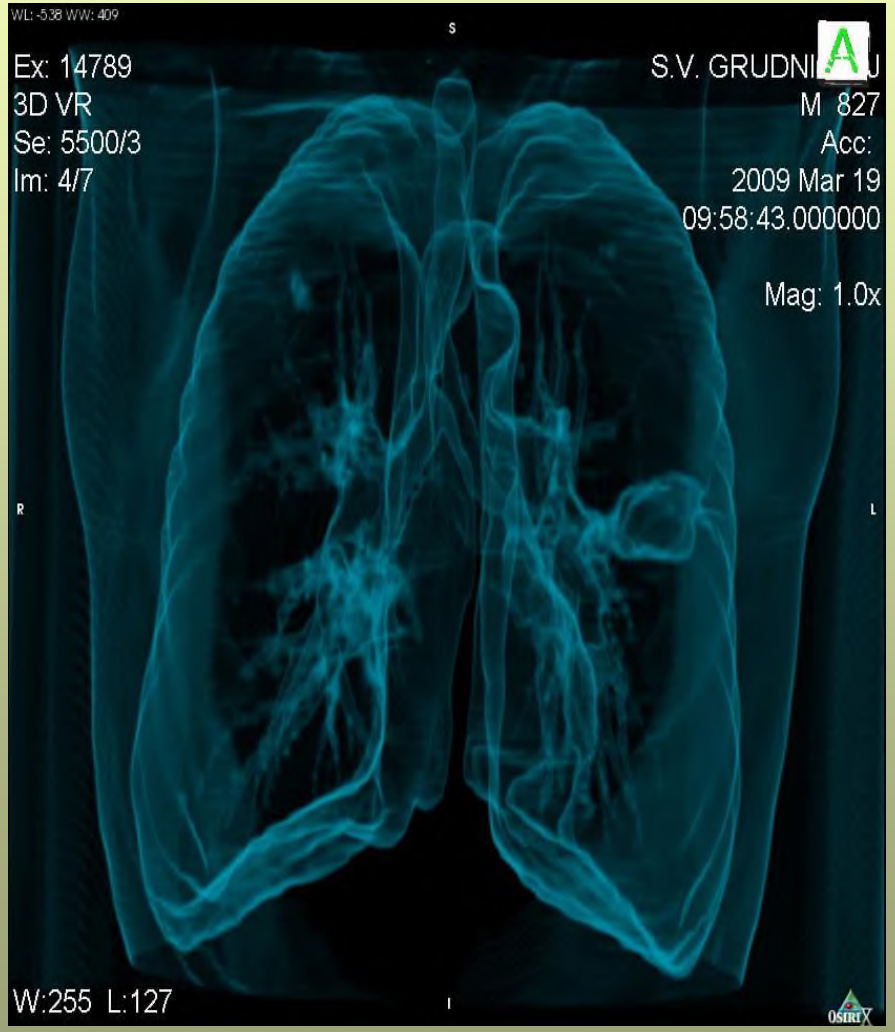


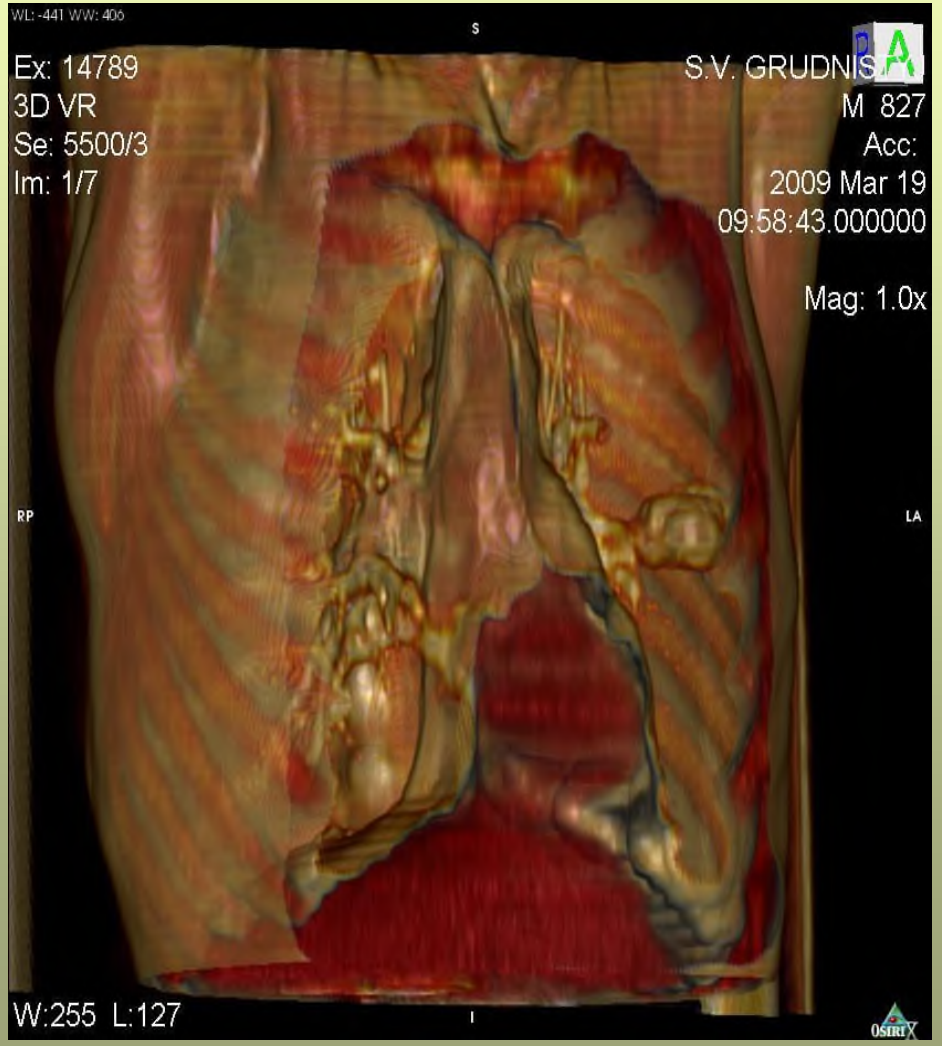
Spiral CT

- gives the opportunity to build 2-D and 3-D images, expand the doctor's presentation about the nature of the pathology.



Peripheral cancer of the left lung T2N1M0





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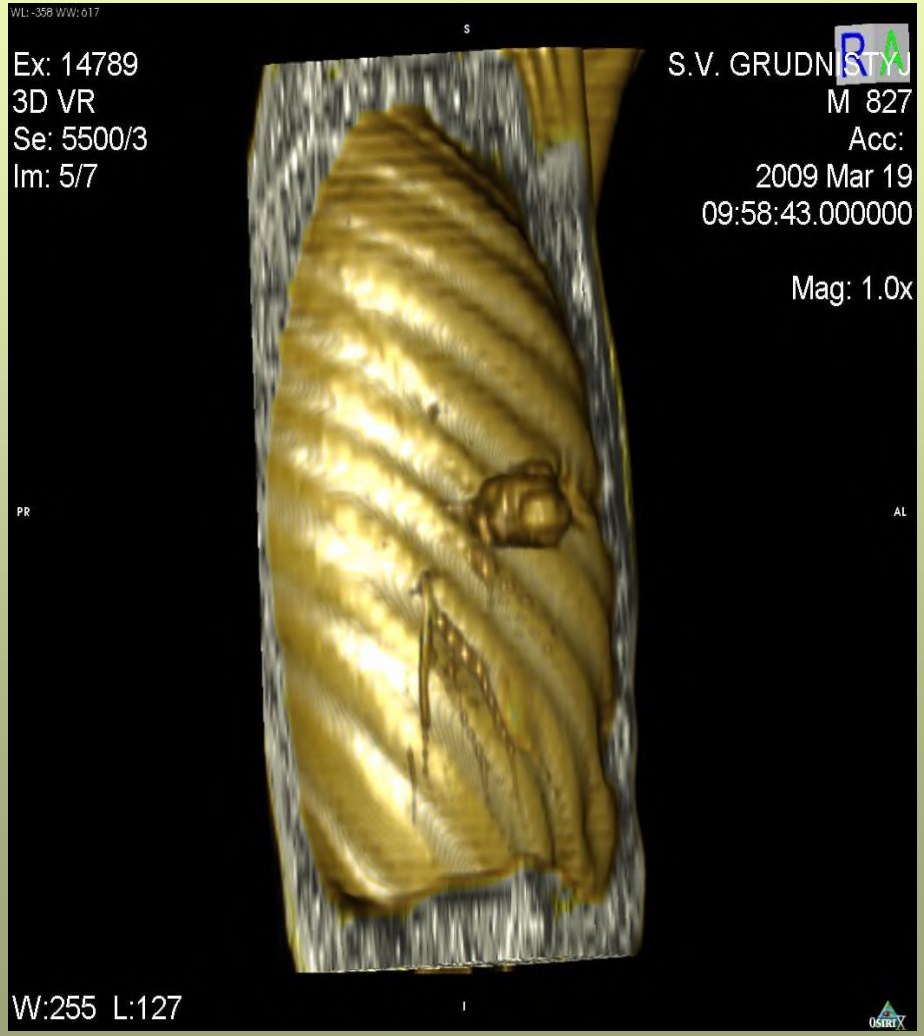
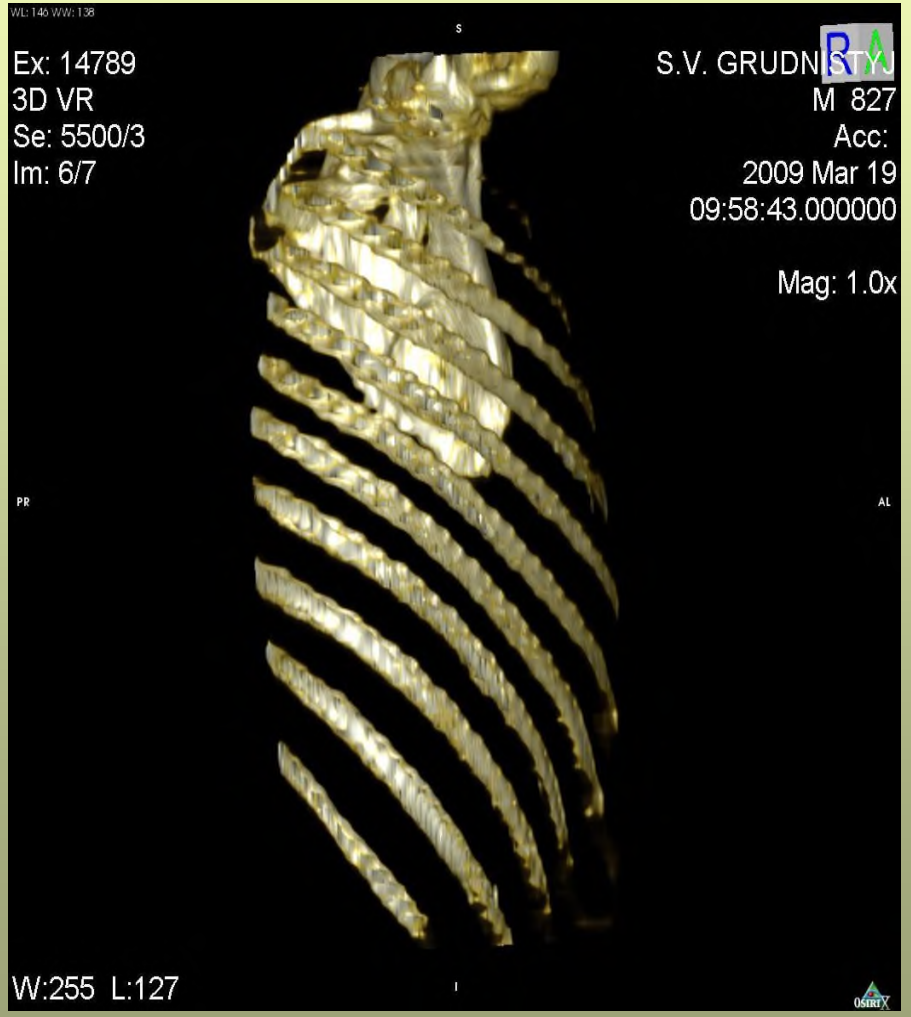
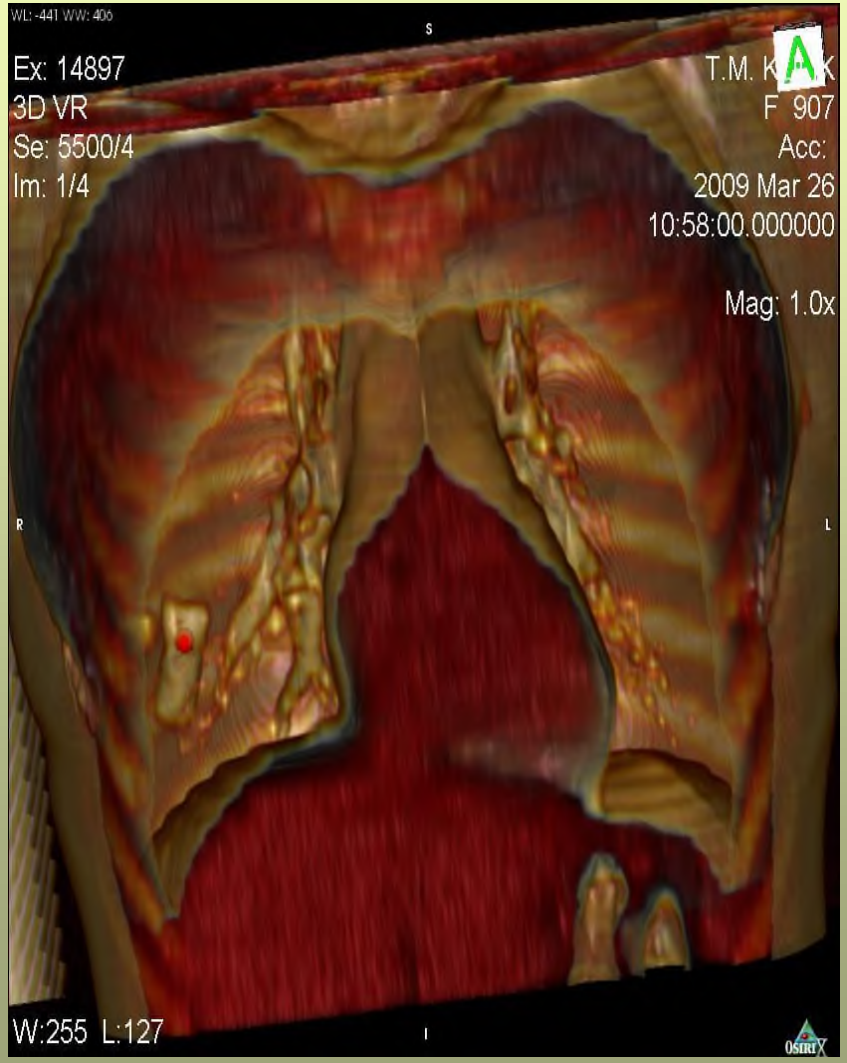
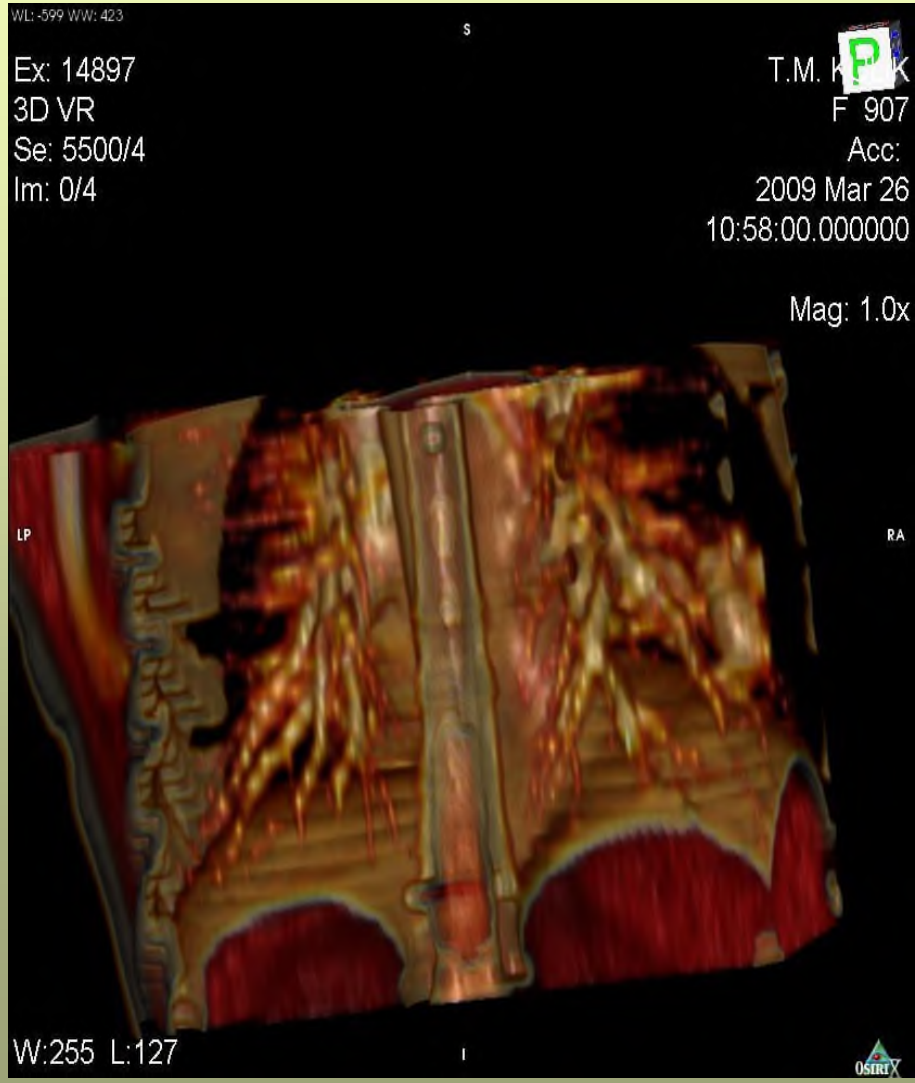


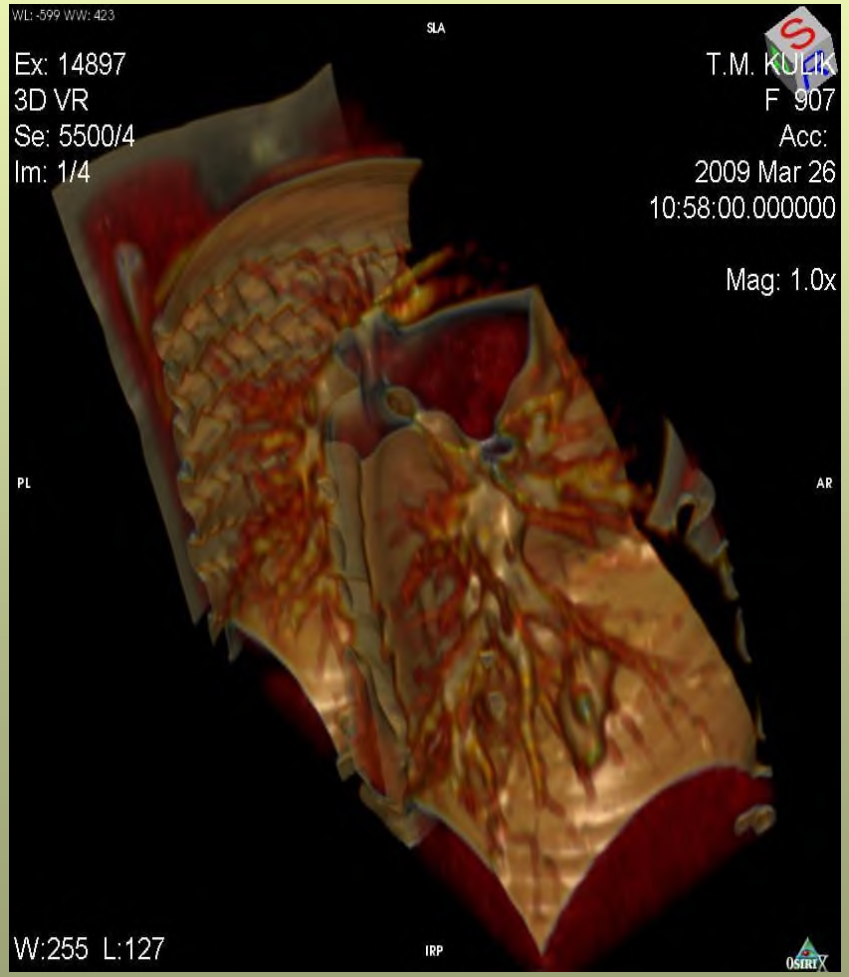


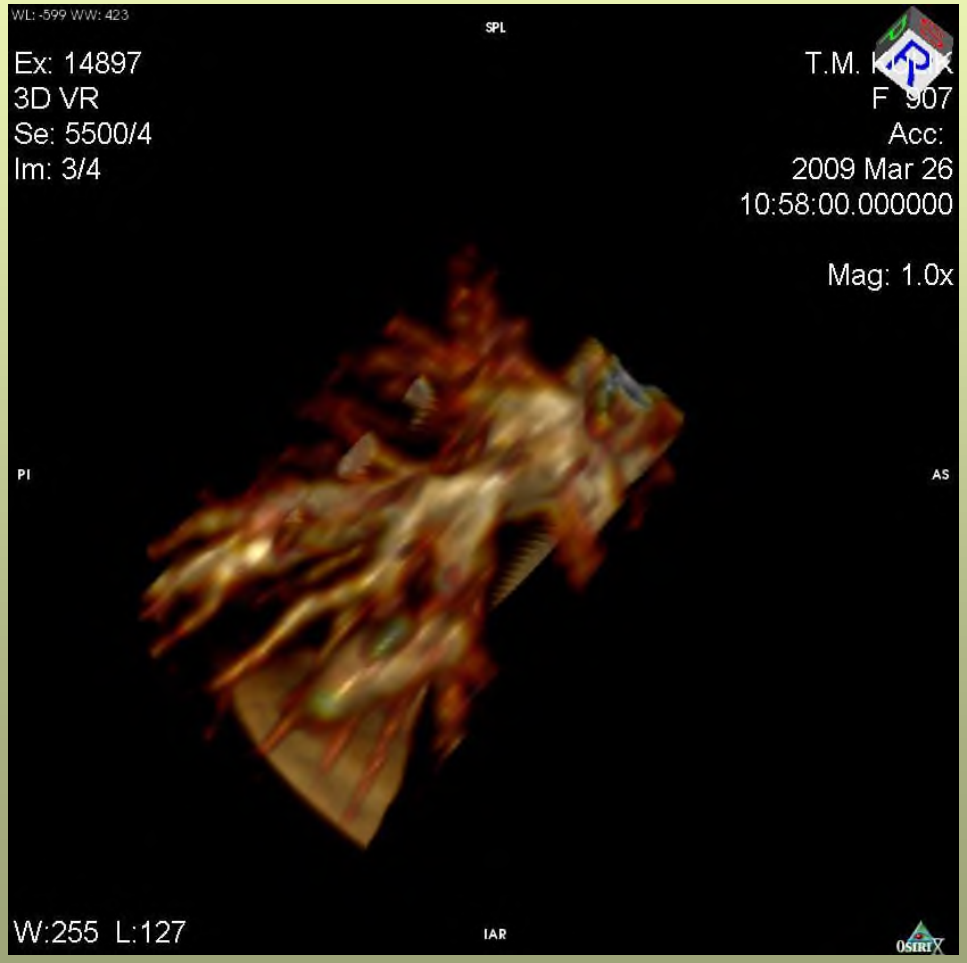
Aneurysm of the intermediate arterial trunk of the right lung



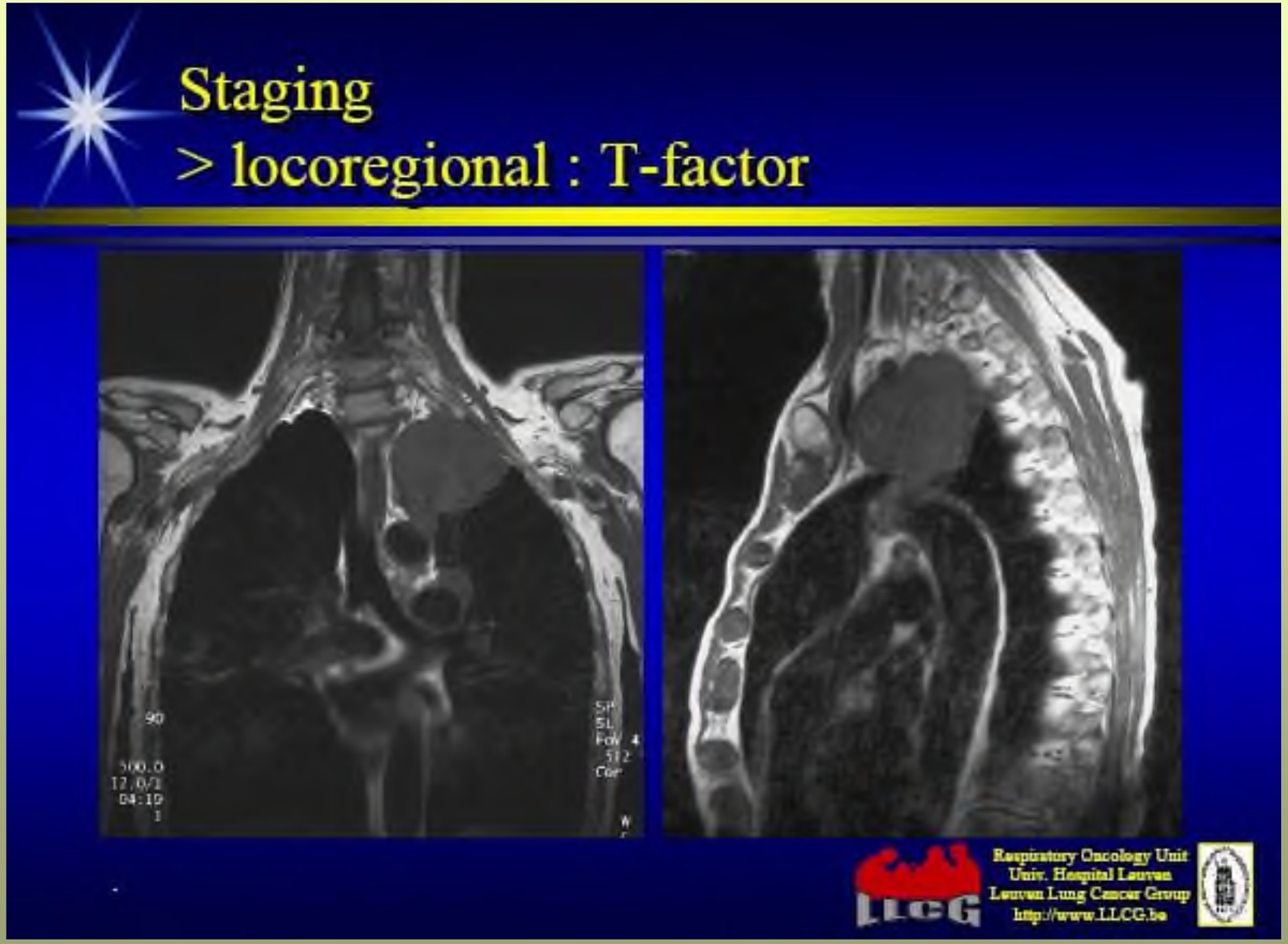


Aneurysm of the intermediate arterial trunk of the right lung

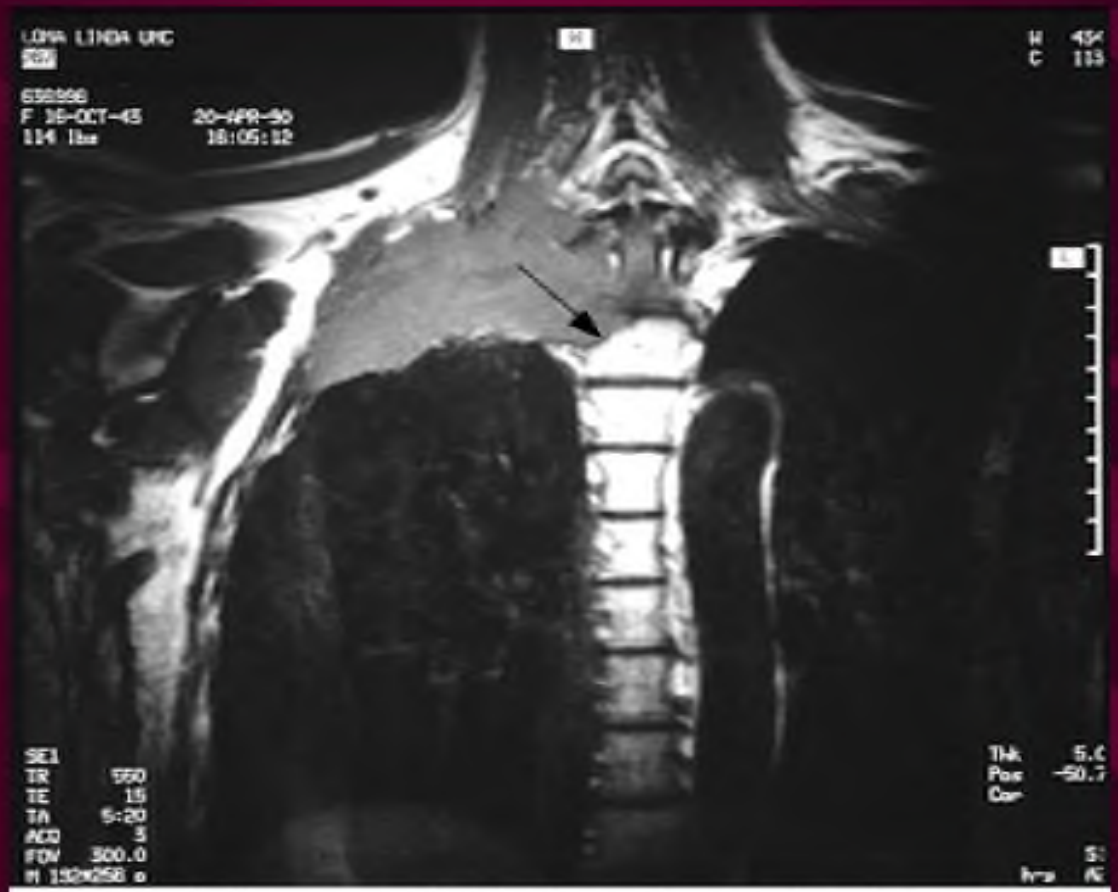




Pancostic tumor on the left

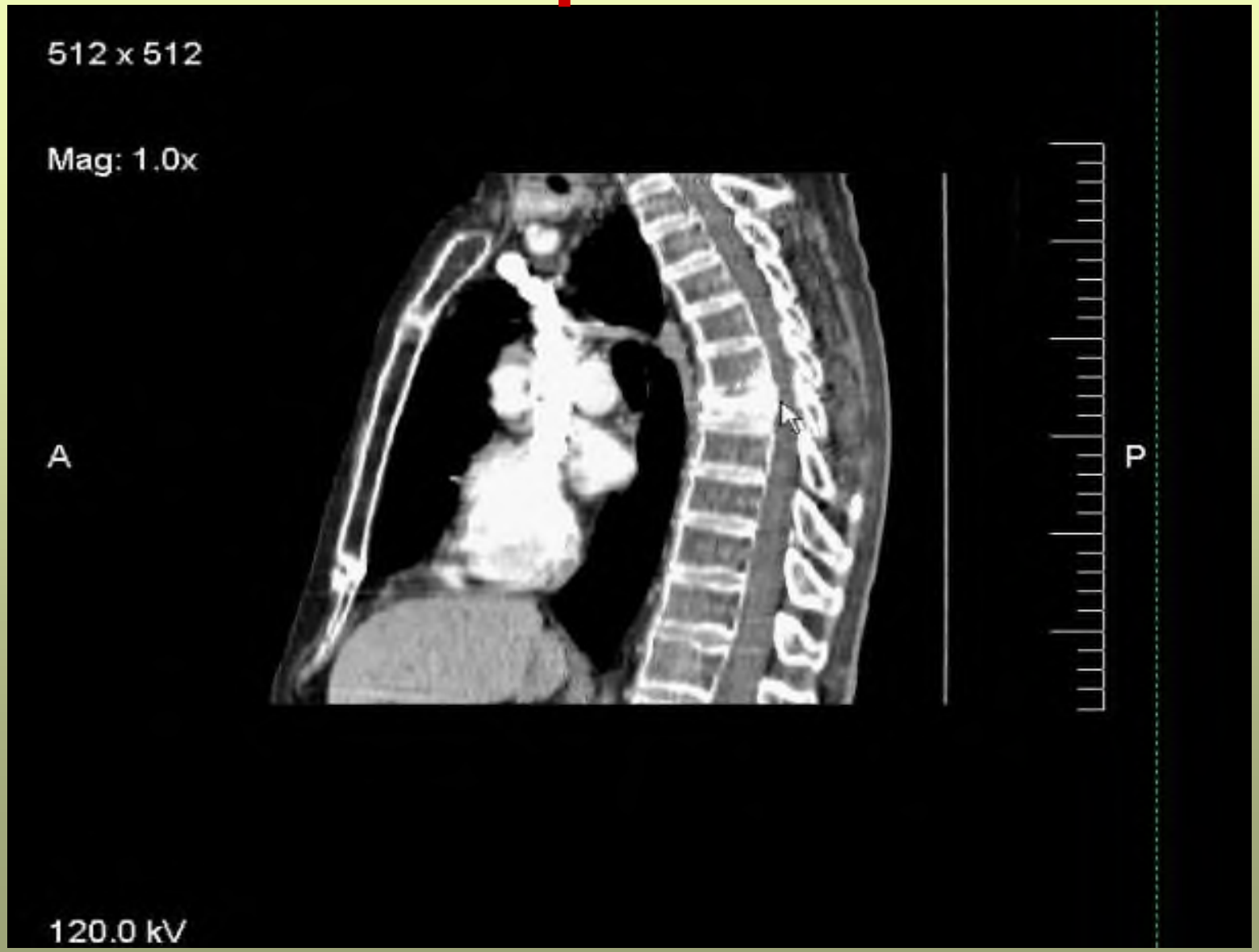


Pancostic tumor on the right

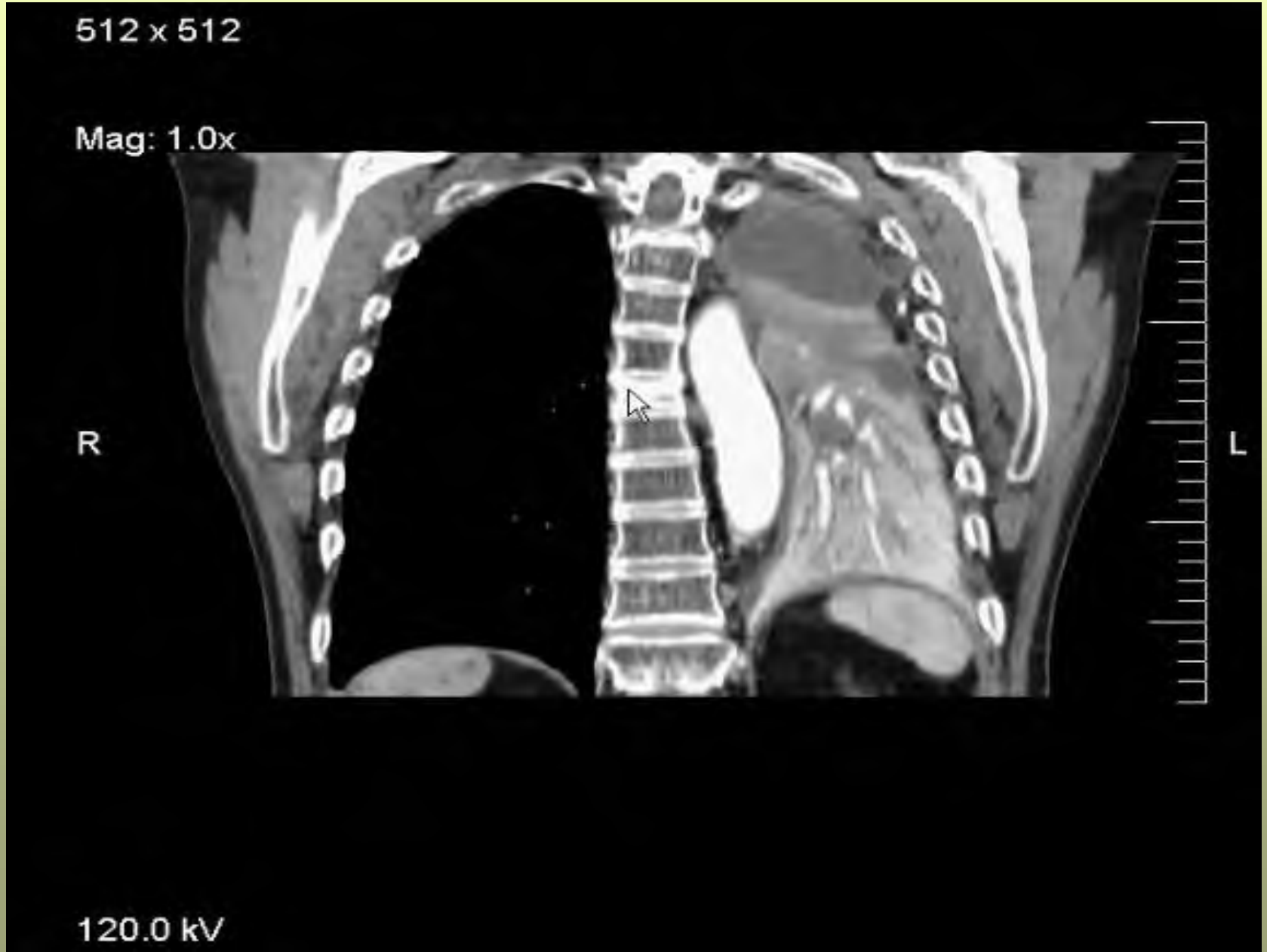


Pancoast tumor on MRI In another patient, a coronal T1-weighted image shows a right-sided Pancoast tumor with vertebral destruction (arrow). Courtesy of Paul Stark, MD.

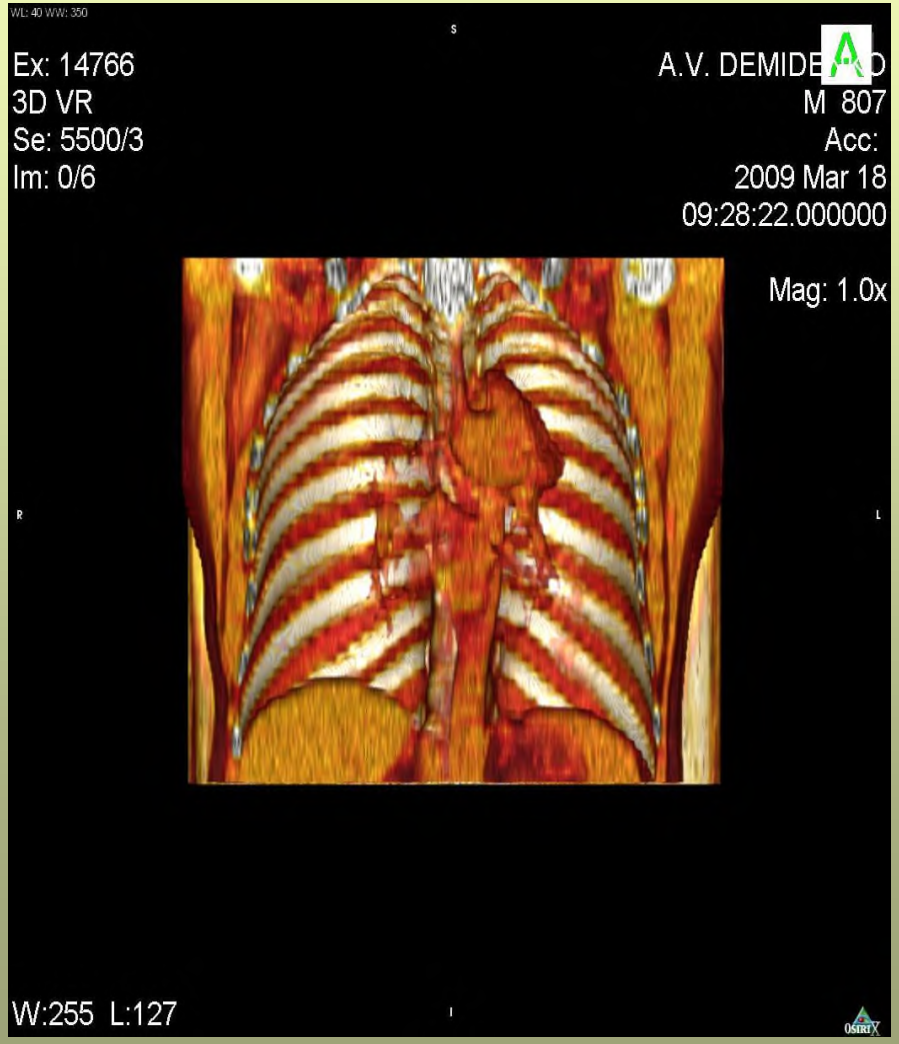
Metastasis in the pleura and spine

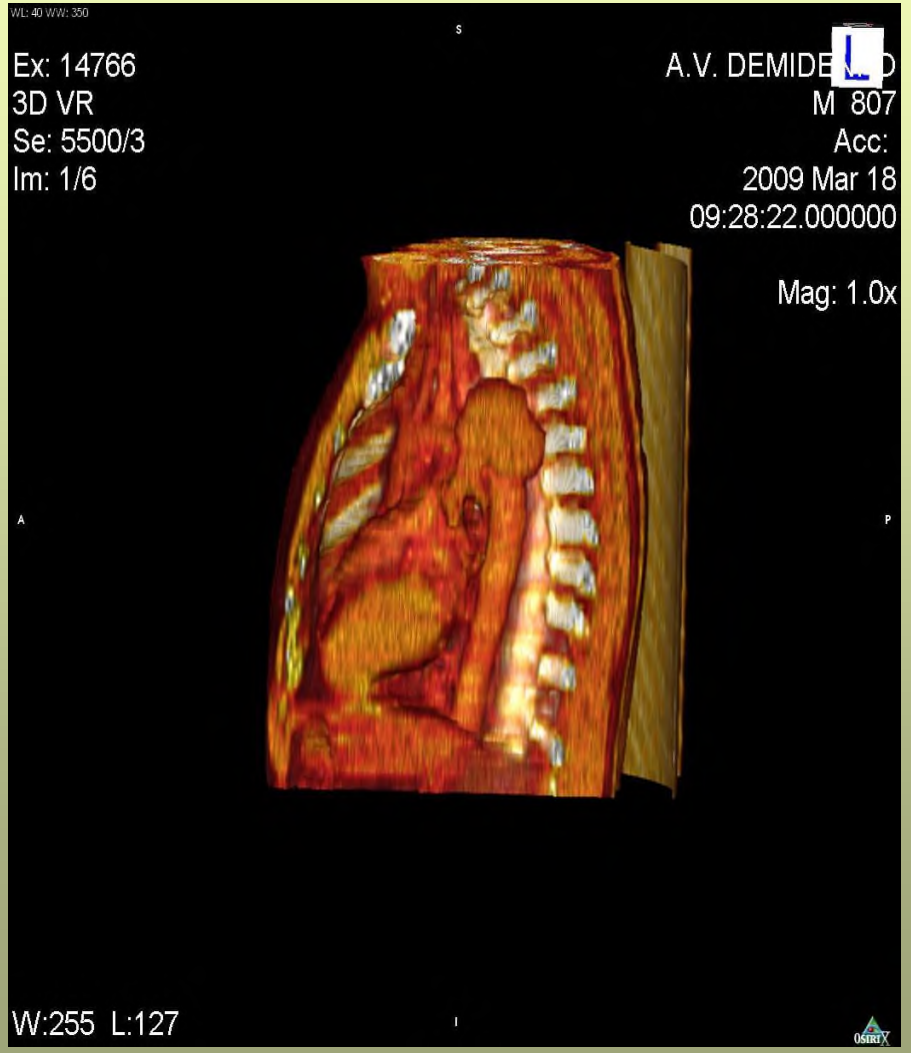


Atelectasis of the left lung

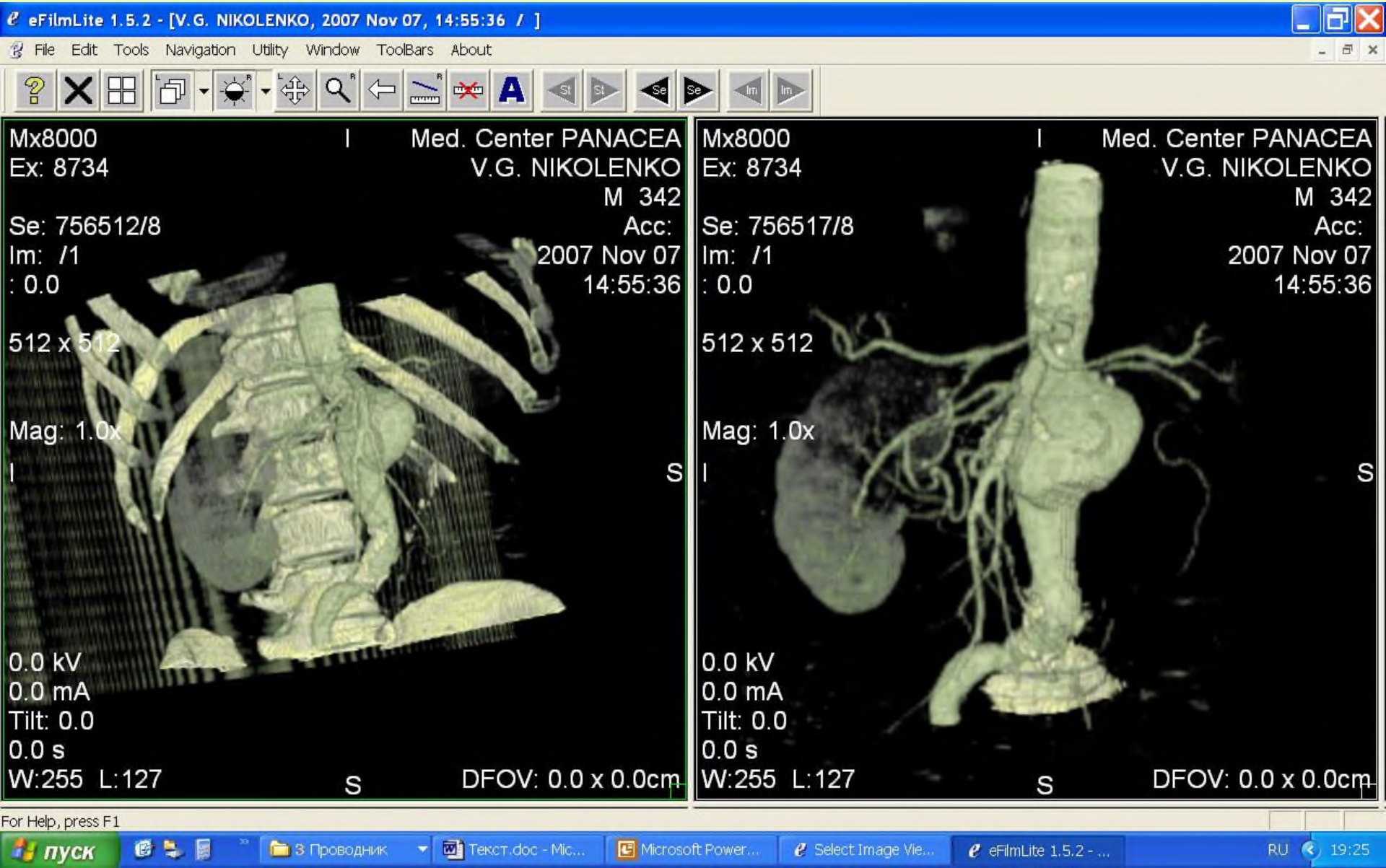


CT - ANGIOGRAPHY

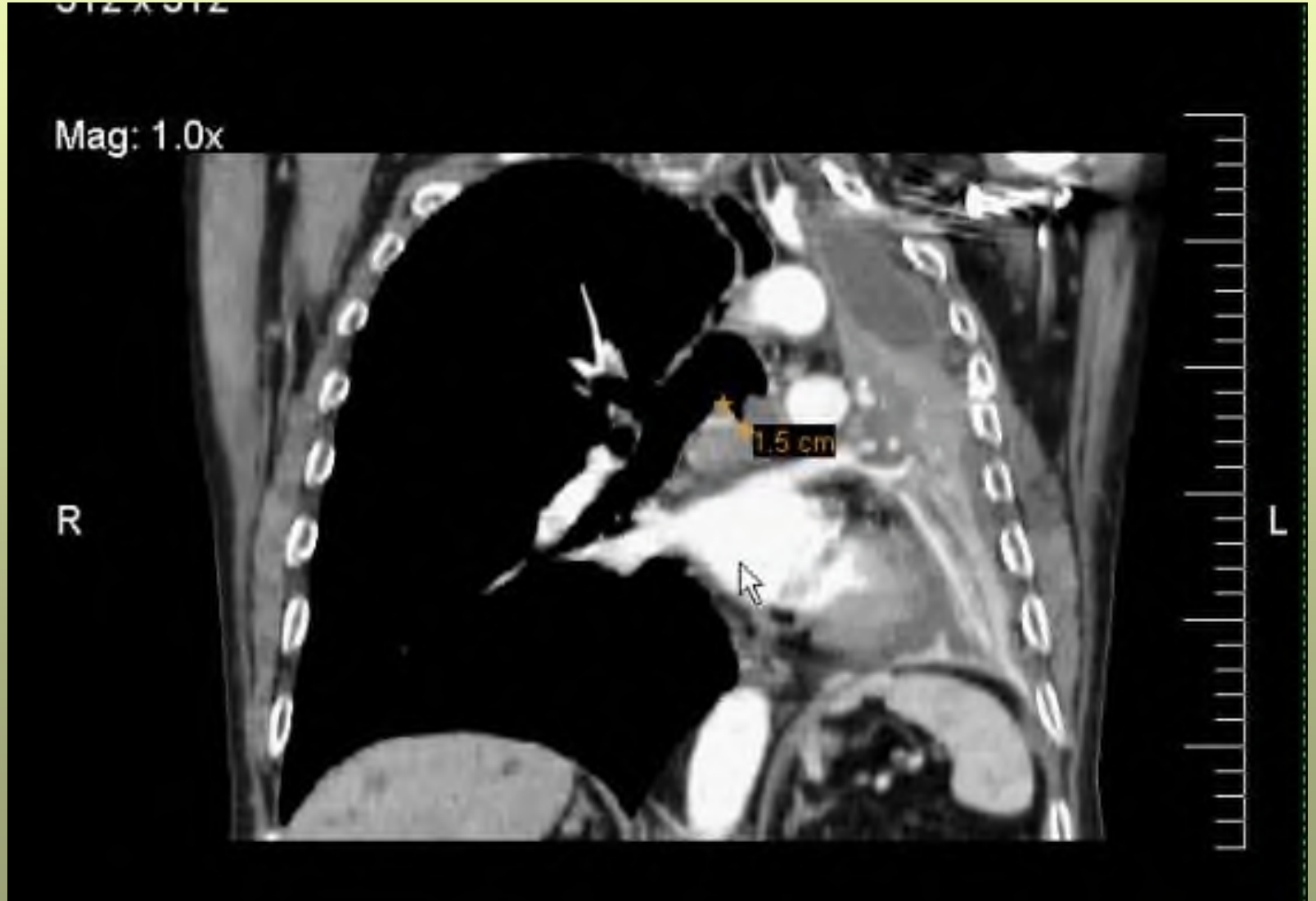




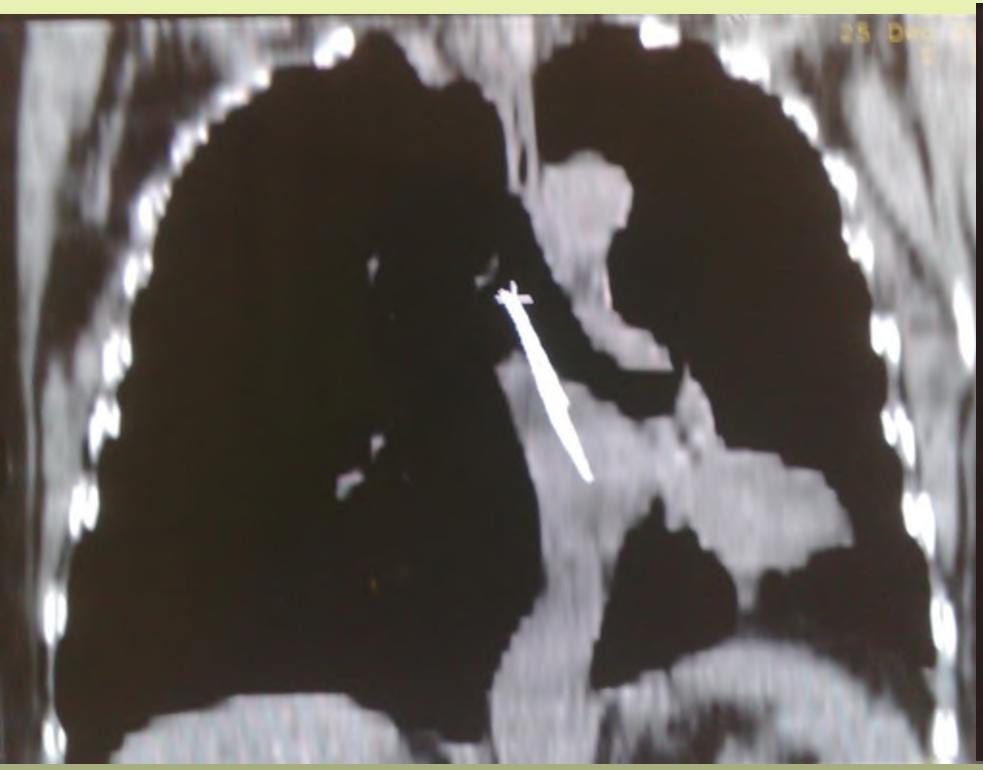
КТ – АНГИОГРАФИЯ



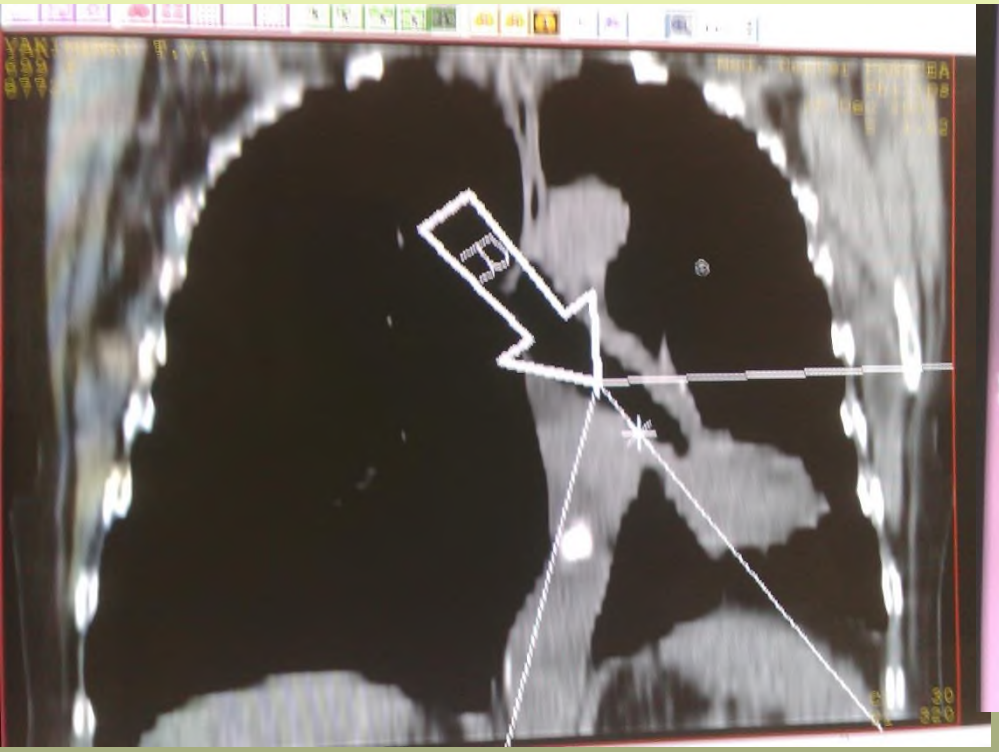
Assessment state of Tracheobronchial tree

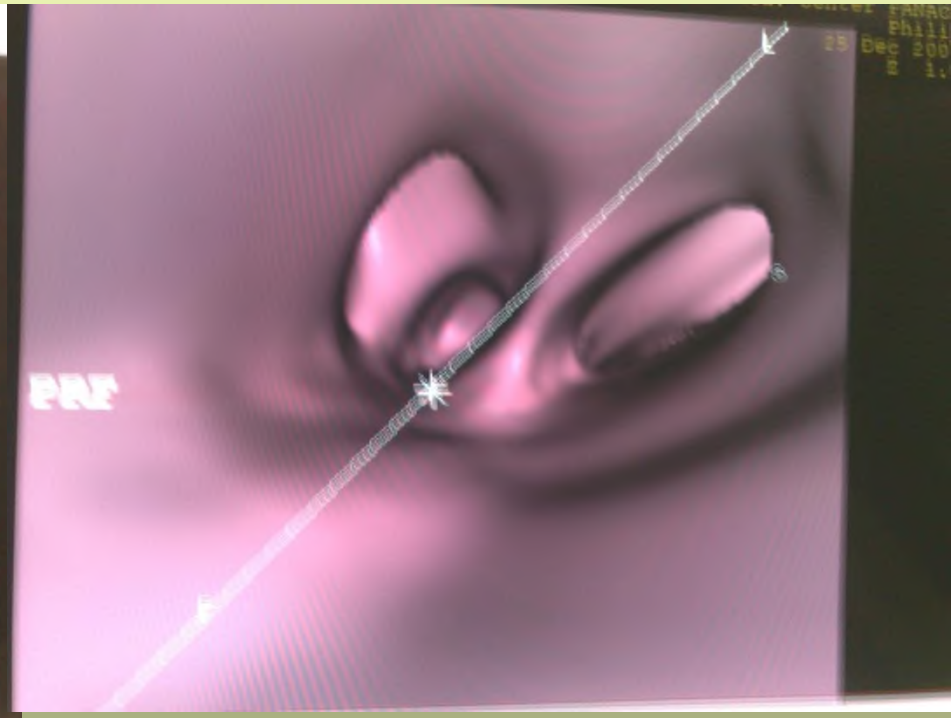


Virtual bronchoscopy

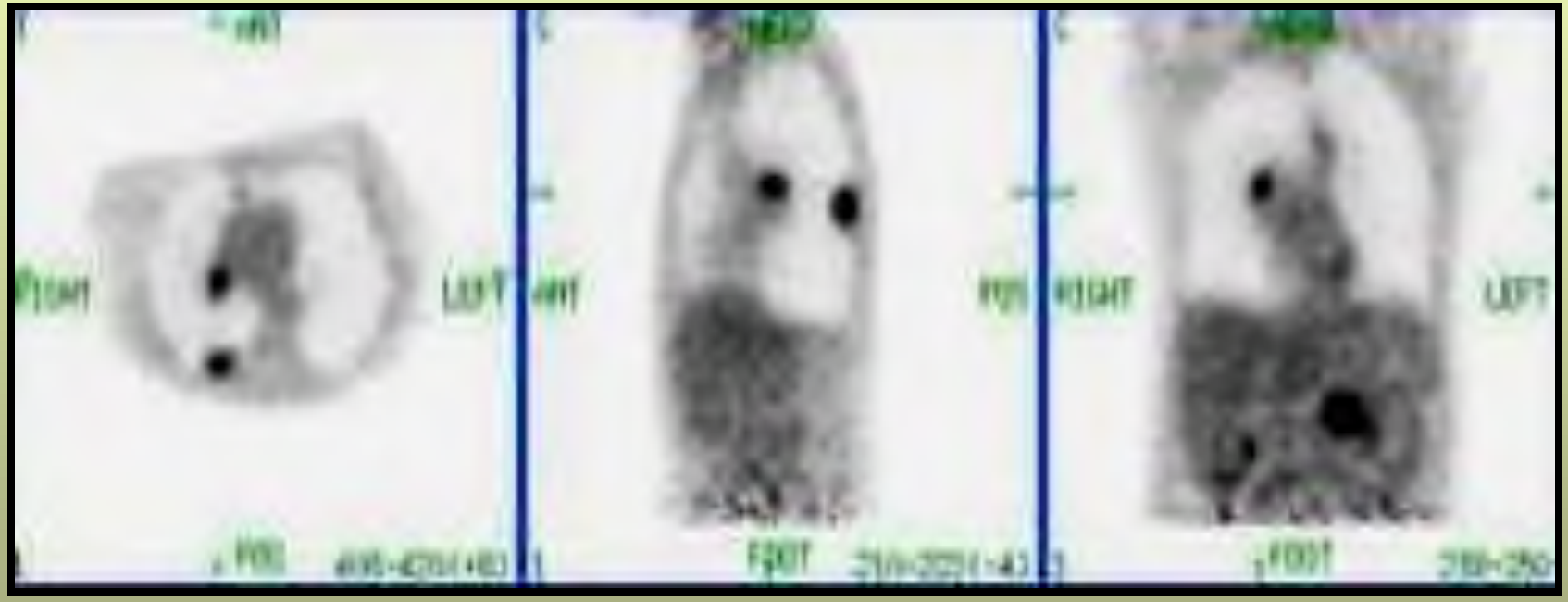


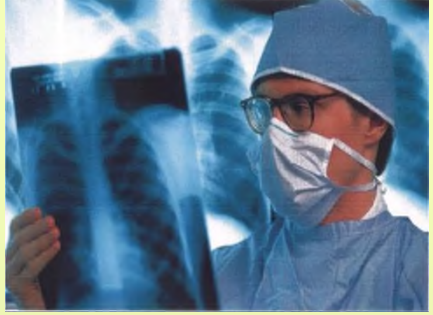
Virtual bronchoscopy



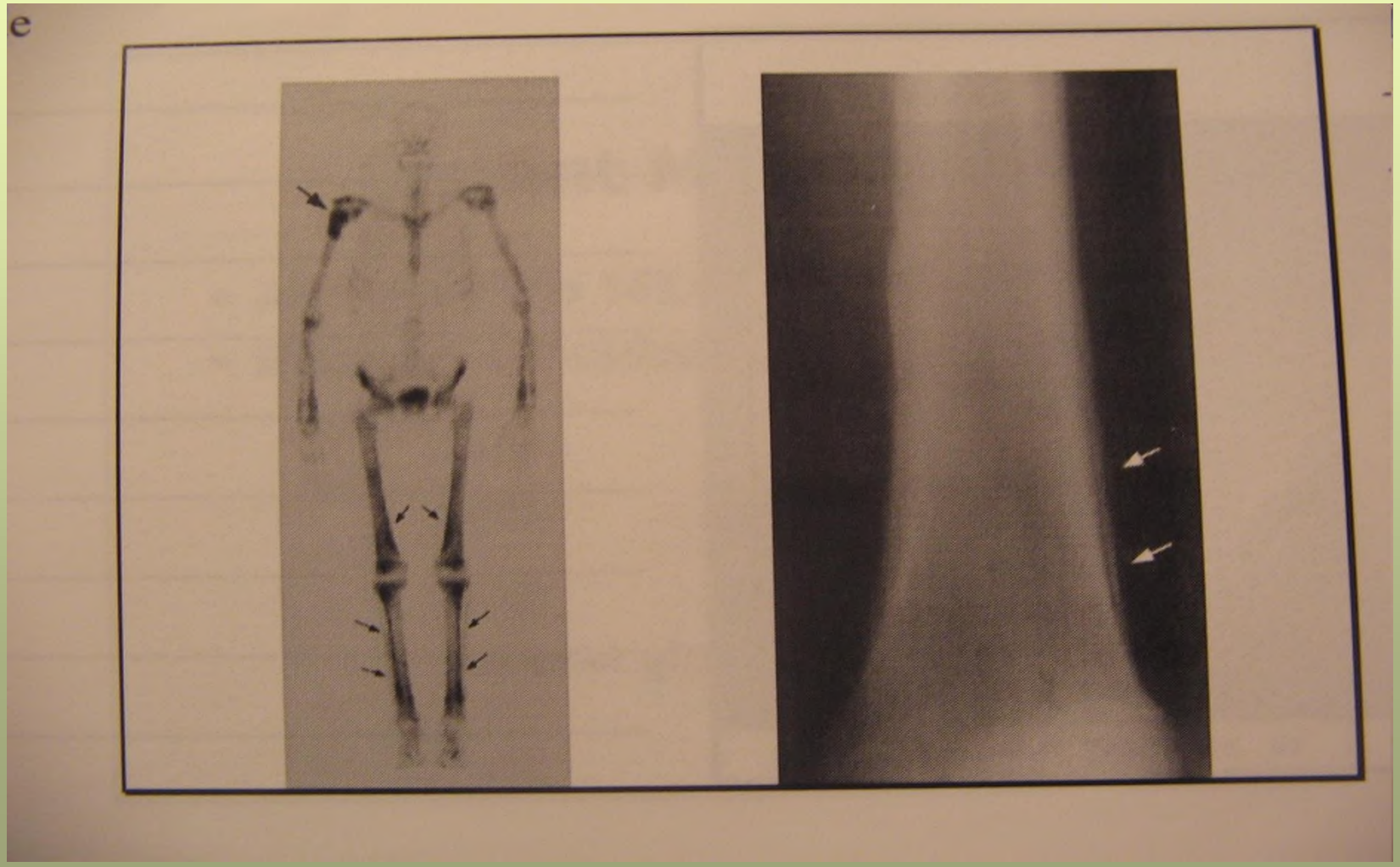


PET-FDG

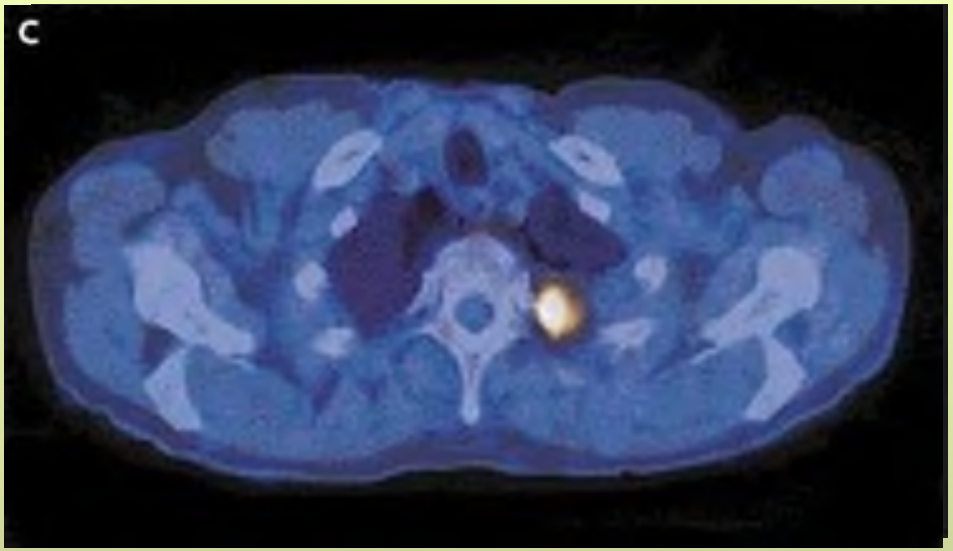




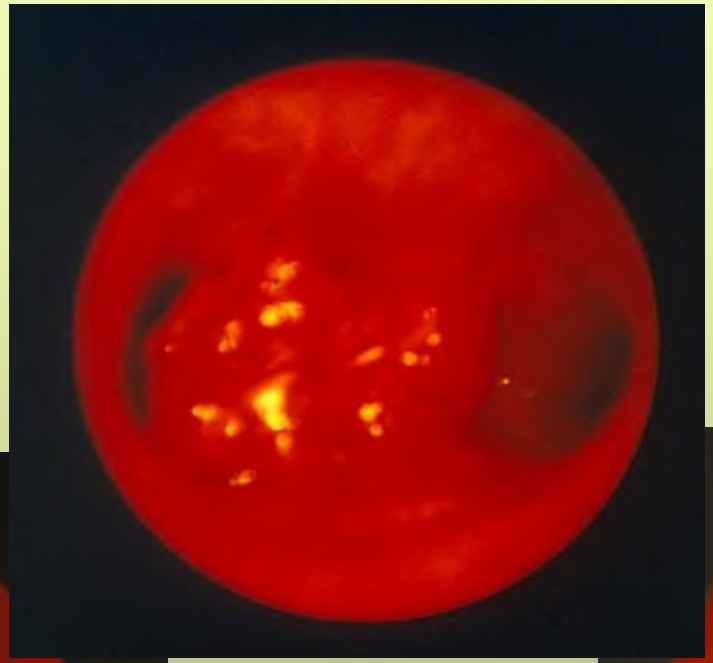
PET-FDG

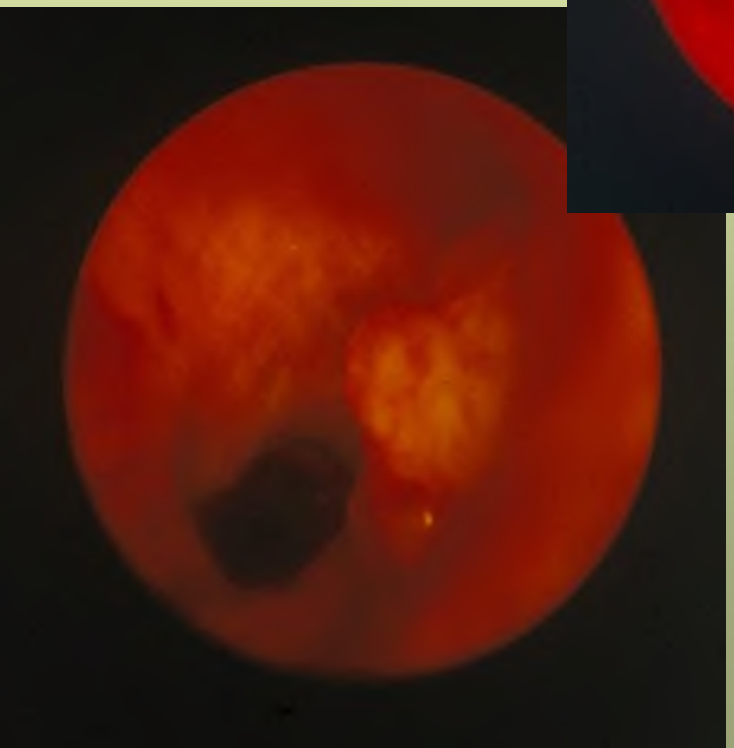


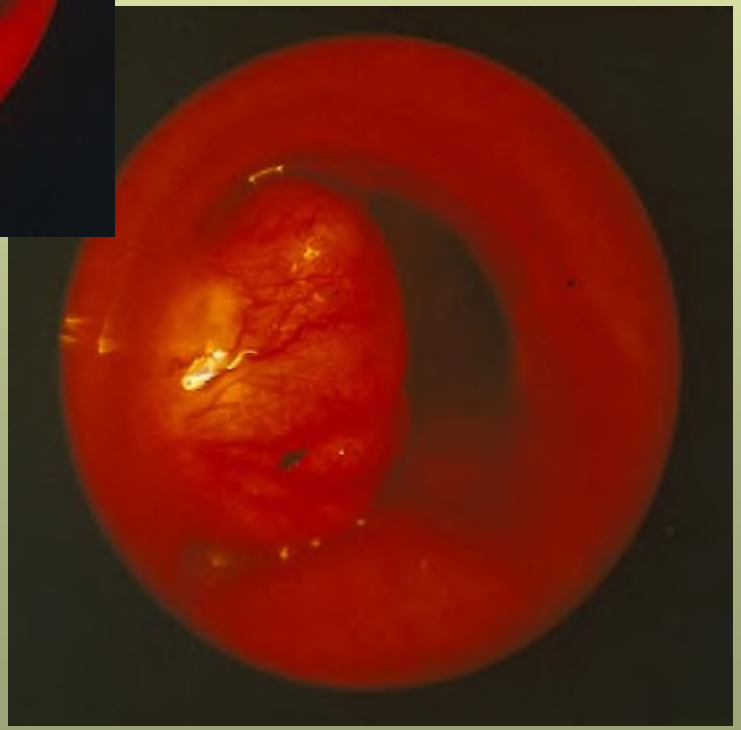
Dual PET/ CT



LUNG CANCER



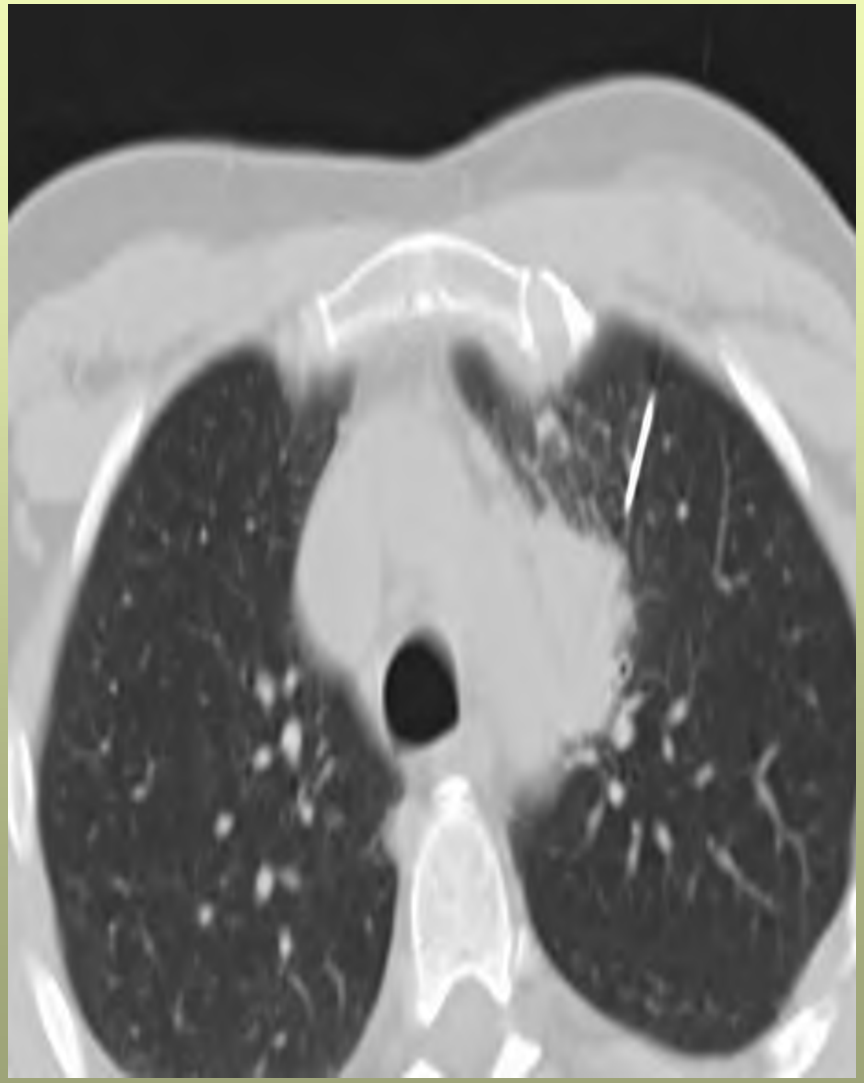


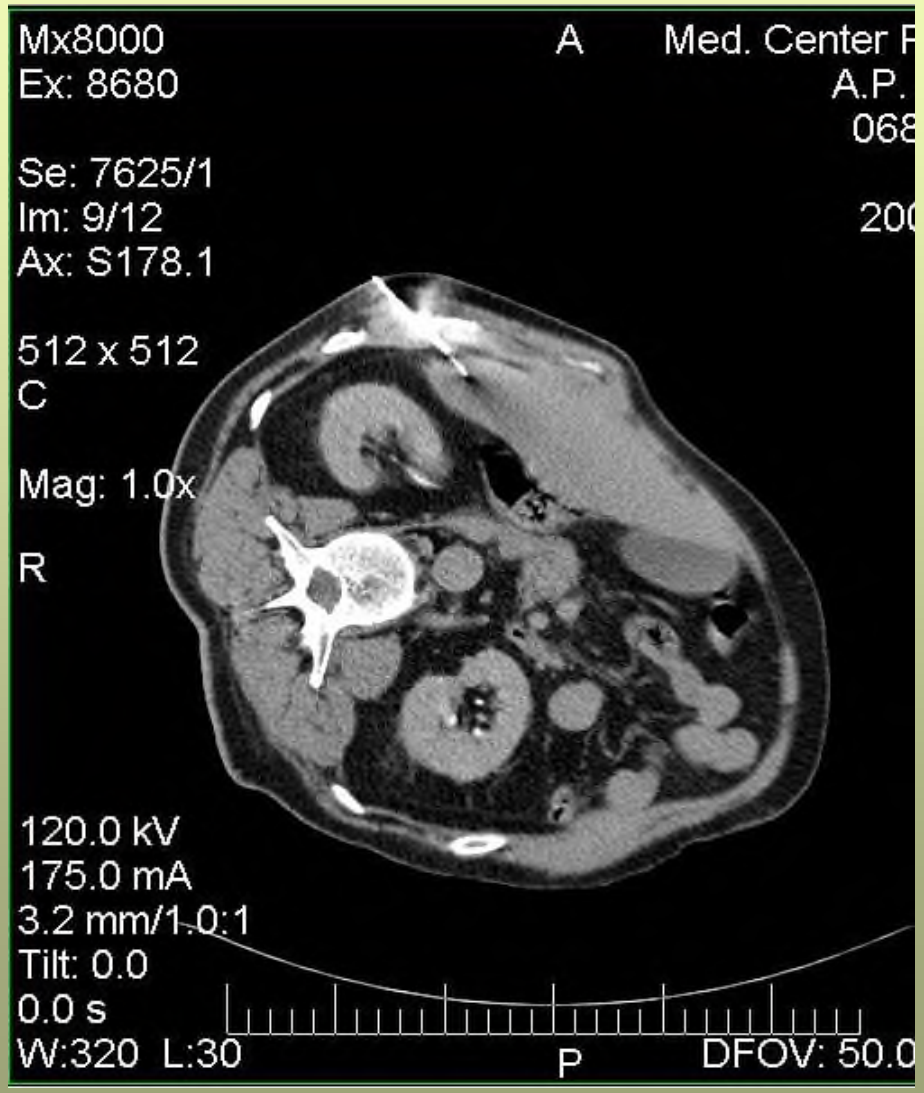


Trans bronchial puncture (fibro Bronchoscopy or ultrasound)

- **High specificity - up to 78%, sensitivity of about 40%**
- **However, this is a technically complicated procedure with a 14% level of complications**

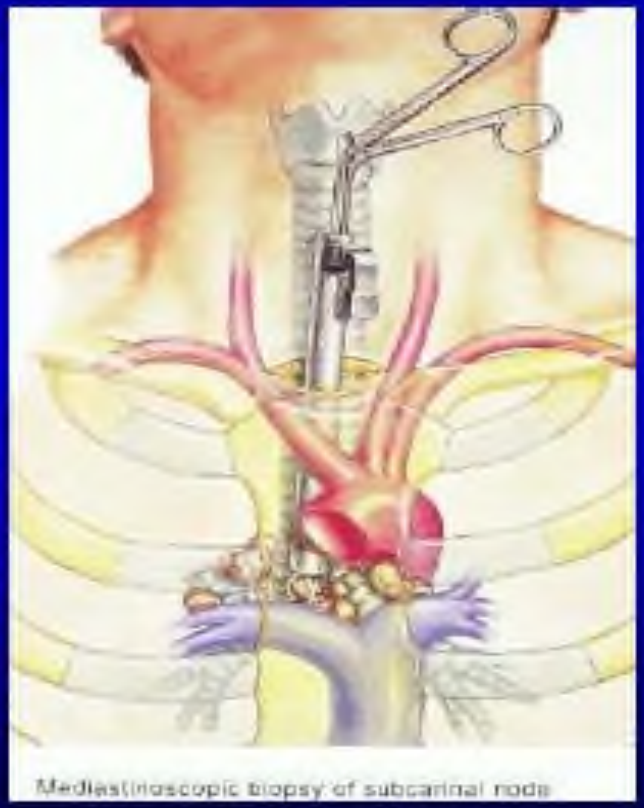
Biopsy under CT control





Mediastinoscopy

Staging
> locoregional : N-factor



Mediastinoscopic biopsy of subcarinal node

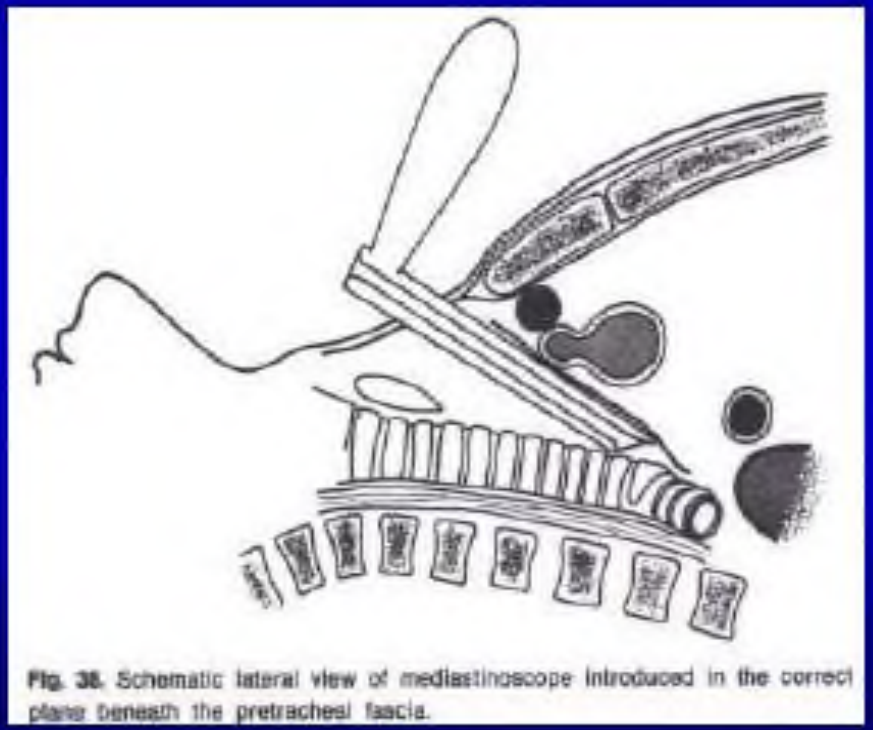


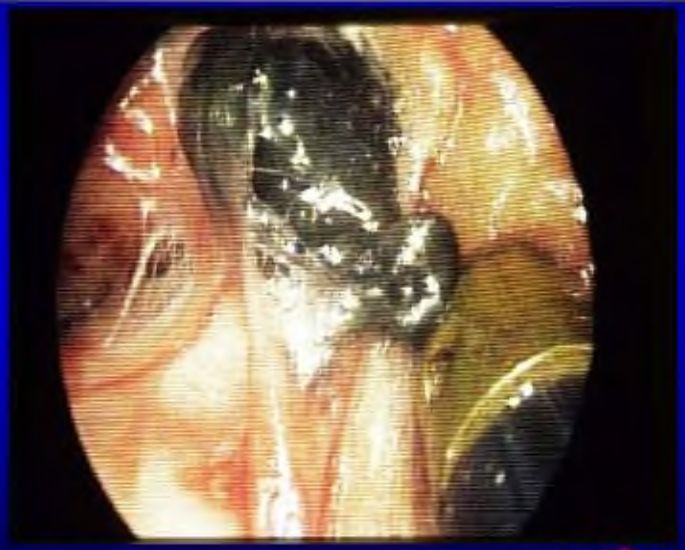
Fig. 38. Schematic lateral view of mediastinoscope introduced in the correct plane beneath the pretracheal fascia.

Respiratory Oncology Unit
Univ. Hospital Leuven
Leuven Lung Cancer Group
http://www.LLCG.be

Mediastinoscopy

Staging
> locoregional : N-factor

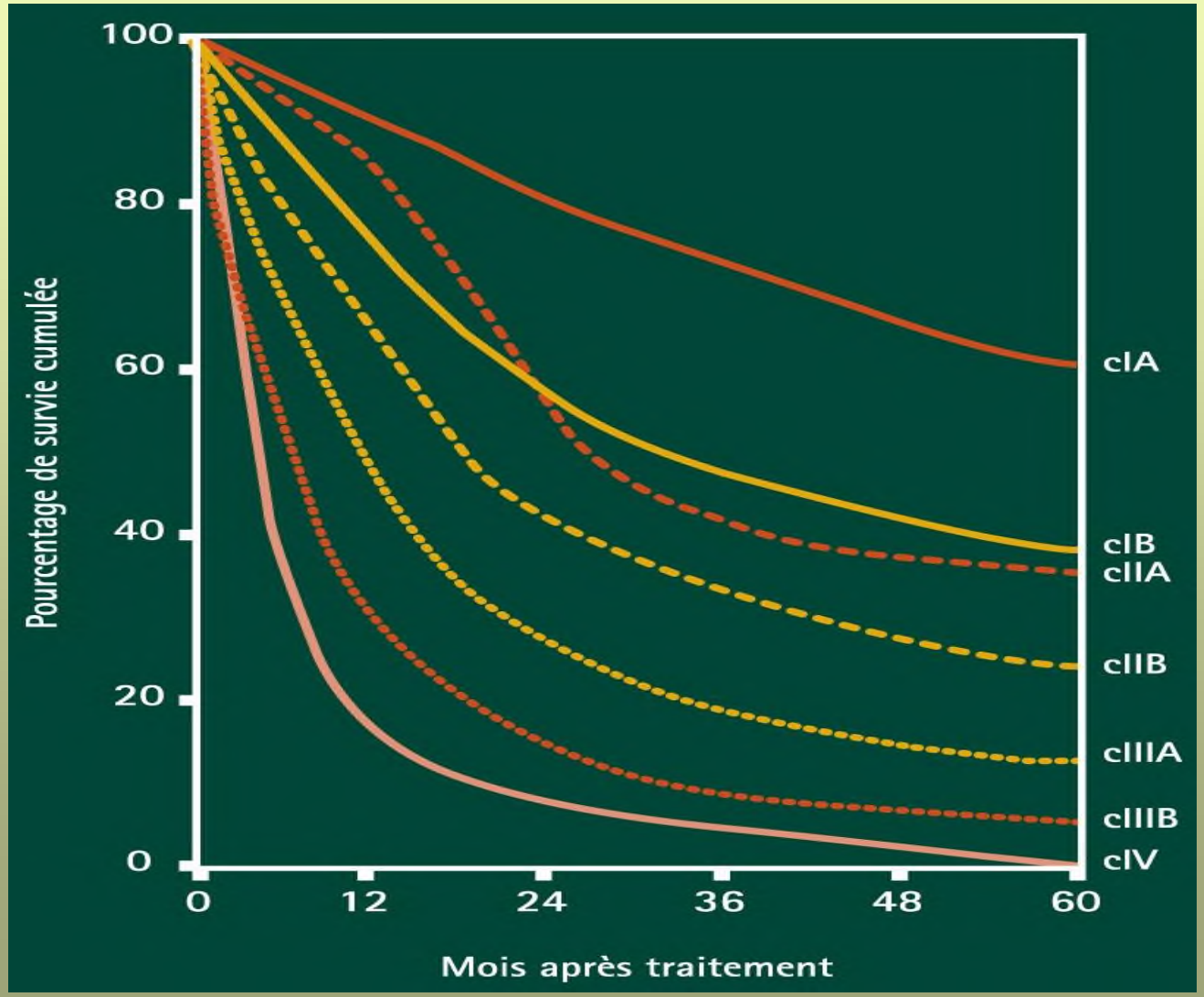
Staging
> locoregional : N-factor



TREATMENT OF NON - CELLULAR

Lung cancer

Survival depends on the stage of the process

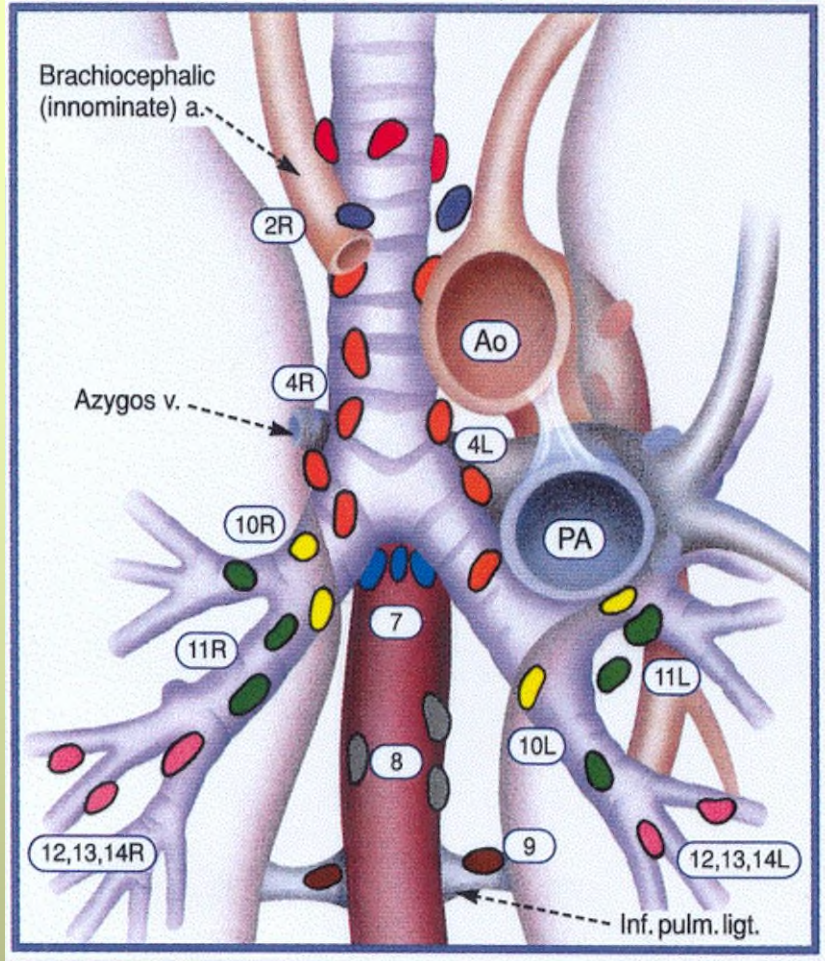


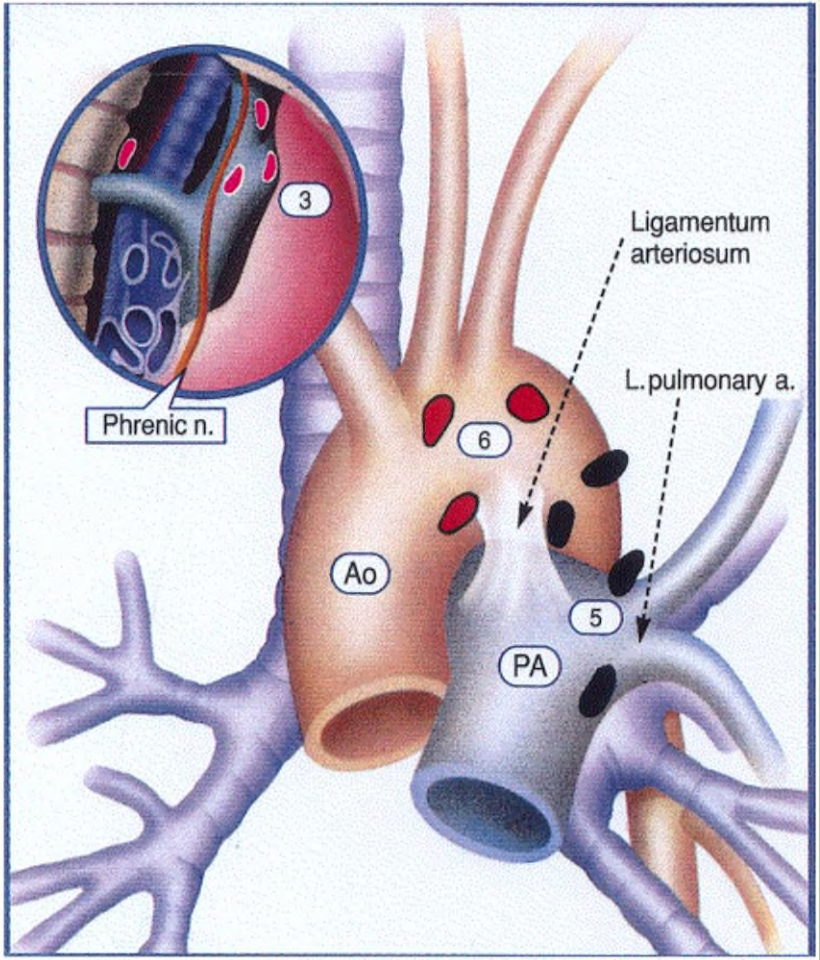
Principles of NSCLC treatment

- **Stage 1 A / B - surgical treatment**
- **Stage 2 A / B - surgical treatment + AHT for the 2B stage?**
- **Stage 3A - complex treatment (IT + surgery + AT)**
- **Stage 3B - chemoradiation treatment (complex for individual T4)**
- **Stage 4 - chemoradiation or symptomatic treatment**

SURGICAL METHOD

- The volume of the operation is a forehead (bilob) ectomy,
- pneumonectomy. Organ saving bronchoplasty operations.
- It is permissible to perform PTS operations while observing oncological principles.
- With limited functional reserves - segmentectomy, atypical resection (paliative).
- The edge of the resection of the bronchus is 15 mm from the tumor. Cito-PGZ.





Superior Mediastinal Nodes

- 1 Highest Mediastinal
- 2 Upper Paratracheal
- 3 Pre-vascular and Retrotracheal
- 4 Lower Paratracheal (including Azygos Nodes)

Aortic Nodes

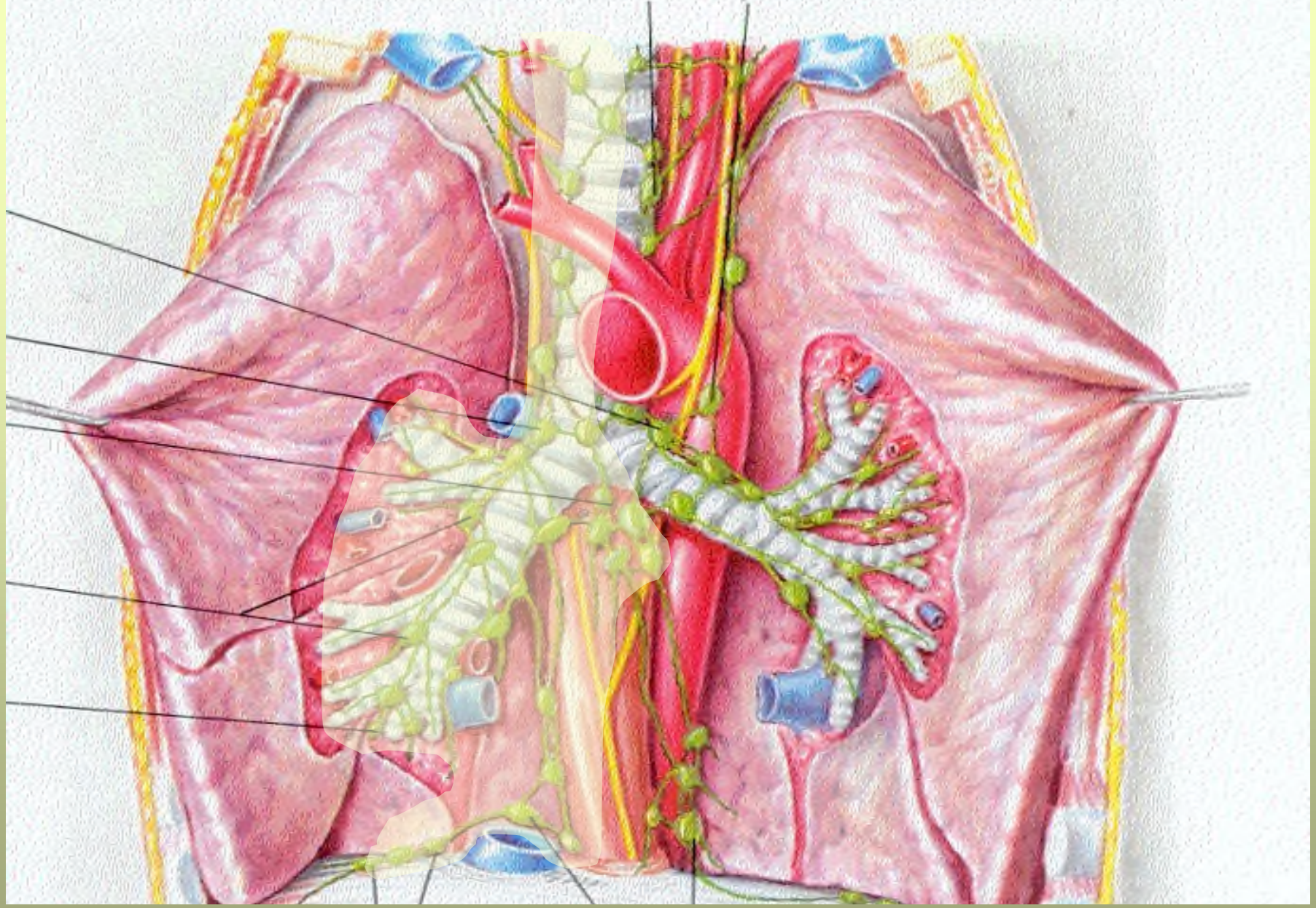
- 5 Subaortic (A-P window)
- 6 Para-aortic (ascending

Inferior Mediastinal Nodes

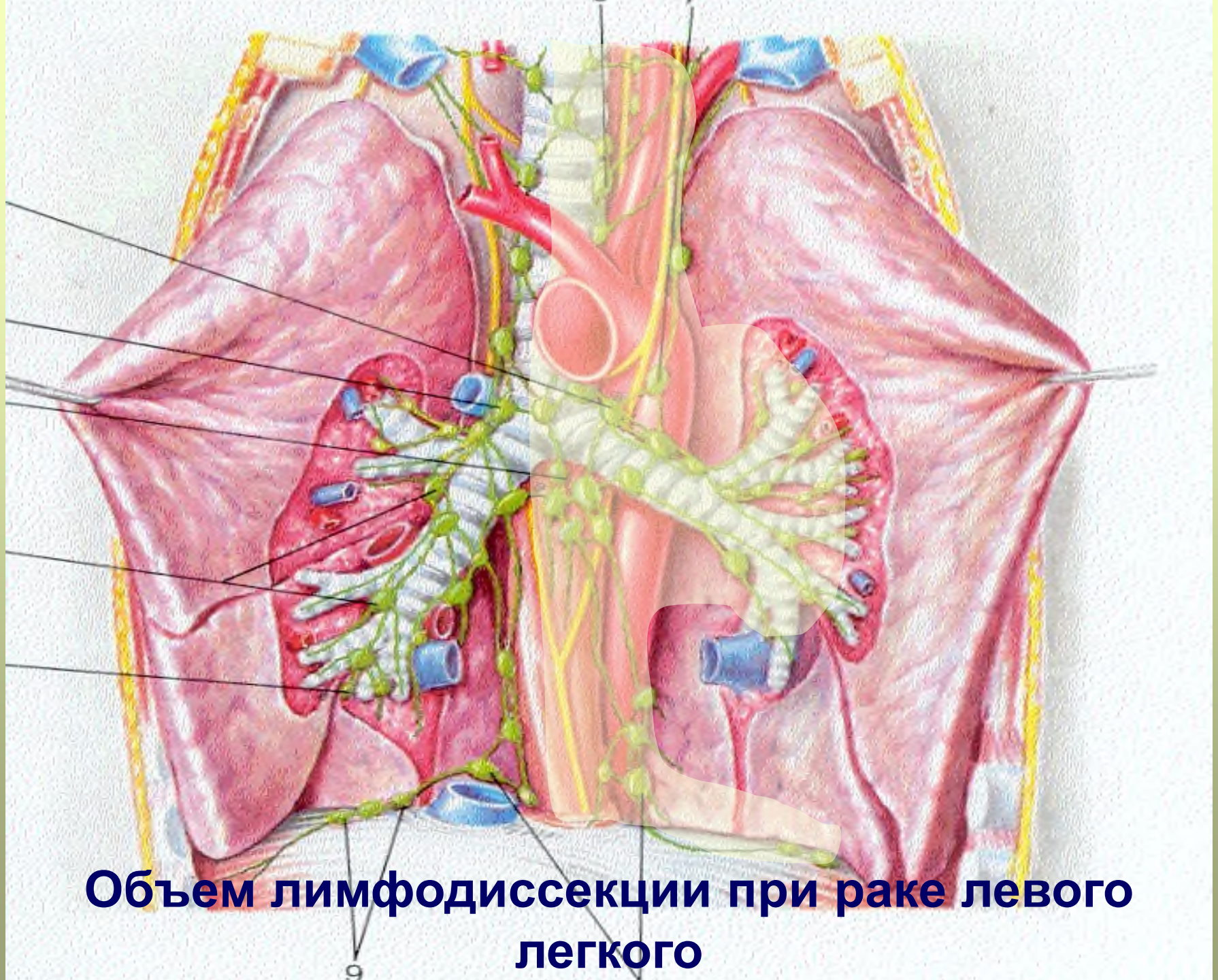
- 7 Subcarinal
- 8 Paraesophageal (below carina)
- 9 Pulmonary Ligament

N_1 Nodes

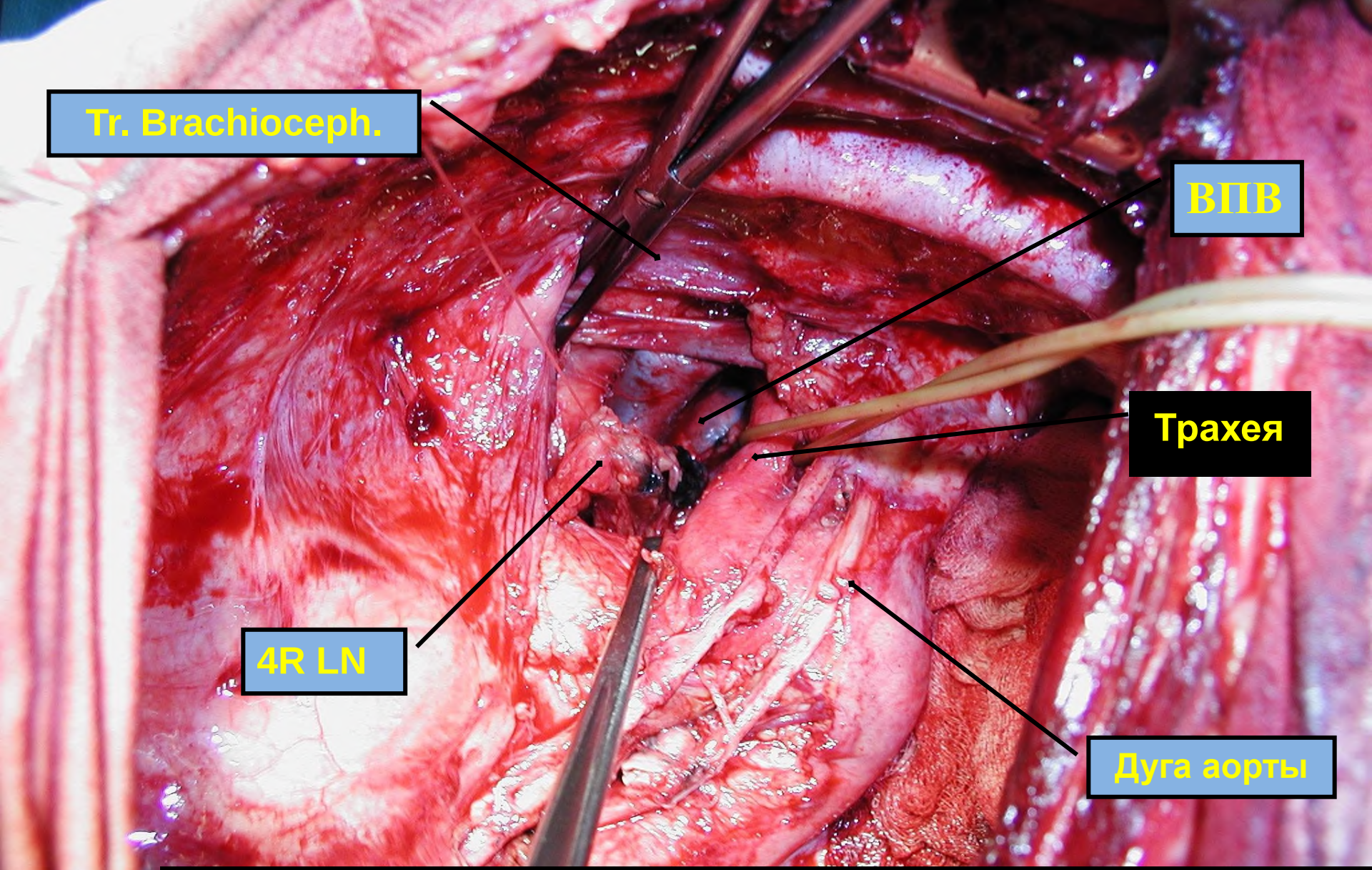
- 10 Hilar
- 11 Interlobar
- 12 Lobar
- 13 Segmental
- 14 Subsegmental



Объем лимфодиссекции при раке правого легкого

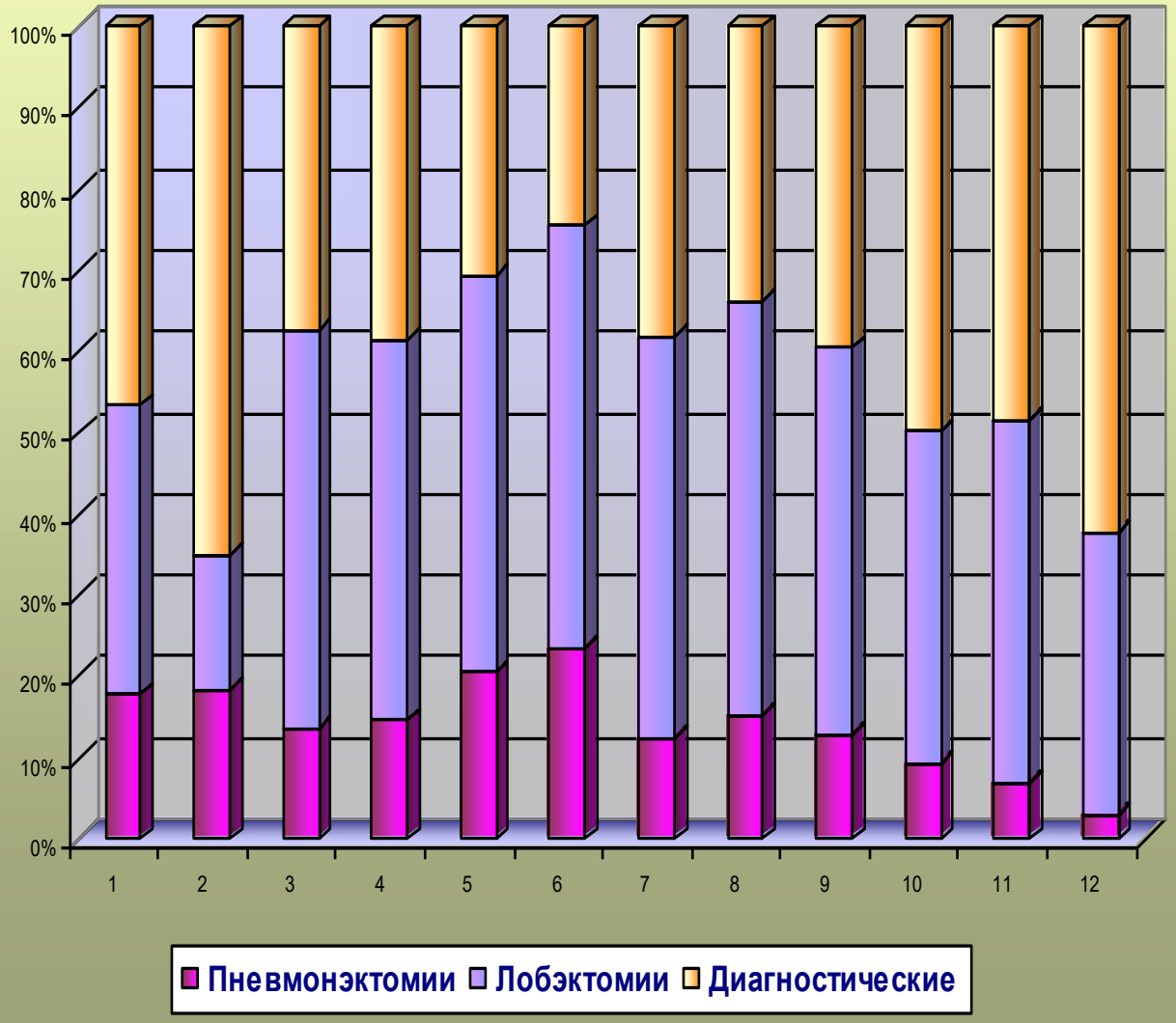


Объем лимфодиссекции при раке левого легкого



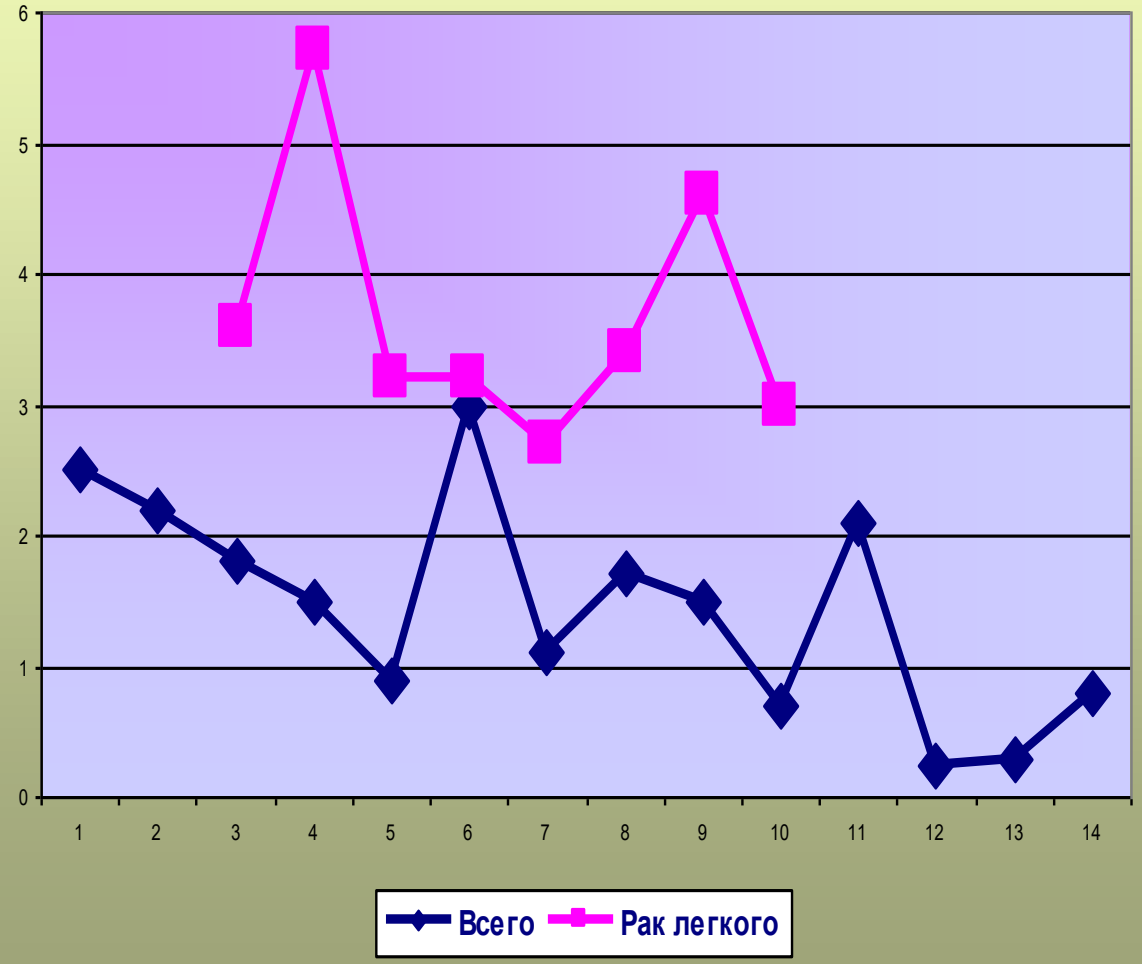
Комбинированная пневмонэктомия слева с МЛД

Resectivity in lung cancer in 1998-2008.



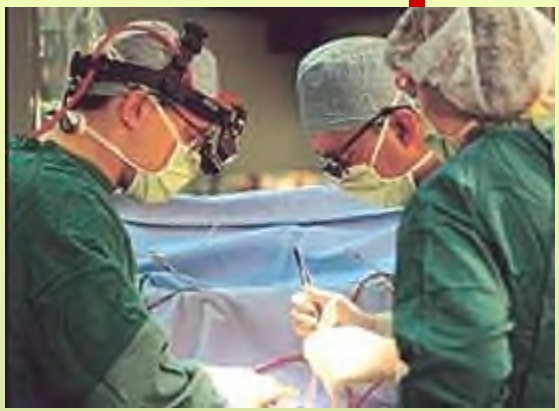
- The Institute of Cancer (Kiev) - 76.3%
- RONTS (Moscow) - 85.5%
- Research Institute of Oncology (St.Petersburg) - 91.7%
- ACN (Vienna, Austria) -88.1%
- DOOTS - 74%

Postoperative lethality in 1998-2008.



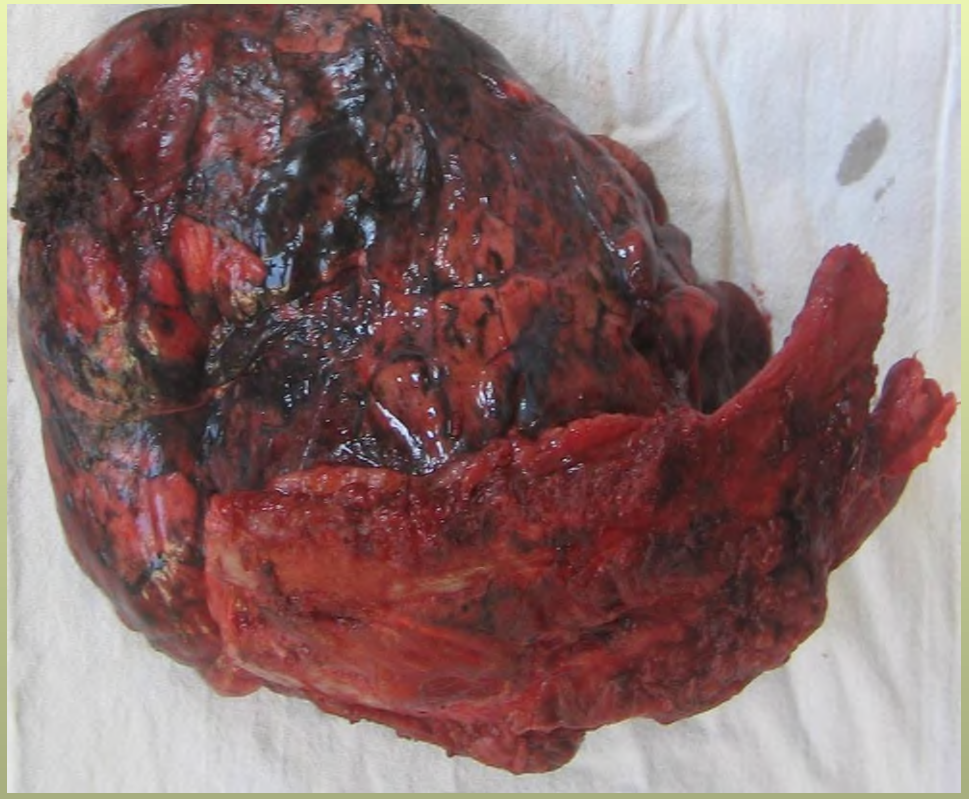
- Institute of Cancer (Kiev) - 2.7%
- RONTS (Moscow) - 1.9%
- ACN (Vienna, Austria) -2.4%
- DOOTS - 2.7 - 5.7%

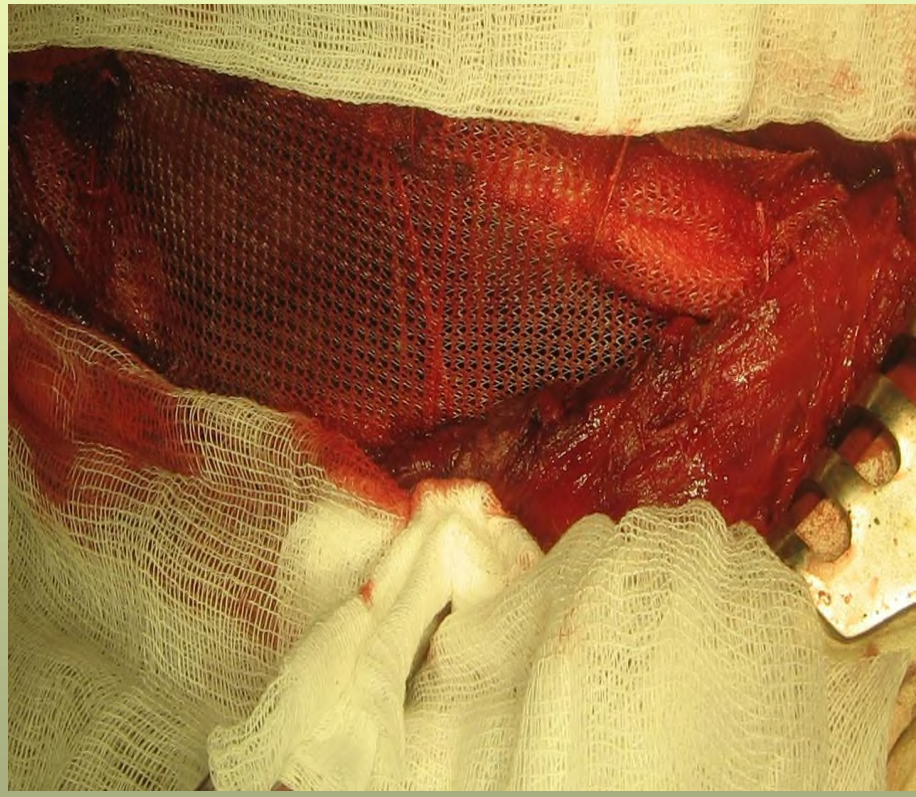
Perspectives of the surgical method



- Combined and bronchoangioplasty
- operations
- - MBE vs MLD?
- - Two-sided mediastinal lymphodissection?
- - Endoscopic and video surgery?
- - Da Vinci procedure?
- - Lung transplantation?

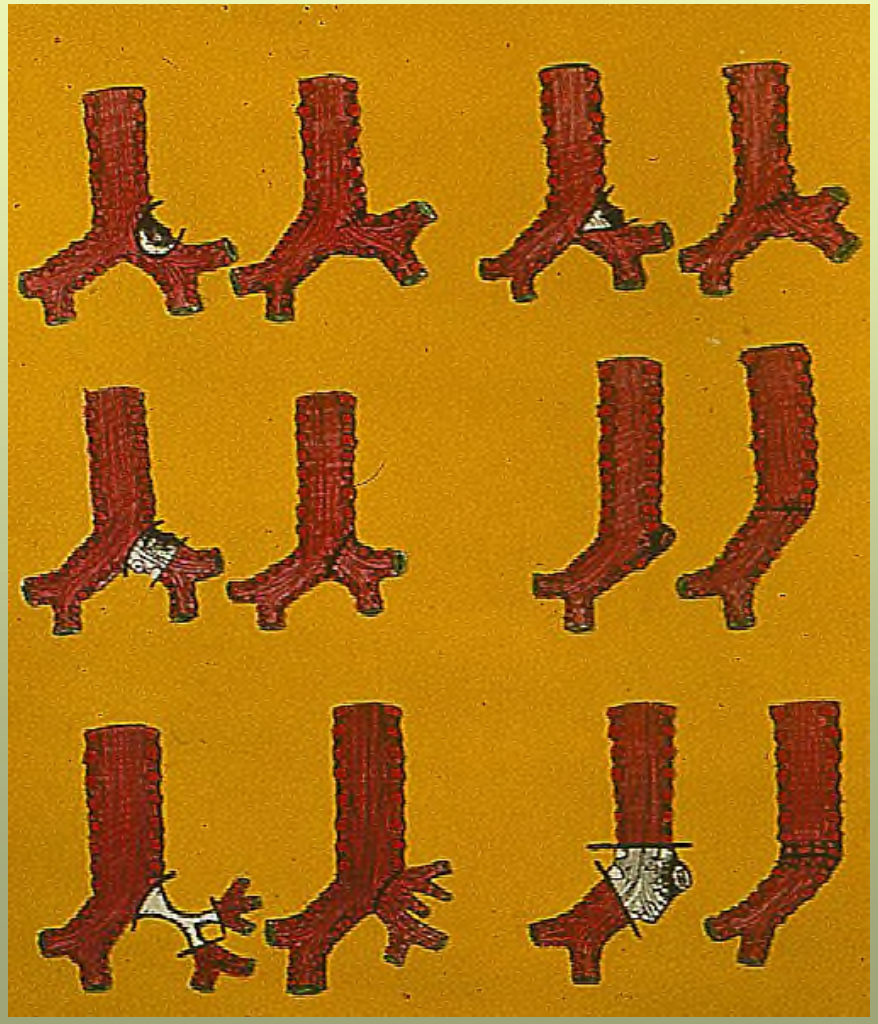
Combined operations with NSCLC

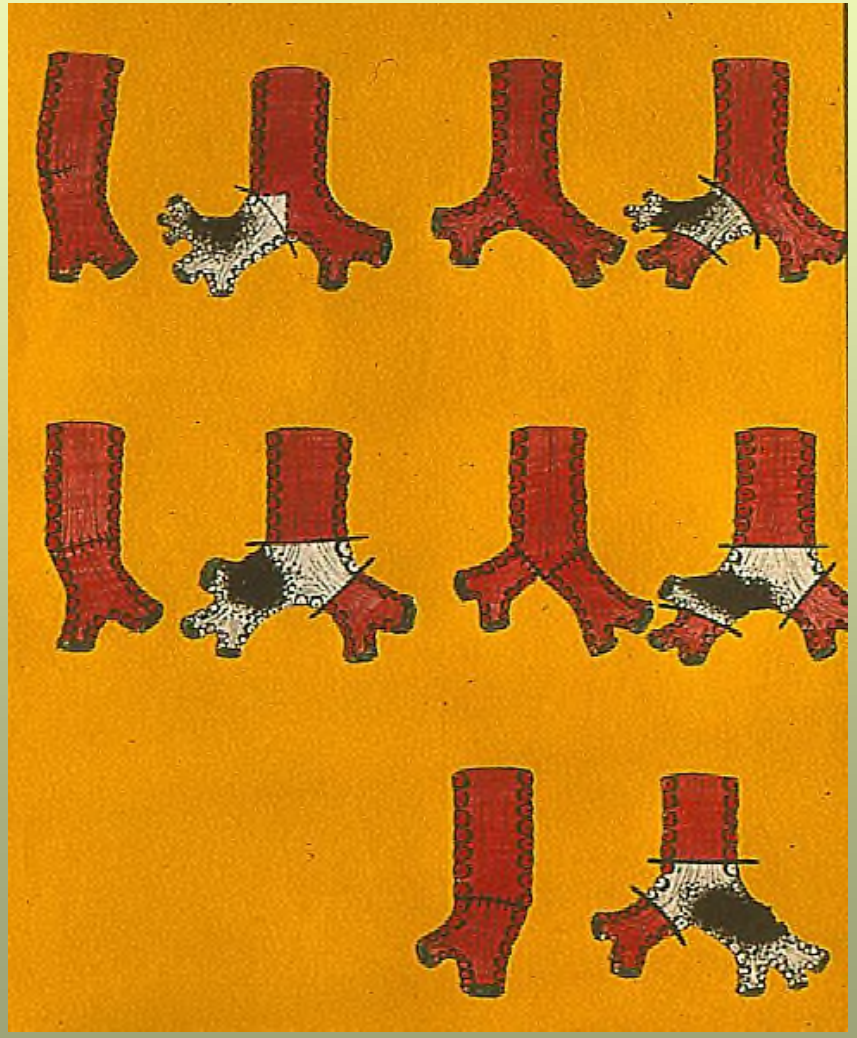




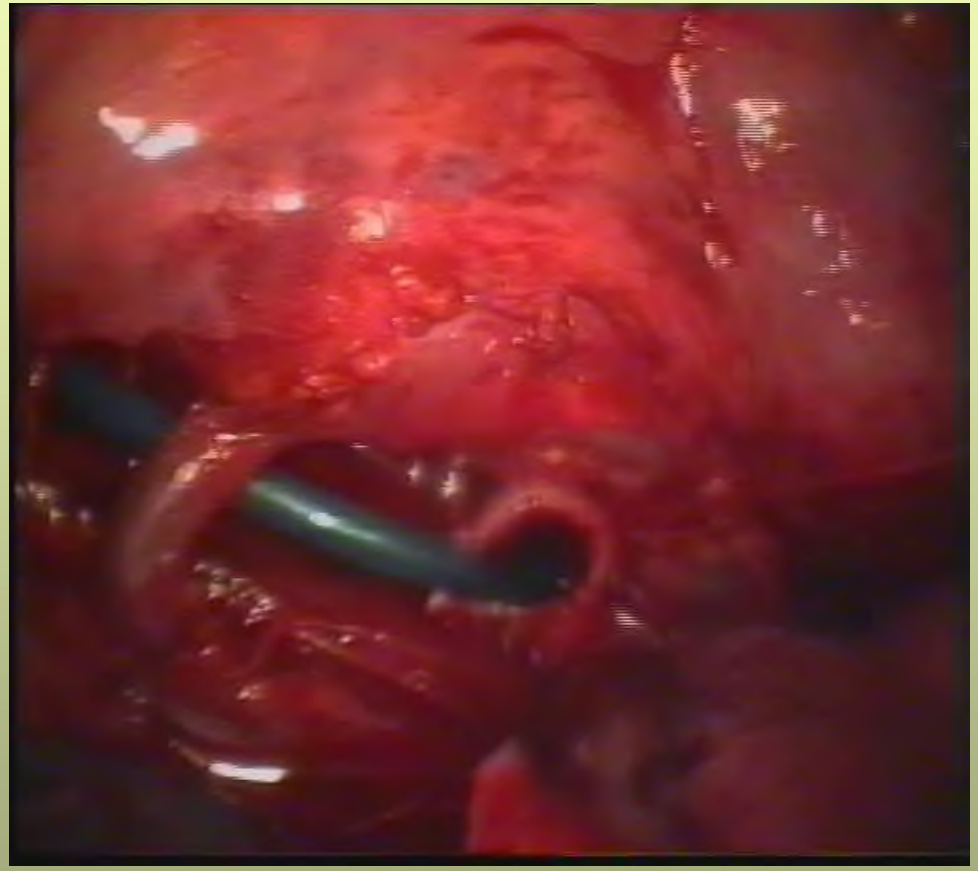
Upper lobectomy with resection of the chest wall block

Tracheobronchoplasty

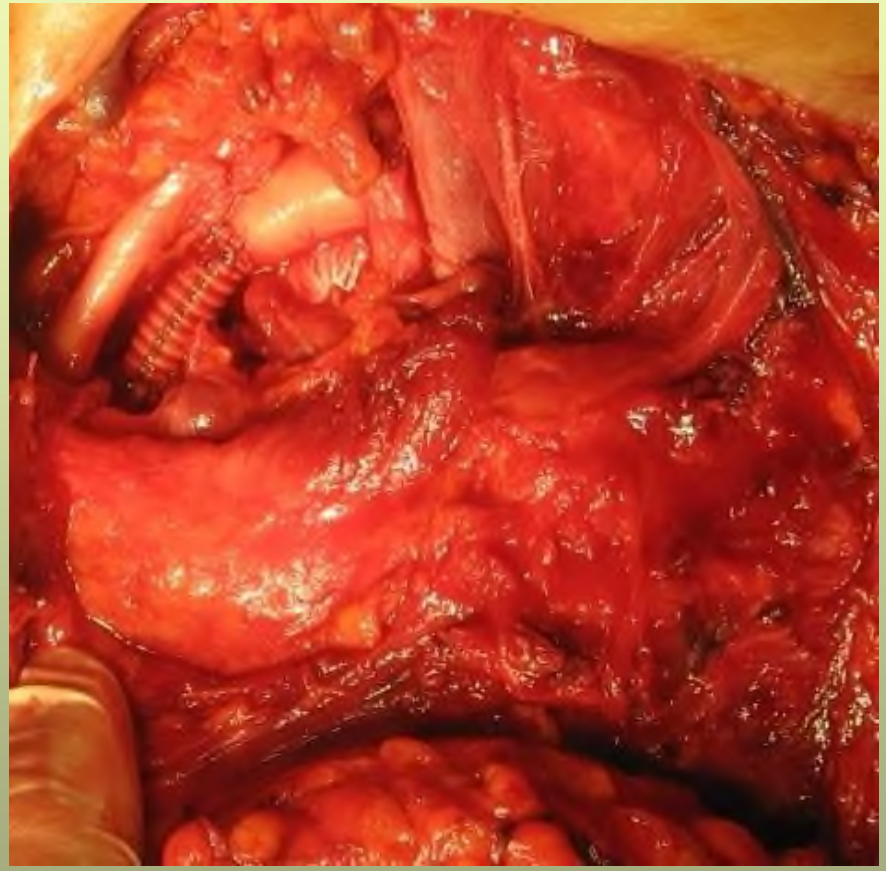




Combined operations with NSCLC

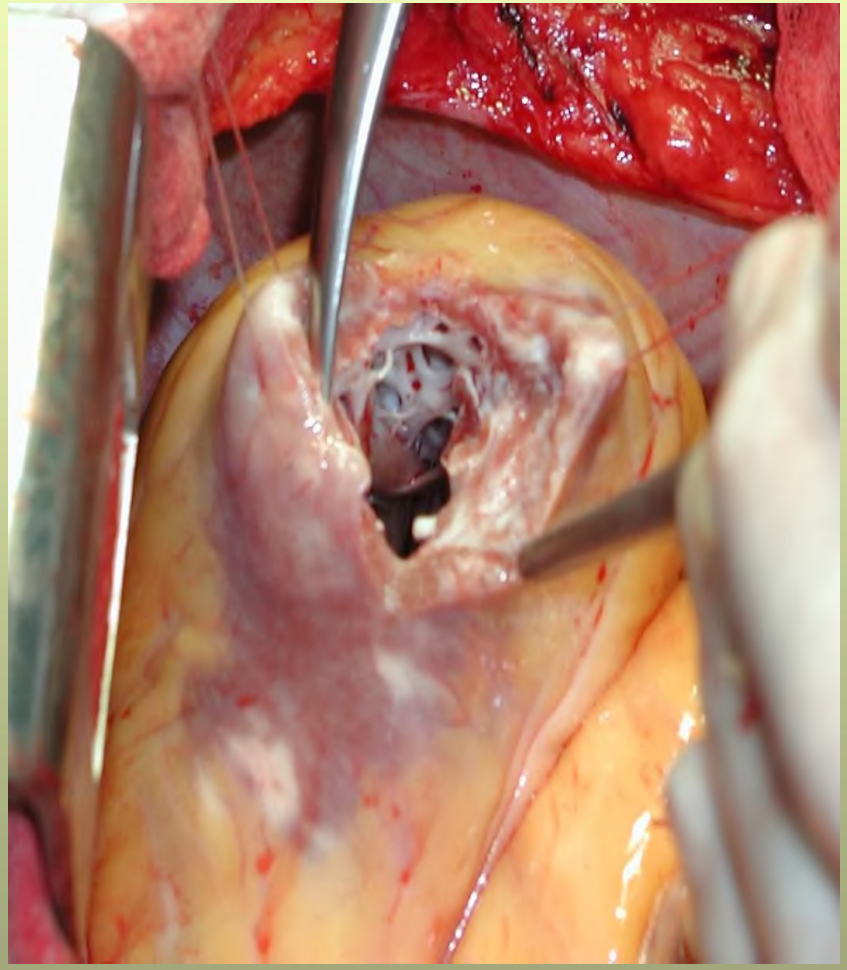


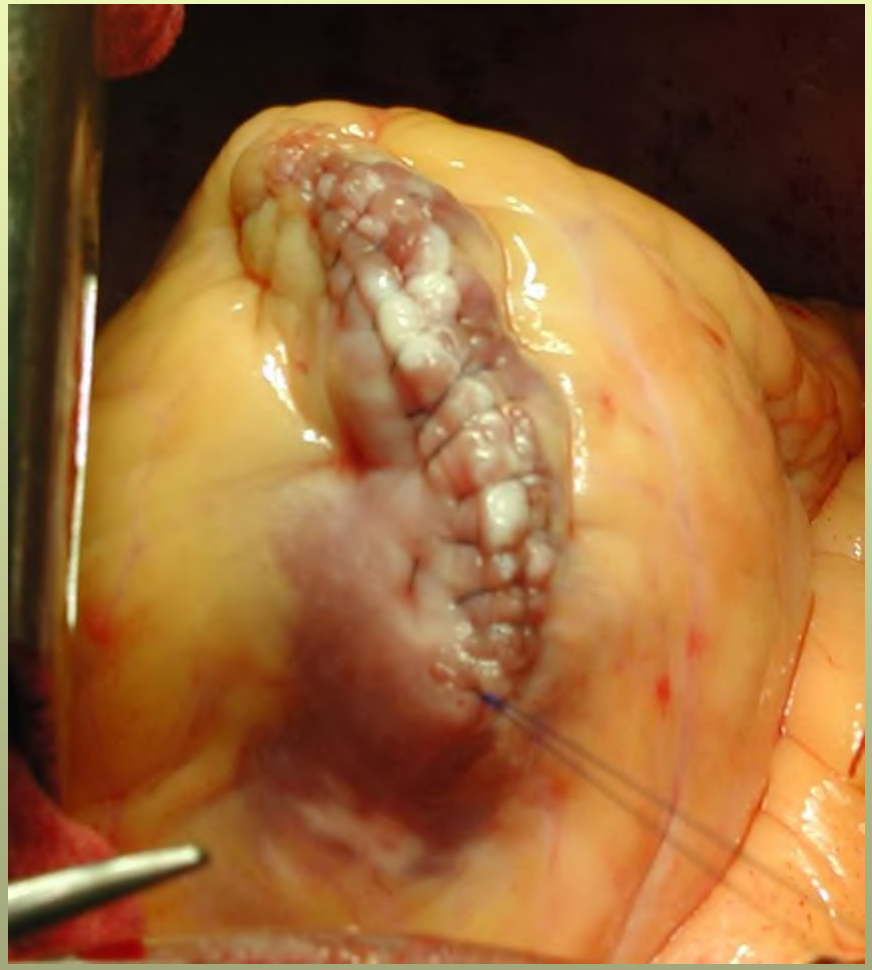
Resection of tracheal bifurcation



Subclavian artery plastic surgery

Auricle resection





SURGICAL METHOD

Mediastinal

lymphadenectomy?

I-II art. MBE - remove l-at N1 and N2 (at least 3 groups). The role of MLD is explored.

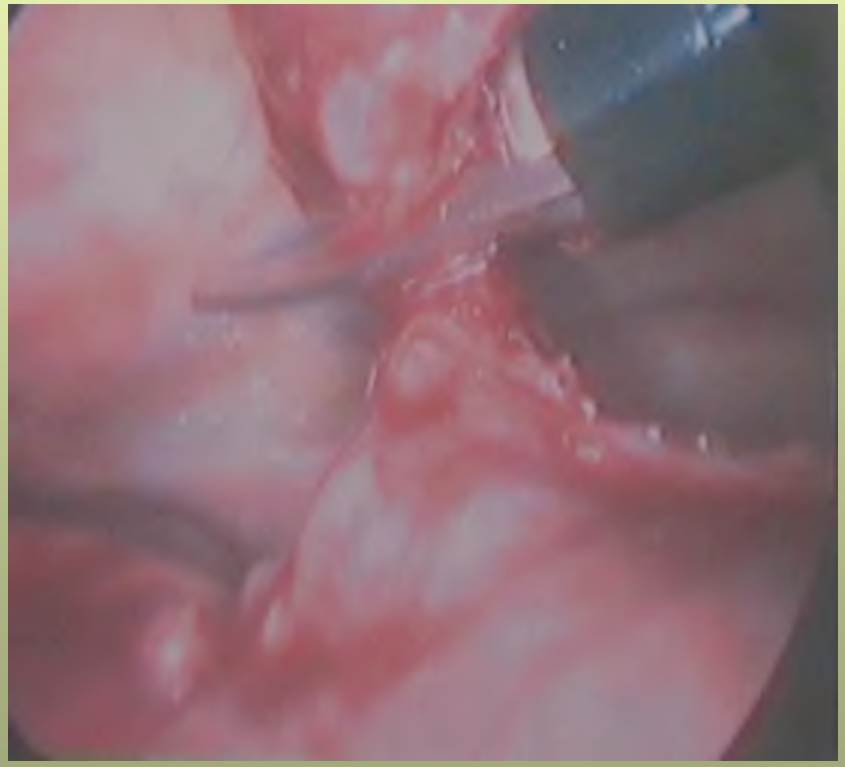
IIIA-B Art. - MLD.

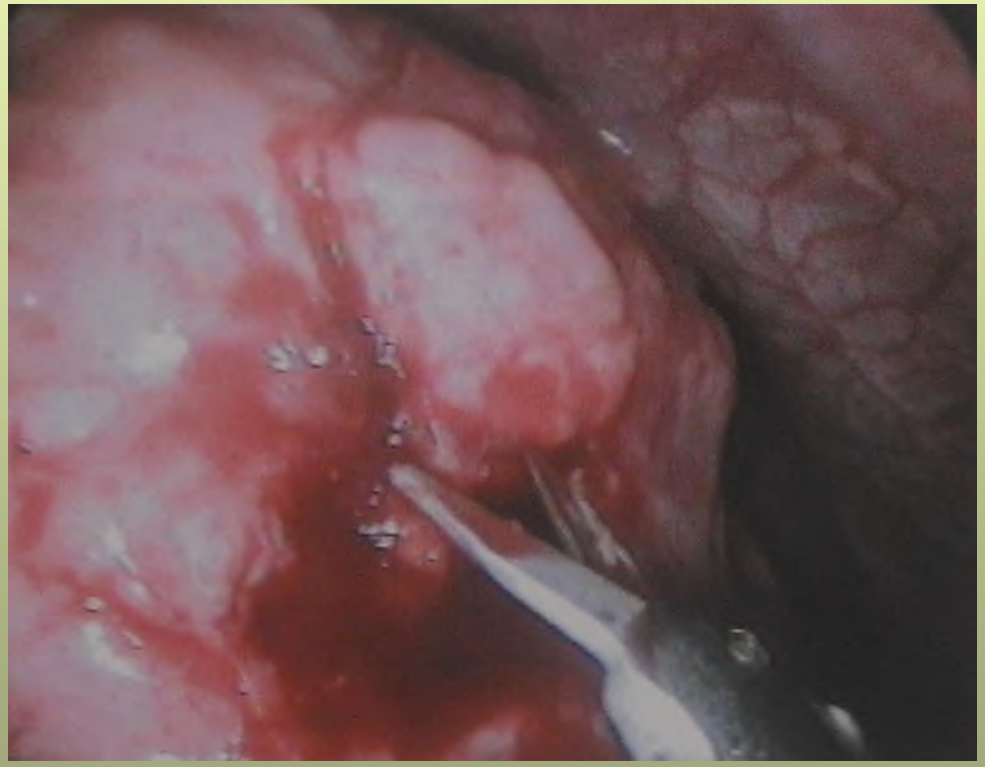
The systematic MLD in all cases

(RONTS, SRI OR Belarus)? *

Two-sided MLD via sternothomy? *

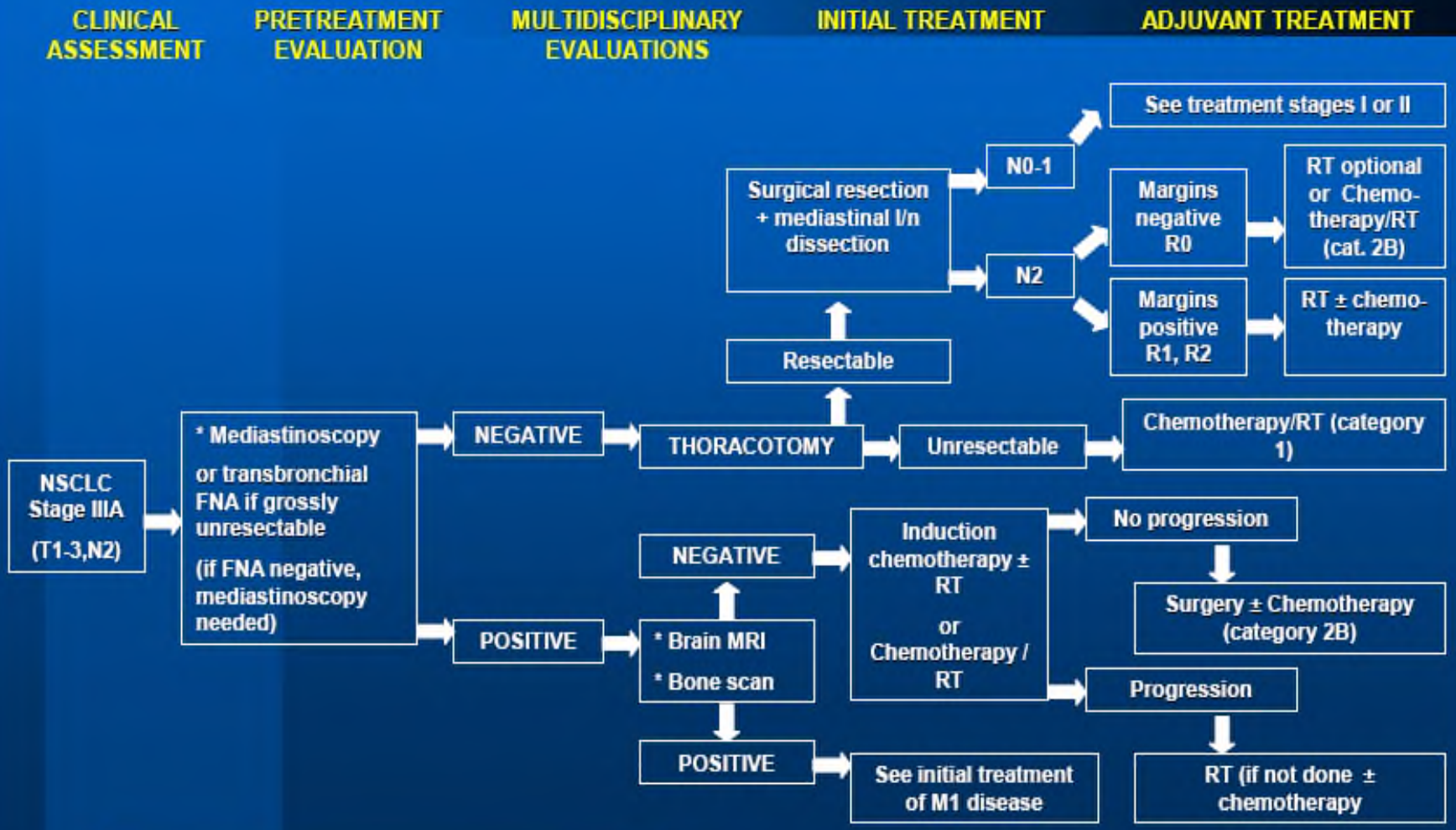
Videotoracoscopic operations





NON-SMALL CELL LUNG CANCER

Practice guidelines



Prognosis factors for NSCLC

- Clinical AF
- - "pre-healing" (T, N, M-status, PS, weight loss, sex, age, anemia, FDG-PET)
- - "associated with treatment" ("downstaging", FDG-PET)
- Standard biological AF (leukocytes, Ca ++, LDH, albumin, REA, TPA, Cyfra 21-1, CA 125)
- Pathological AF (T, N-status, histotype, differentiation, invasion in the MCR, PCNA, Ki-67)
- Molecular-biological AF (p53; p16; K-ras; Bax; Bcl-2; Her2 / neu; EGFR; VEGFR)

CHEMOTHERAPY

- **Increased life expectancy of patients**
- **Improving the quality of life (alleviating the symptoms of the disease, preventing and treating complications of therapy)**
- **Balancing the therapeutic effect (including survival)**

The effectiveness of monotherapy of cisplatin vs of its PCT combinations

	Schema	OR+CR	Median	year.%
Wozniak, 1998	Cis	**12**	**6.0**	**20**
	Cis+Vnb	**26**	**8.0**	**36**
Gatzemeier, 2000	Cis	**17**	**8.6**	**36**
	Cis+Pxl	**26**	**8.1**	**30**
Sandler, 2000	Cis	**11**	**7.6**	**28**
	Cis+Gem	**30**	**9.1**	**39**

The effectiveness of monotherapy of platinum drugs in NSCLC

A drug	OR+CR %	Медиана (нед.)	1-летняя выж-ть (%)
Paclitaxel	**26**	**37**	**41**
Docetaxel	**26**	**41**	**52**
Vinorelbbin	**20**	**33**	**24**
Gemcitabine	**21**	**41**	**39**
Topotecan	**13**	**38**	**35**

CHIMOTHERAPY OF Is LINES

- Indications - locally advanced (MRF) (in combination or complex treatment) and disseminated NSCLC, as well as progression of the disease at PS 0-2 b.
- In MRF NSCLC, the combination of HT and LT is more effective only with LT, and the simultaneous holding of CHL / CT is more effective than sequential.
- In disseminated tumors, the combination with the inclusion of cisplatin increases the median of life by 6-12 weeks. and doubles the annual survival (by 10-15%) compared to BSC.
- The combination of cisplatin with new cytostatics is more effective than monotherapy with cisplatin.
- Cisplatin and carboplatin can be combined with any of the following drugs: paclitaxel, docetaxel, gemcitabine, vinorelbine, irinotecan, etoposide, Winblastin.
- Combinations of two new cytostatics (without platinum preparations) can be used, which showed sufficient efficiency and good tolerance in the I-II phases of clinical trials.
- MonoHT is acceptable at PS 2 points and in elderly patients.
- If the assessment of the general condition is 3-4 points, chemotherapy is not shown.

CHIOMOTHERAPY OF THE 2ed LINES

- With progression on the background or after chemotherapy, the 1st line is administered with monotherapy with docetaxel, pemetrexed or tyrosine kinase inhibitor erlotinib;
- Docetaxel is more effective than symptomatic treatment, vinorelbine and ifosfamide, it improves survival and quality of life;
- The efficacy of pemetrexed and docetaxel is the same, but pemetrexed is less toxic;
- Erlotinib is more effective than BSC. It statistically significantly increases survival and increases the time to aggravation of clinical manifestations

CHEMOTHERAPY 3rd LINE

- Erlotinib is statistically significantly more effective than symptomatic treatment.

How long does chemical therapy take?

Recommended:

- no more than 4 courses of PCT for patients who have not received tumor regression and achieve only stabilization of the process.
- no more than 6 courses for patients who have regressed to a greater or lesser extent.

Radiation therapy of lung cnacer

- Radical GAMA therapy -55 Gr for inoperable patients with local stages
- Induction therapy
- Adjuvant GAMA therapy
- Palliative GAMA therapy
- High-dose RT (3D-CRT) - 70-100 Gr
- Fractional RT-CHART (12 days, 1.5 Gr x 3 per day, SOD 54 Gr)

RADIATION THERAPY

- **Radical radiation therapy is indicated for patients with NSCLC of stages I-II in the presence of concomitant diseases, which are contraindications to surgical treatment, satisfactory general condition and sufficient life expectancy.**
- **High-dose three-dimensional conformal RT (3D-CRT) with an increase in SOD to 70 and even 100 Gy is an alternative to surgical treatment in some specific cases.**

RADIATION THERAPY

- There are data on the efficacy of induction radiation therapy in Pancosta tumors, the feasibility of induction HT / LT in the NSCLC MRF.
- Adjuvant radiation therapy reduces the number of local relapses, especially at III st. ALT is indicated in the case of incomplete resection, the presence of lymph nodes in the mediastinum, as well as when the metastasis leaves the site.
- If there are metastases in the lymph nodes, and there are no tumor cells along the edge of the resection, three courses of HT, and then LT are shown. If tumor cells are identified along the edge of the resection, postoperative treatment is started with RT, and then CT is performed.

RADIATION THERAPY

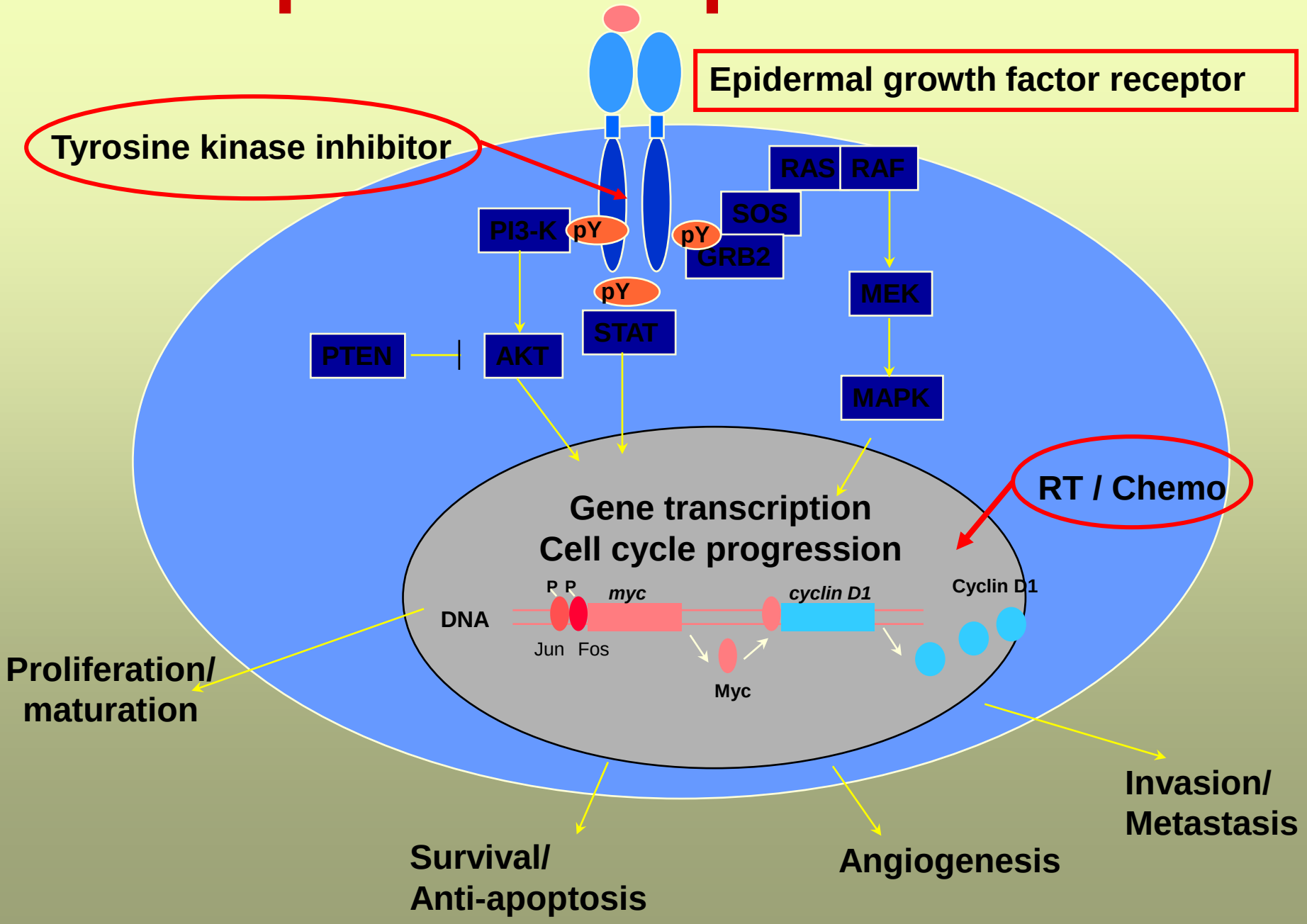
- **Fractionation of RT.**
- Radiation schemes take into account two principles:

1) Differences in the repair of tumor cells and normal tissues;

Problems of tumor repopulation

2) The best course is the CHART course (continuous hyperfractionated, accelerated radiation therapy), according to which irradiation is carried out for 12 days, 1.5 Gy three times a day, with minimum intervals between fractions of 6 hours, SOD at 54 Gy.

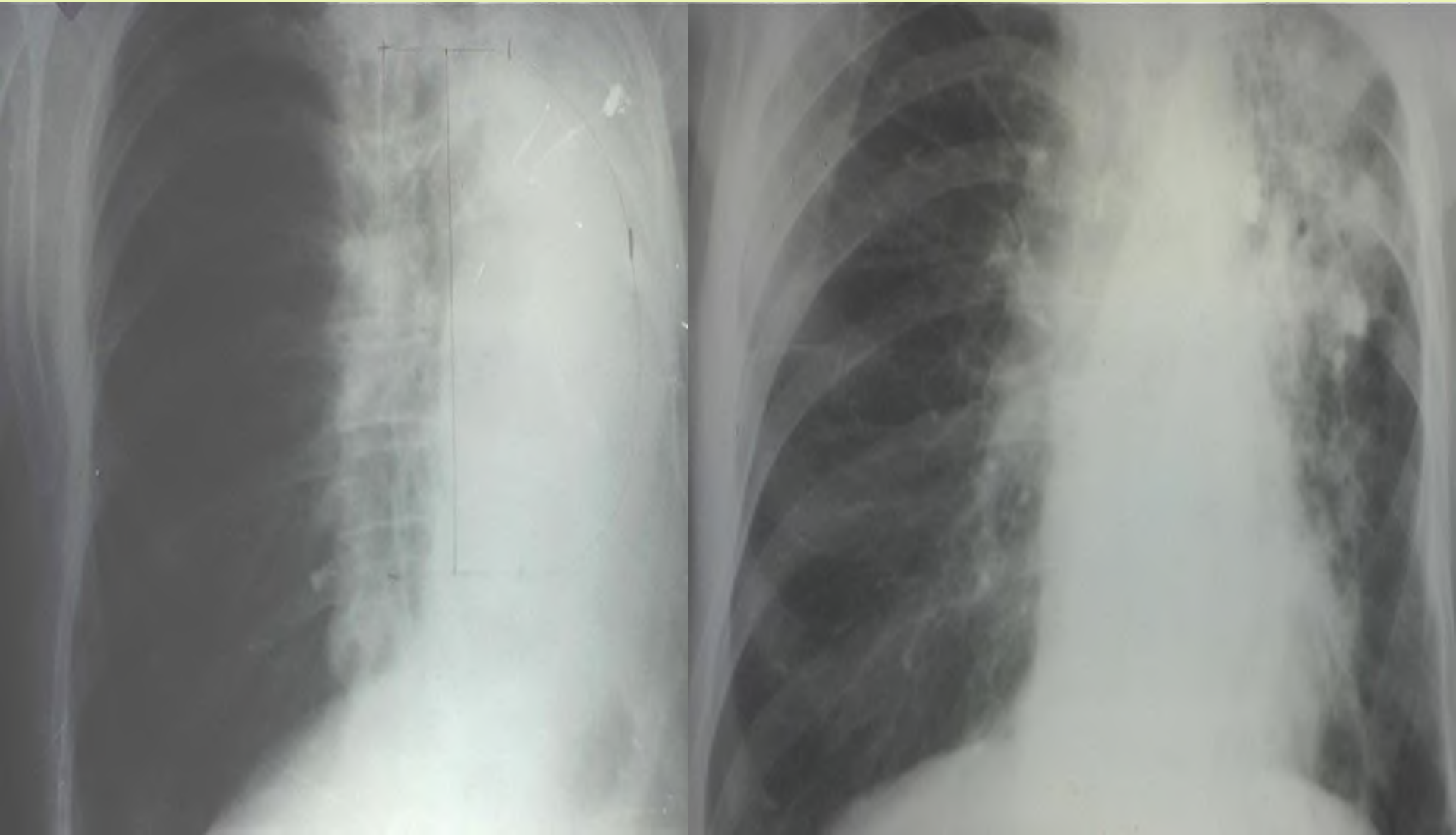
Таргетная терапия НМРЛ



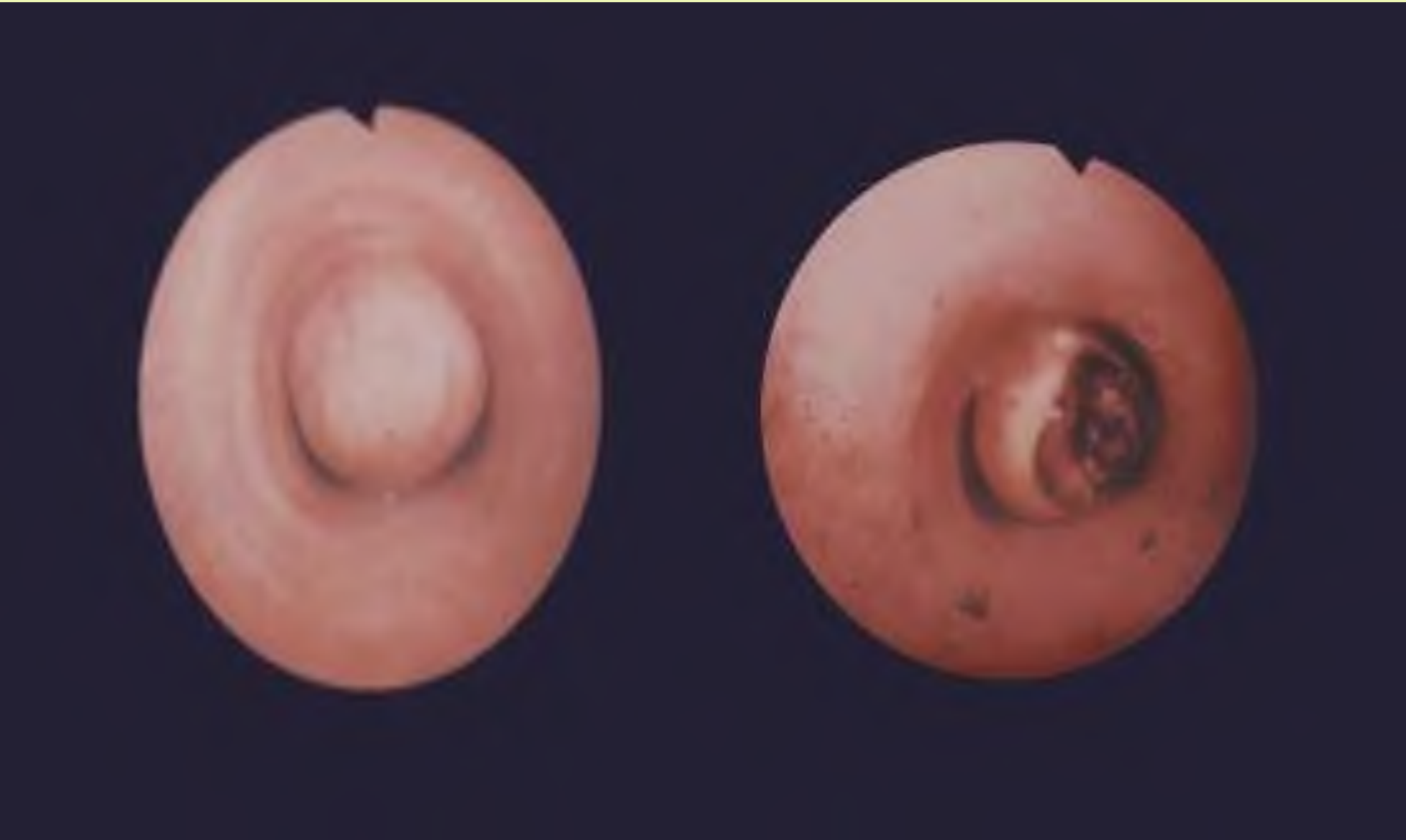
Target therapy

- Monoclonal antibodies to Her-2 / neu and EGFR receptors: Hepceptin, Pertuzumab, Tarceva, Cetuximab
- Low molecular weight inhibitors of tyrosine kinase receptors (Iressa, Erbitux, Lapatinib, CI-1033, ZD 6474)
- Inhibitors of vascular endothelial growth factor (VEGFR) Avastin
- Anti-sense SV-22 oligonucleotides that inhibit the translation of specific cyclin D1 proteins and inhibit HER2 / neu-K-Ras signaling pathways

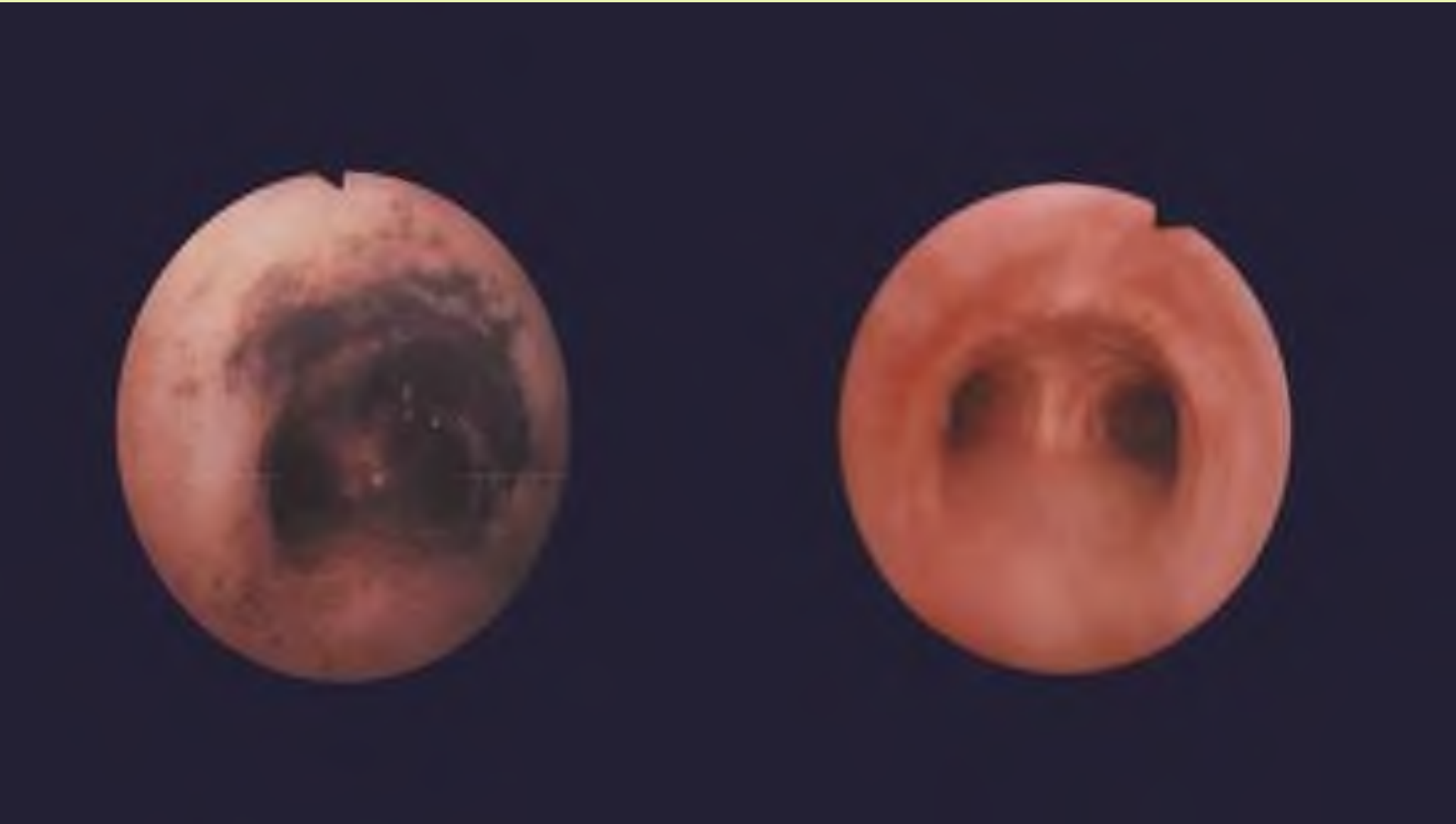
Palliative treatment



Laser Recanalization of the Trachea



Laser recanalization of the trachea (after 1 month)



SMALL CELL LUNG CANCER

- The distribution of patients by stages is usually carried out in accordance with the two-stage classification developed by the Veteran's Administration Lung Cancer Study Group, which provides for the limited and widespread nature of the tumor process.

SMALL CELL LUNG CANCER

The localized tumor process (LD) *: this*

The definition is based on the possibility of including all

significant manifestations of the disease in the area of the alleged

irradiation.

Patients with a limited degree of spread

Disease manifestations of the tumor process do not go away

beyond one hemithorax with regional damage

l / node, including l / nodes of the lung root and supraclavicular

l / nodes on the affected side, l / nodes of the mediastinum and l / nodes

root on the opposite side.

SMALL CELL LUNG CANCER

Common Tumor Process (ED): is any manifestations of the disease, beyond above, including metastases to the lung on the side of the lesion and malignant pleural effusion.

Features of the MCRLC

- Rapid growth (the time of doubling the volume of the tumor is 30 days).
- Early and violent metastasis.
- High sensitivity to cytostatics.

Examination

In addition to the full history of the disease and physical examination, staging procedure should include the following studies:

- X-ray examination of organs chest,
- a detailed general blood test, liver and kidney function, LDH, serum sodium,
- computed tomography of thoracic organs cells and abdominal cavity, brain.

Examination with MCLI

An additional examination is performed in patients with limited type of injury in the presence of symptoms, presupposing dissemination of the process (metastasis):

- Skinning of the bones of the skeleton,
- computed tomography of the brain
- Bone marrow biopsy.

If the data of one of the above additional methods of testing are positive and confirm The widespread nature of the process, the subsequent additional diagnostic procedures is considered impractical

Treatment

. MKRL is usually diagnosed at the stage of a common disease

... It is highly sensitive to HT and radiation

... But, within 2 years there is a huge amount of relapses

... The average life expectancy is 14-20 months (OZ), and 8-13 months (RZ)

Treatment

Standard modes of CT the

etoposide - platinum-containing combinations or cyclophosphamide

- doxorubicin - containing combinations.

The total number of courses of therapy should reach 4-6 cycles.

Supportive chemotherapy does not lead to significant improvement of survival rates of patients.

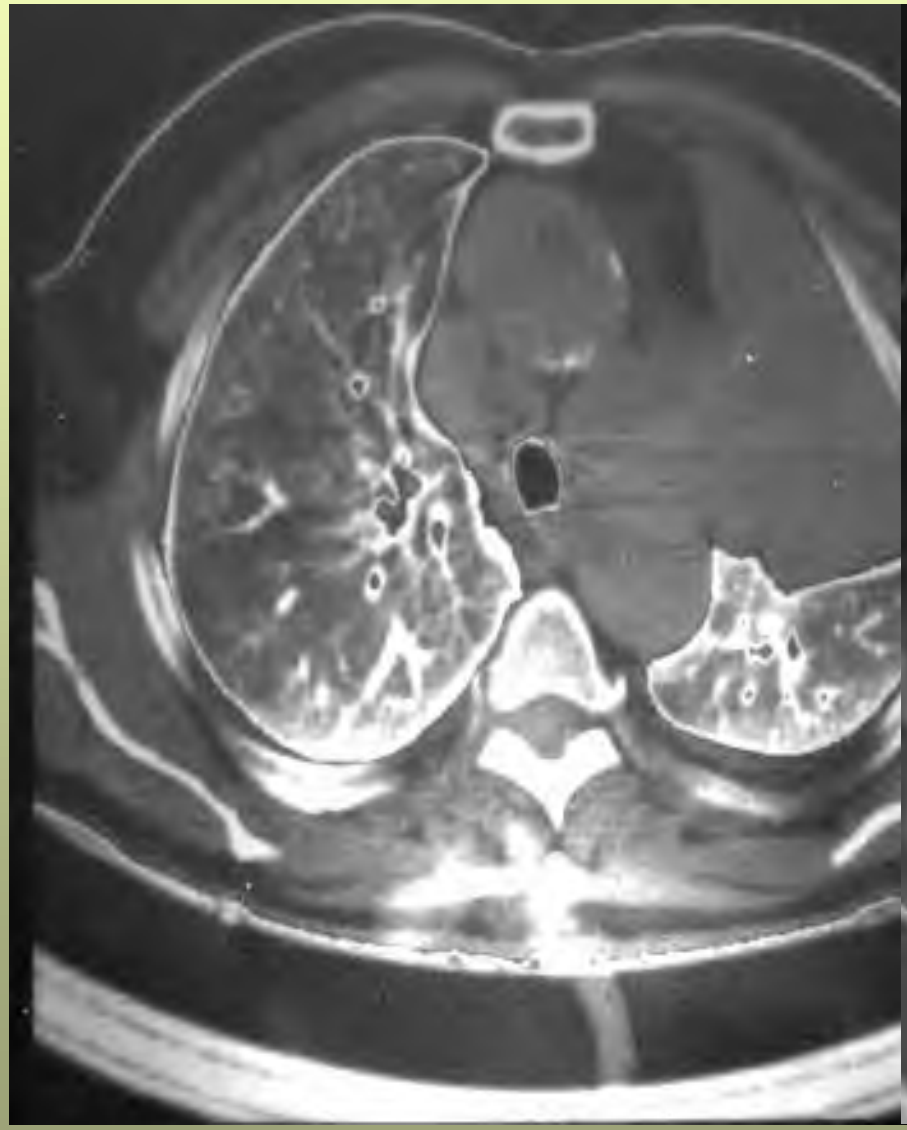
The combination of etoposide / cisplatin is considered classic chemotherapy regimen with limited character tumor process, because this regime can combined with simultaneous radial therapy without the development of severe toxic complications.

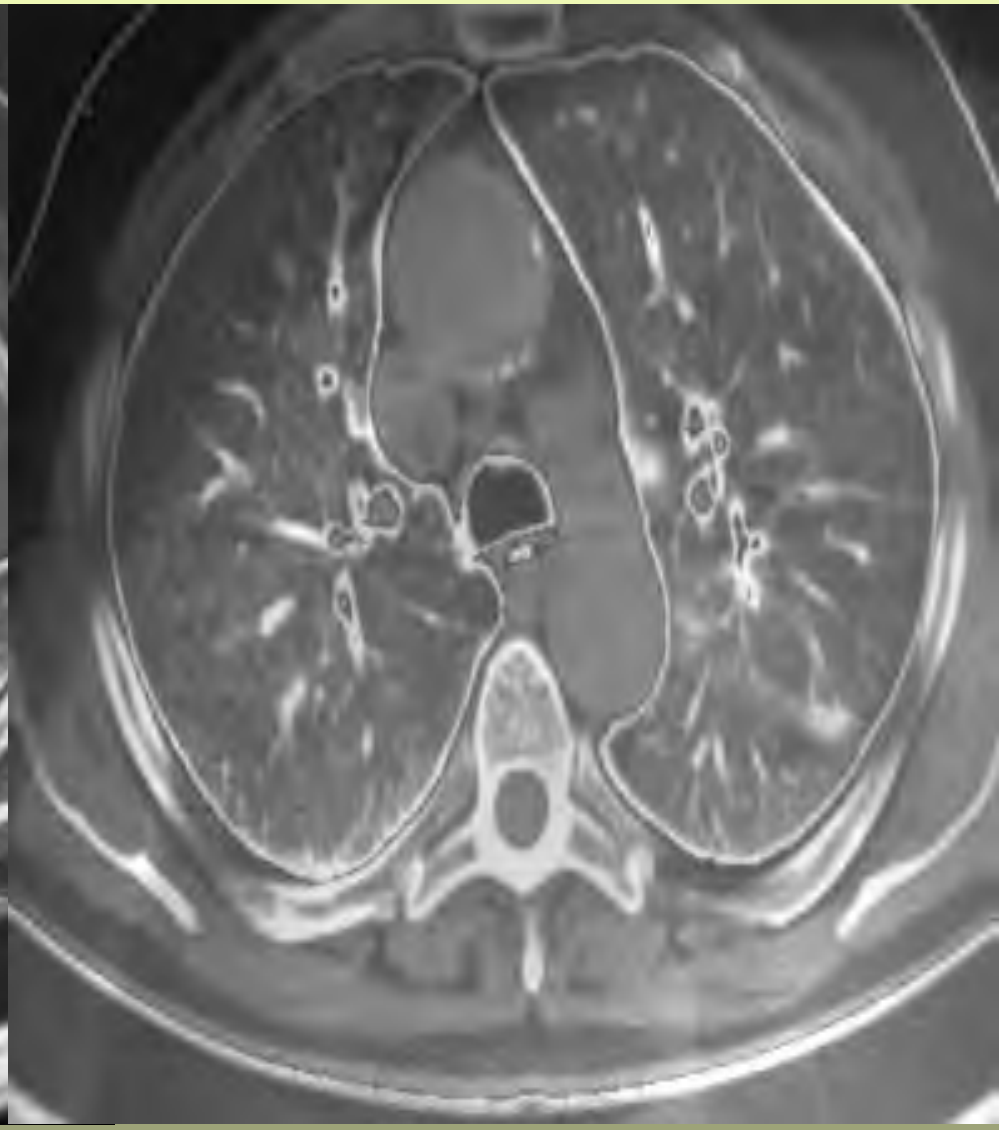
Tratment

Radiation therapy chest organs improves local
control of the manifestations of the disease and should be carried out by all
patients with a limited tumor process.

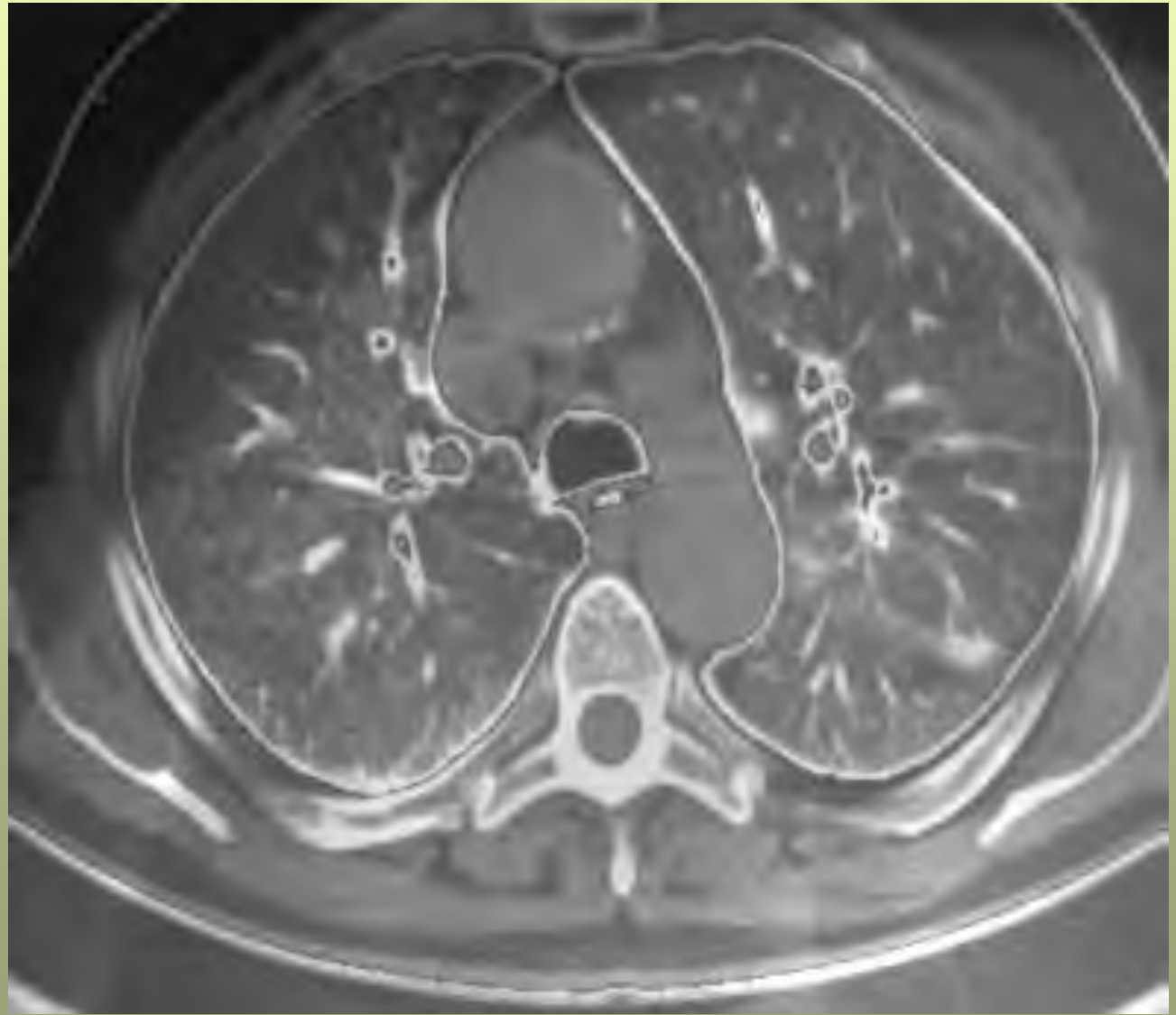
Preventive brain radiation is shown
patients with complete remission at baseline
limited tumor process, because this approach
reduces the risk of developing cerebral metastases and improves survival of patients.
Very-Limited (VLD-SCLC) – is considered in clinical
complex treatment: induction
HT / LT + extended surgery with MLD + adjuvant XT / RT +
irradiation of GM *

Combined treatment





Combined treatment (after chemical therapy)



Tratment

Chemotherapy Using the same modes as
with a limited nature of the lesion (EP, EC, CAV),
with a total number of cycles of 4-6, also improves
survival of patients and is considered the most
effective way to reduce clinical
symptoms of the disease.

Patients with relapse after an effective
first line therapy should be considered in
as candidates for chemotherapy
second line (taxanes, pemetrexed, inhibitors Toro-1-
isomerase)

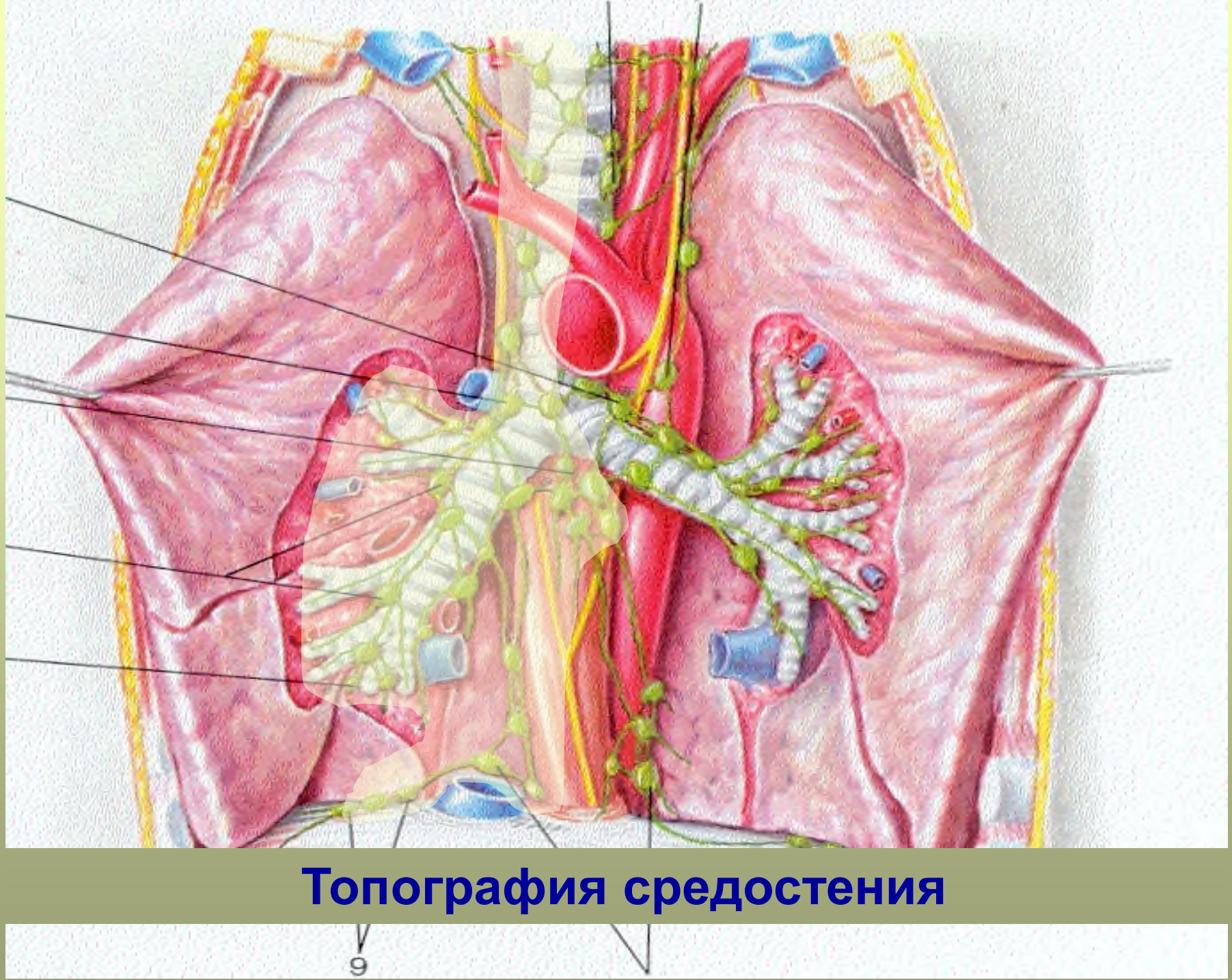
TUMOR OF BREATH ORGANS.

Part 2. TUMORS OF THE MEDIUM

Department of Oncology and Medical Radiology

TUMORS OF THE MEDIUM

Tumors of the mediastinum occupy a special place, since they originate from dissimilar tissues and organs and are united only by common boundaries. These include not only true tumors, but also various cysts and tumor-like formations in the localization, origin and flow.



Топография средостения

TUMORS OF THE MEDIUM

- 3-7% of the total number of tumors
- Age - 20-40 years, husband / wife - 1: 1
- More than 20% - primarily malignant
- More than 50% - malignancy of benign tumors
- Specificity of localization of individual tumors

Classification

1. Primary tumors of the mediastinum
2. Tumors of the mediastinal organs (esophagus, trachea, pericardium, thoracic lymphatic duct)
3. Tumors from the tissues that limit the mediastinum (sternum, pleura, diaphragm)
4. Secondary malignant neoplasms of the mediastinum (metastasis)
5. Pseudotumoral diseases (TB, sarcoidosis, parasitic cysts, aneurysms and malformations of large vessels).

Primary tumors of the mediastinum

1. Tumor gland tumors (thymomas);
2. Neurogenic tumors (ganglioneuroma, paraganglioma, schwannoma, neurofibroma, neurogenic sarcoma, etc.);
3. Lymphomas;
4. Tumors from tissues displaced in the mediastinum:
5. - germinogenic tumors (teratomas, terato-blastomas, seminomas, chorionepitheliomas);
6. 5. Tumors of connective, muscular, vascular tissues (fibromas, fibrosarcomas, lipomas, liposarcomas, angiosarcomas, mesenchymomas, etc.)

Primary mediastinal tumors
Histogenetic classification

I. Tumors arising from tissues, usually located in the environment:

1. Tumors of unpleasant tissue:

a) from ungainful cells - ganglionevoma, sympatognomy.

b) from the shells of nepva - nevinnoma, nephrofibre, unvarnished sarcomas.

2. Tumors of production mesenchymes.

a) from fibrous connective tissue - fibroma, fibrosarcoma.

b) from fat - lipomas, gibernomas, liposarcomas.

c) tumors of blood vessels - hemangioma, lymphangioma, hemangiopericitoma.

d) from the muscular - leiomyoma, leiomyosarcoma.

e) from lymph-reticular tissue - lymphomas, pancreaticomas.

II. Tumors developed from tissues,
Dislocated in fertility in the face of embryogenesis:

1. Tumors from the buds of the thyroid and parathyroid glands.

a) an adenoma,

b) the so-called.

2. Tumors from multipotent cells.

a) a wicked and ungainly teratoma,

b) chorionic epithelioma,

c) Seminoma.

Clinic

1. Syndrome of compression: a syndrome of compression of a trachea, the main lungs, lungs (cough, dyspnea, bloody coughing); syndrome of compression of the upper vena cava (headaches, dyspnea, cyanosis of the lips, puffiness of the face and neck, dilatation of the subcutaneous veins)
2. The syndrome of inflammation of the nerves (pain), which meets with good-quality and malignant tumors of the anterior and posterior mediastinum; irritation of the sympathetic nerve (enophthalmos, ptosis, miosis - Gorner's triad, is due to atrophy of the supraorbital cellulose). Neurological syndrome (headache, intercostal neuralgia, paresis)
3. Hypo - or hyperfunction of the gland from which the tumor develops (myasthenic syndrome, hyperthyroidism), myasthenic syndrome (total or partial muscle weakness)
4. The syndrome of disturbance of the general condition (weakness, increase in the temperature of the body);

Diagnostics

Obligatory methods of examination of a patient with suspicion of swelling of the mediastinum:

1. Fluorography.
2. Multiprojective fluoroscopy, x-ray diffraction in two stages
3. Function of external respiration.
4. Electrocardiography.
5. Clinical analyzes.

Diagnostics

Additional diagnostic methods:

1. Endoscopic methods:
   a) Broncho logical study
   b). Esophagoscopy
2. Computed tomography of organs of the gross cell and mediastinum.
3. Pneumomediastinography
4. Ultrasound examination of the gross cell.
5. Angiography.
6. Transthoracic, transtrapheoobonchial puncture.
7. Percful biopsy of lymph nodes.
8. Parastenal mediastinotomy.
9. Mediastinoscopy
10. Videotorakoskopiya.
11. Morphological study of the material obtained.

Thymomas

Distinguish between tumors originating from the brain and cortical layers of the thymus:

epithelioid thymoma (epidermoid, spindle cell

lymphoepithelial, granulomatous) - lymphoid thymoma.

By the degree of differentiation of cells, thymomas can be benign and malignant.

Classification by Tim? (Masaoka A, 1981)

Stage I - macroscopically - completely encapsulated tumor; microscopically - no capsule invasion;

Stage II - macroscopically - invasion of surrounding fatty tissue or mediastinal pleura; microscopically - capsule invasion;

Stage III - macroscopically - invasion of surrounding organs (pericardium, lung, large vessels);

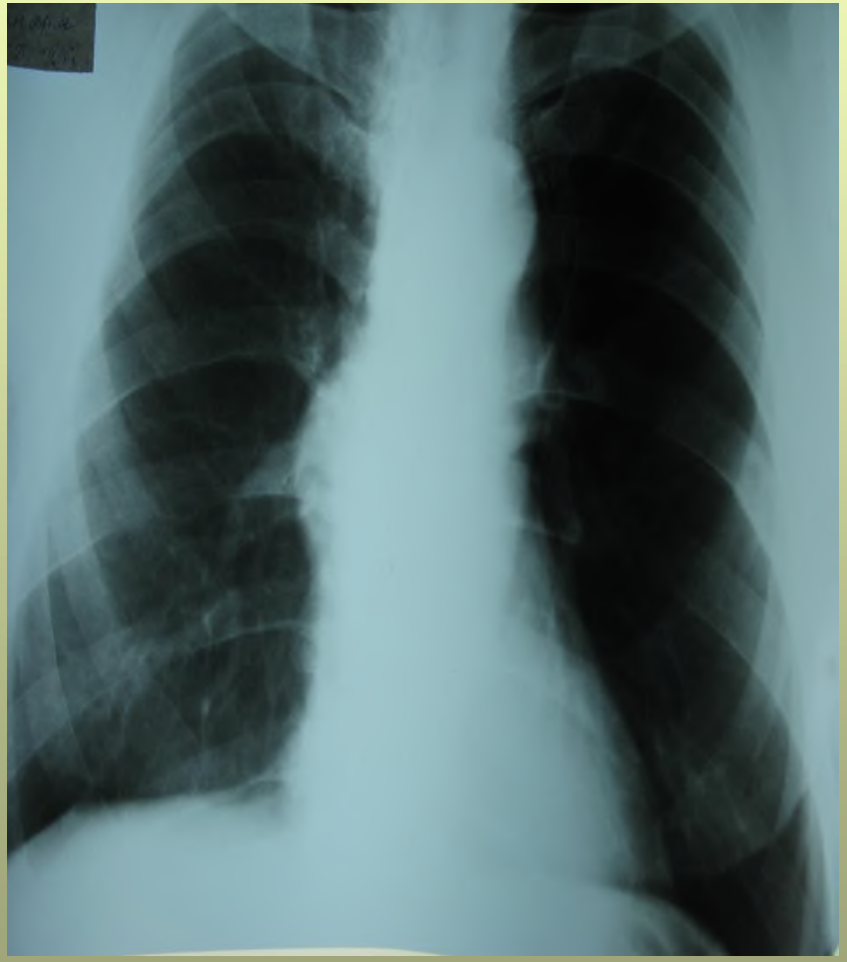
Stage IVa - dissemination of the pleura or pericardium;

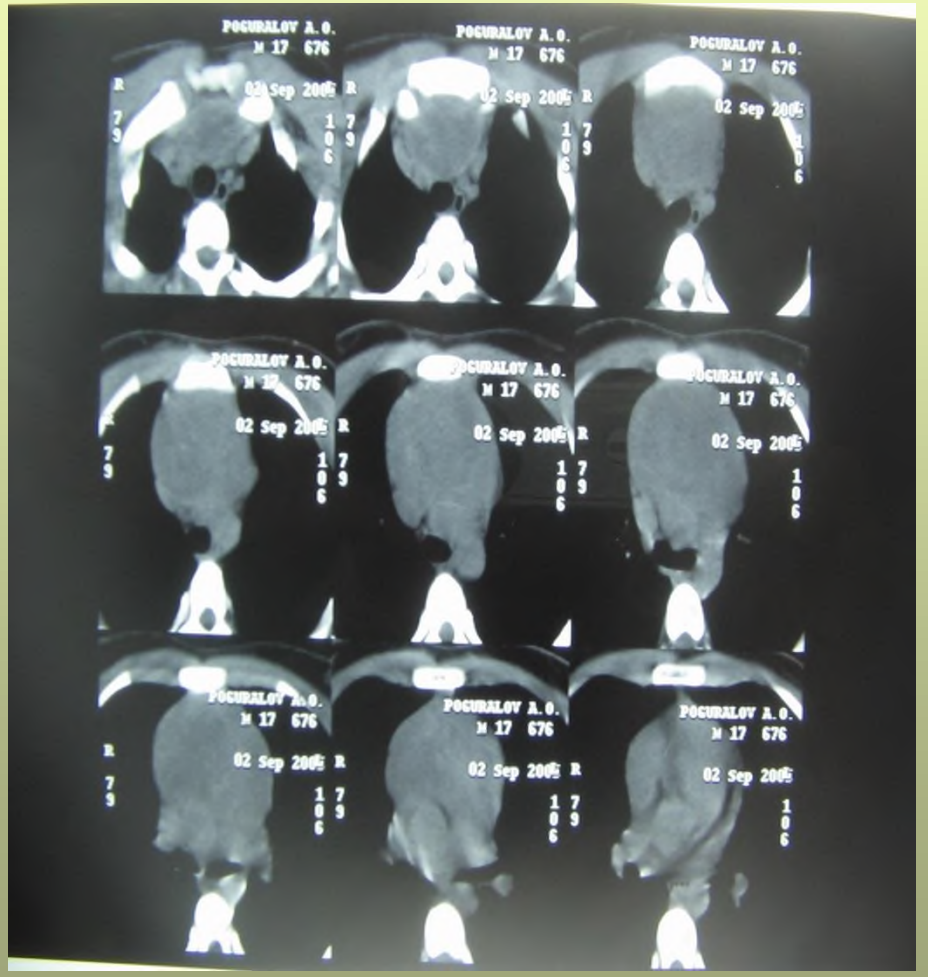
Stage IVb - lymphogenous or hematogenous metastases.

Thymomas

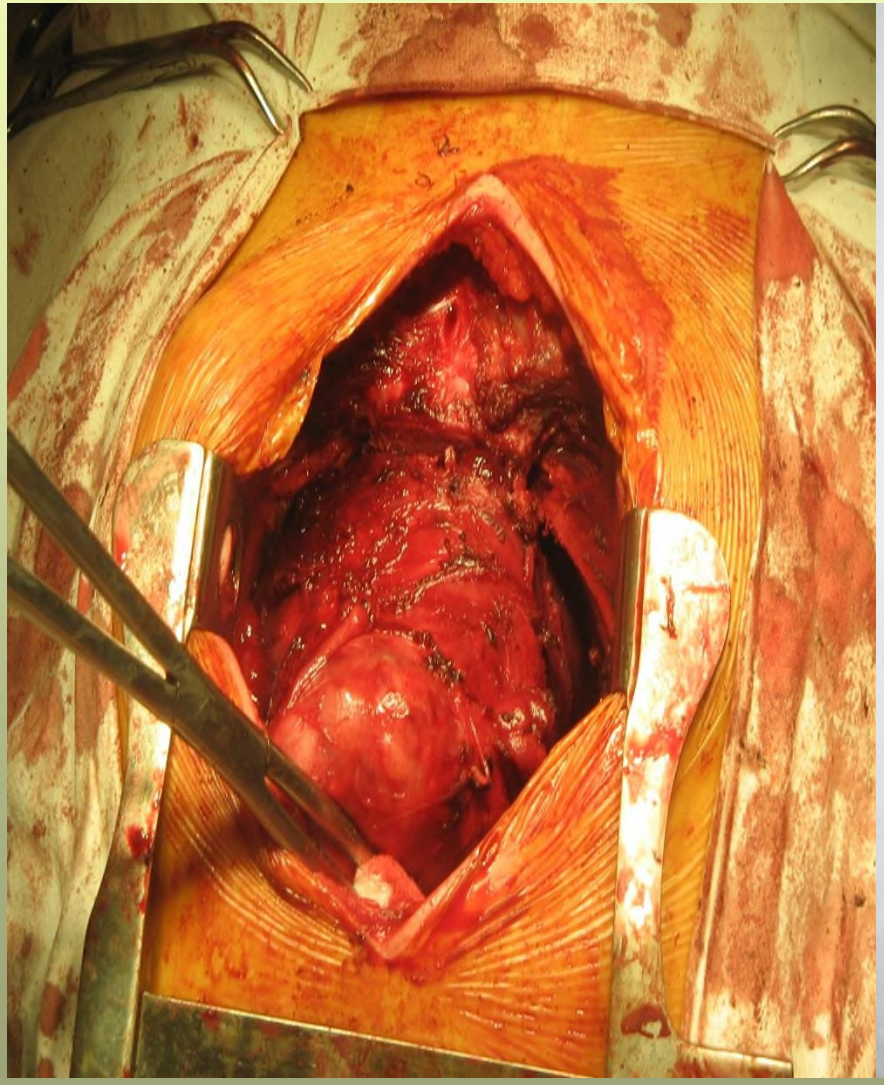
- Treatment - surgical (sternotomy)
- Radiation therapy
- Chemotherapy
- Complex and combined treatment
- Myasthenia gravis

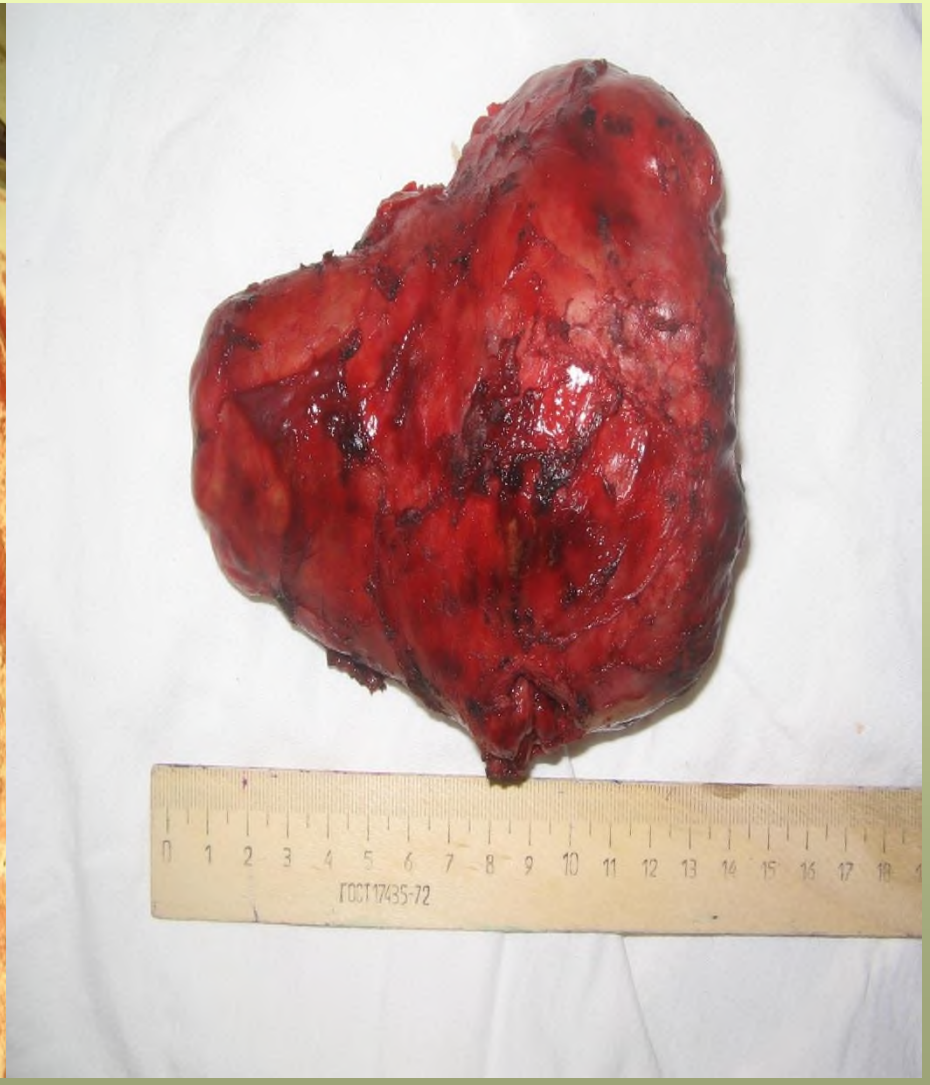
Thymomas



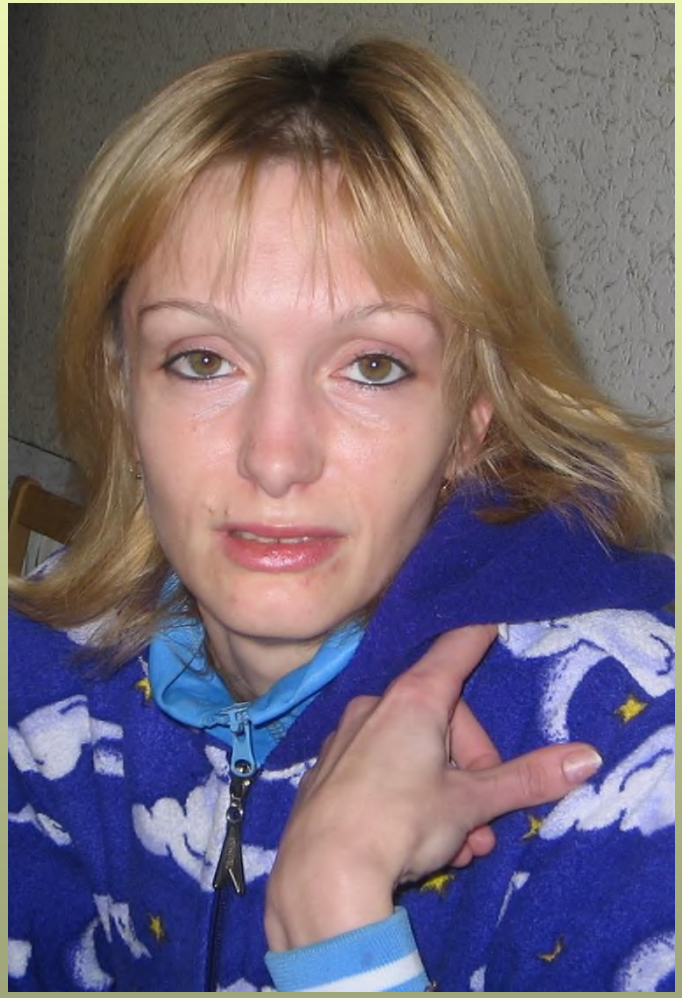


Thymomas





Myasthenia



Malignant tumors of lymphatic reticular tissue

- Lymphogranulomatosis (Hodgkin's disease)
- Lymphosarcoma
- Reticulosarcoma.
- The difference of these three tumor forms is mainly in the degree of differentiation of cells. Therefore, some authors combine them under the general name of "lymphoma".

Lymphogranulomatosis (Hodgkin's disease)

- The disease occurs more often at the age of 20-45 years.
- In 15-30% of cases in the first stage of the disease development, a primary local lesion of the mediastinal lymph nodes can be observed.
- Clinic (temperature, skin itch, weakness, leukocytosis, eosinophilia, acceleration of ESR)
- The main sign that one has to face in a surgical clinic is radiologic symptoms.

Lymphogranulomatosis (Hodgkin's disease)

With mediastinal mediastinal lymphogranulomatosis, surgery is advisable with limited lesions, and with widespread it is necessary to remove as much of the tumor as possible, followed by chemoradiotherapy.

Remission is achieved in almost 95% of patients.

Other mediastinal tumors

- Neurinoma
- Teratomas and teratoblastomas
- Zagrudnii goiter
- Seminoma and chorionepithelioma
- Vascular tumors
- Pericardial cysts (congenital): coelomic, diverticula

Forecast

- Five-year survival was reliably studied only with thymomas, the specific gravity of which reaches 60% of the total number of malignant tumors of the mediastinum.
- 96% of patients survive at the first stage of the disease, 86% in stage 2, 49% in the third stage, and 23% in the fourth stage.

TUMOR OF BREATH ORGANS.

Part 3. TUMOR TERMS

Department of Oncology and Medical Radiology

Mesothelioma of the pleura

(synonyms: pleural carcinosarcoma, sarcomatous endothelioma, pleural cancer) is an aggressive tumor that occurs when mesothelial cells are transformed and is characterized by the defeat of all layers of both the parietal and visceral pleura.

Mesothelioma of the pleura

- The incidence is 1.5 - 2 per 100 thousand.
- At the age of over 50 years
- Men are sick 5 times more often
- Risk factors: asbestos, beryllium, chronic inflammation, pleural spikes, viruses (monkey virus SV-40), genetic predisposition

Mesothelioma of the pleura

- Localized (benign)
- Diffuse (malignant) pleural mesothelioma (coeliac cancer, sarcomata's endothelium) is a tumor characterized by diffuse infiltrating growth

Classification of pleural mesothelioma? (TNM, 6th edition, 2002) T-primary tumor

Tx - insufficient data to estimate the primary tumor;

T0 - primary tumor is not detected;

T1 - the tumor extends to the parietal pleura from the side of the lesion with or without focal lesion of the visceral pleura;

T1a - without focal lesions of the visceral pleura;

T1b - with focal lesion of the visceral pleura;

T2 - the tumor extends to any parietal pleura on the side of the lesion and one of the following symptoms occurs:

- a drainage tumor of the visceral pleura;
- germination in the diaphragmatic muscle;
- germination in the parenchyma of the lung.

T3 - germination in endotoracic fascia;

- sprouting into adipose tissue of the mediastinum;
- individual foci of the tumor that spread to soft tissue
- defeat of the pericardium.

T4 - diffuse or multi-focal tumor lesion:

- Any edge; - spreading through the diaphragm to the peritoneum;
- defeat of any organ of the mediastinum; - sprouting into the vertebra;
- invasion of the myocardium

Classification of pleural mesothelioma? (TNM, 6th edition, 2002) Nodulus

Nx - insufficient data to assess the condition of regional lymph nodes;

N0 - there are no signs of regional lymph node involvement;

N1 - metastases to the lymph node (nodes) from the side of the lesion: bronchopulmonary and / or lung roots;

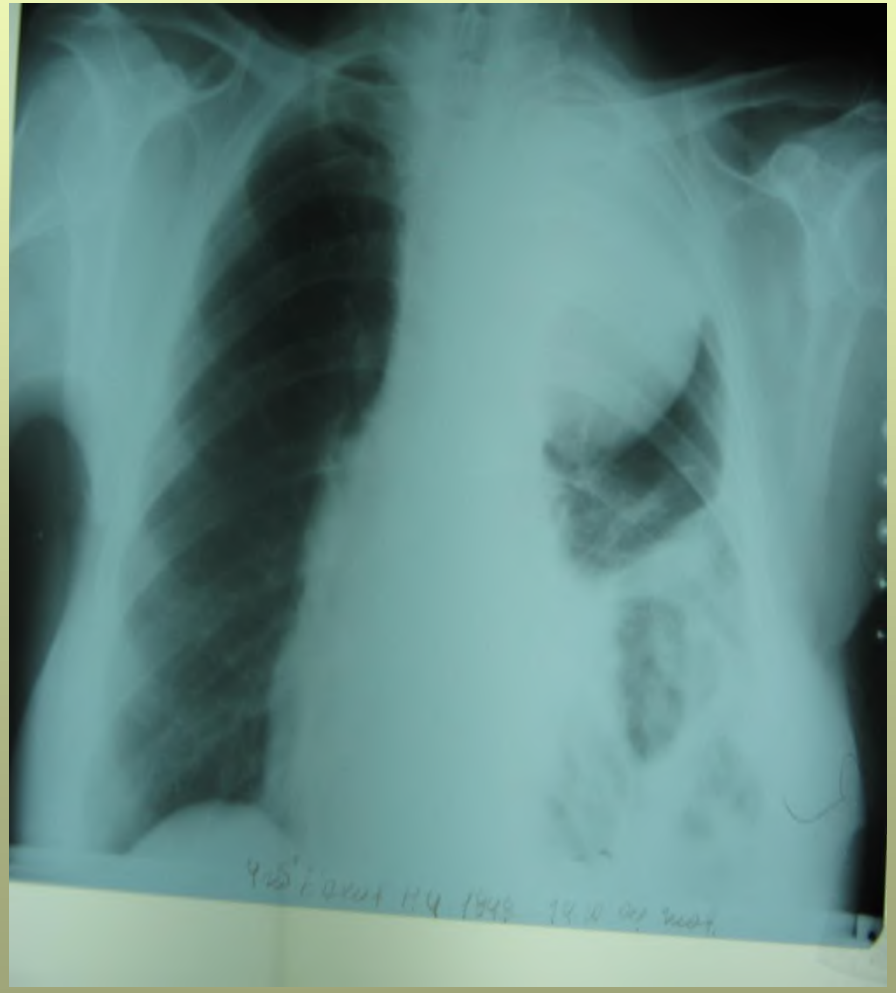
N2 - metastases to the lymph node (nodes): under the carina and / or internal thoracic or mediastinal on the side of the lesion;

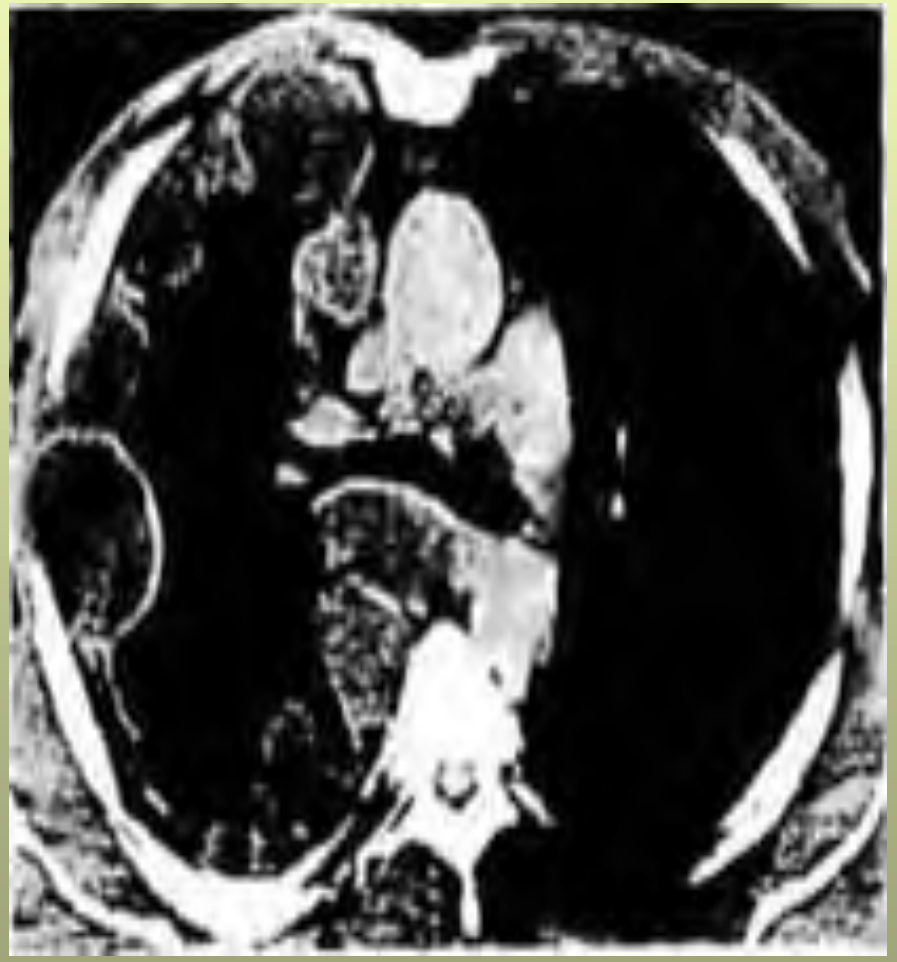
N3 - metastases in the contralateral lymph nodes of the mediastinum, internal thoracic, lung roots, and / or stair or supraclavicular (on the side of lesion or contralateral);

Grouping by stages

Satge I	T1	N0	M0
Satge IA	T1a	N0	M0
Satge IB	T1b	N0	M0
Satge II	T2	N0	M0
Satge III	T1-2 T3	N1-2 N0-2	M0
Satge IV	Любое T	N3	M0
	T4	Любое N	M0
	Любое T	Любое N	M1

Mesothelioma of the pleura





Clinic

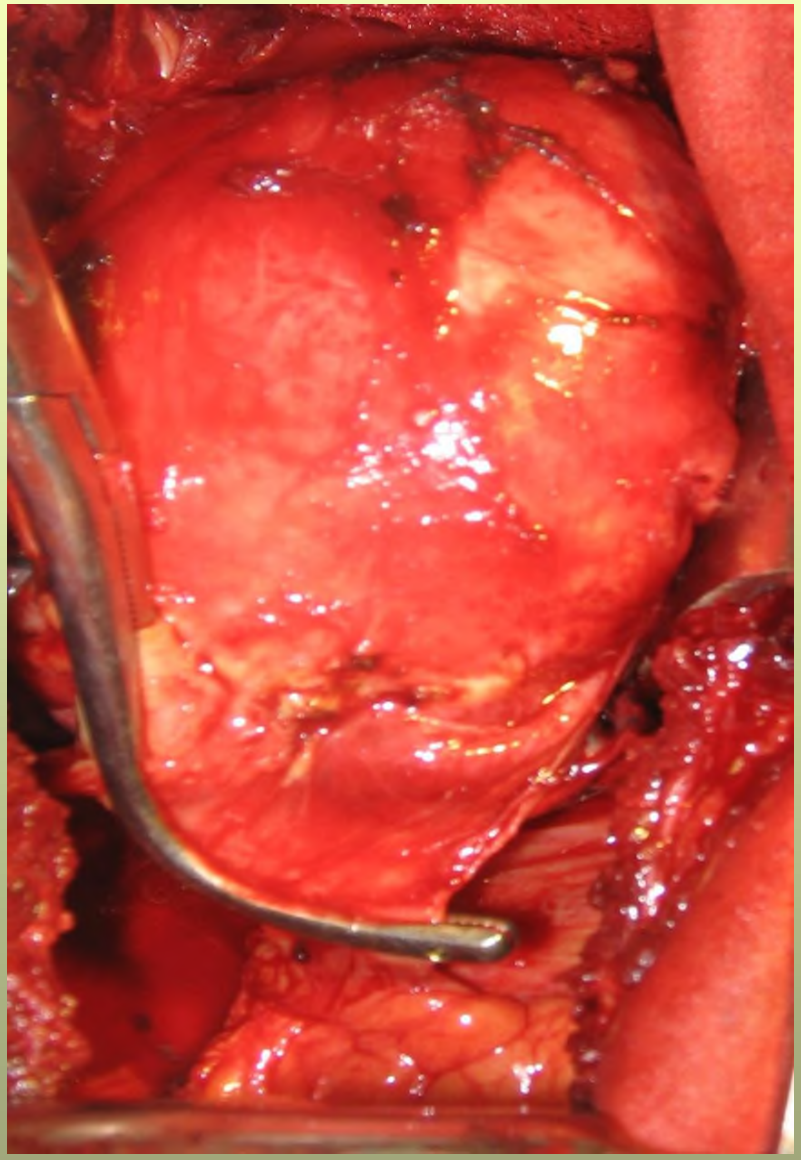
- shortness of breath associated with exudative pleurisy;
- chest pain;
- cough;

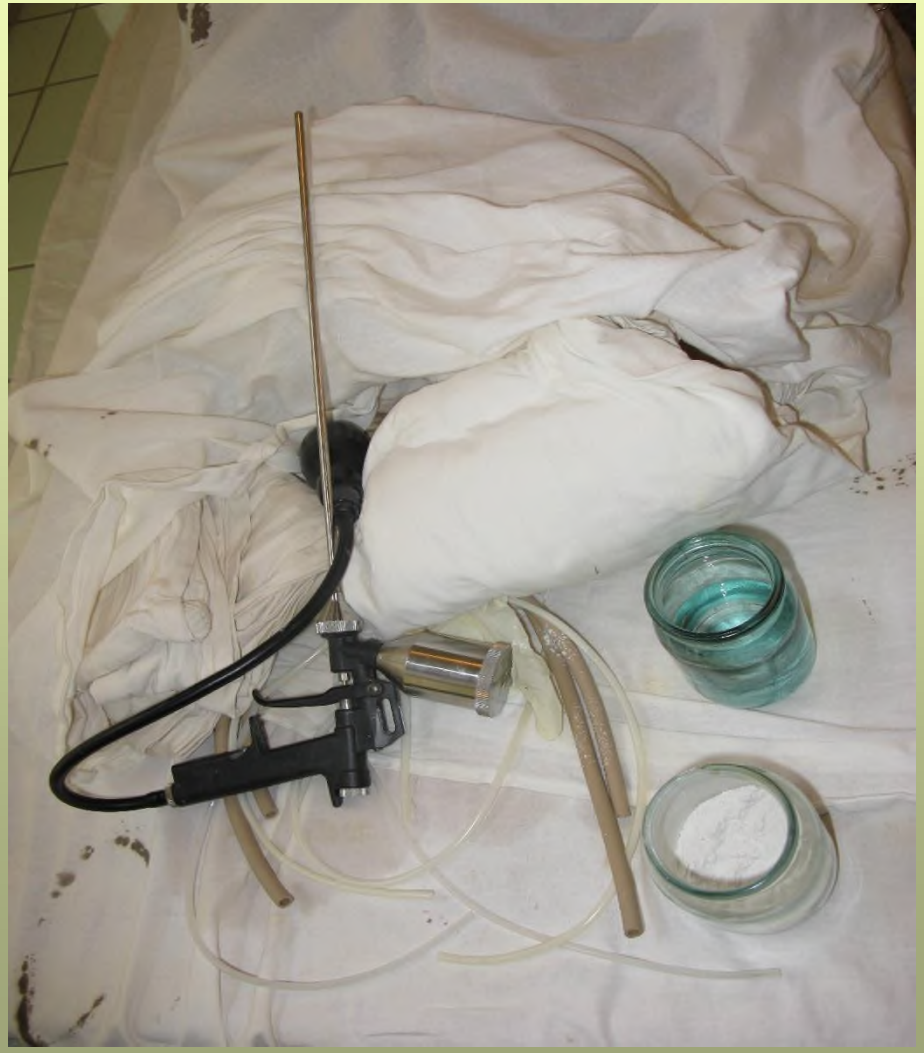
in the development of the tumor, there are general symptoms - general weakness, malaise, loss of appetite and weight.

When the tumor is localized in the area of the dome of the pleura, pain in the shoulder region (Bernard-Horner syndrome) is possible.

Treatment

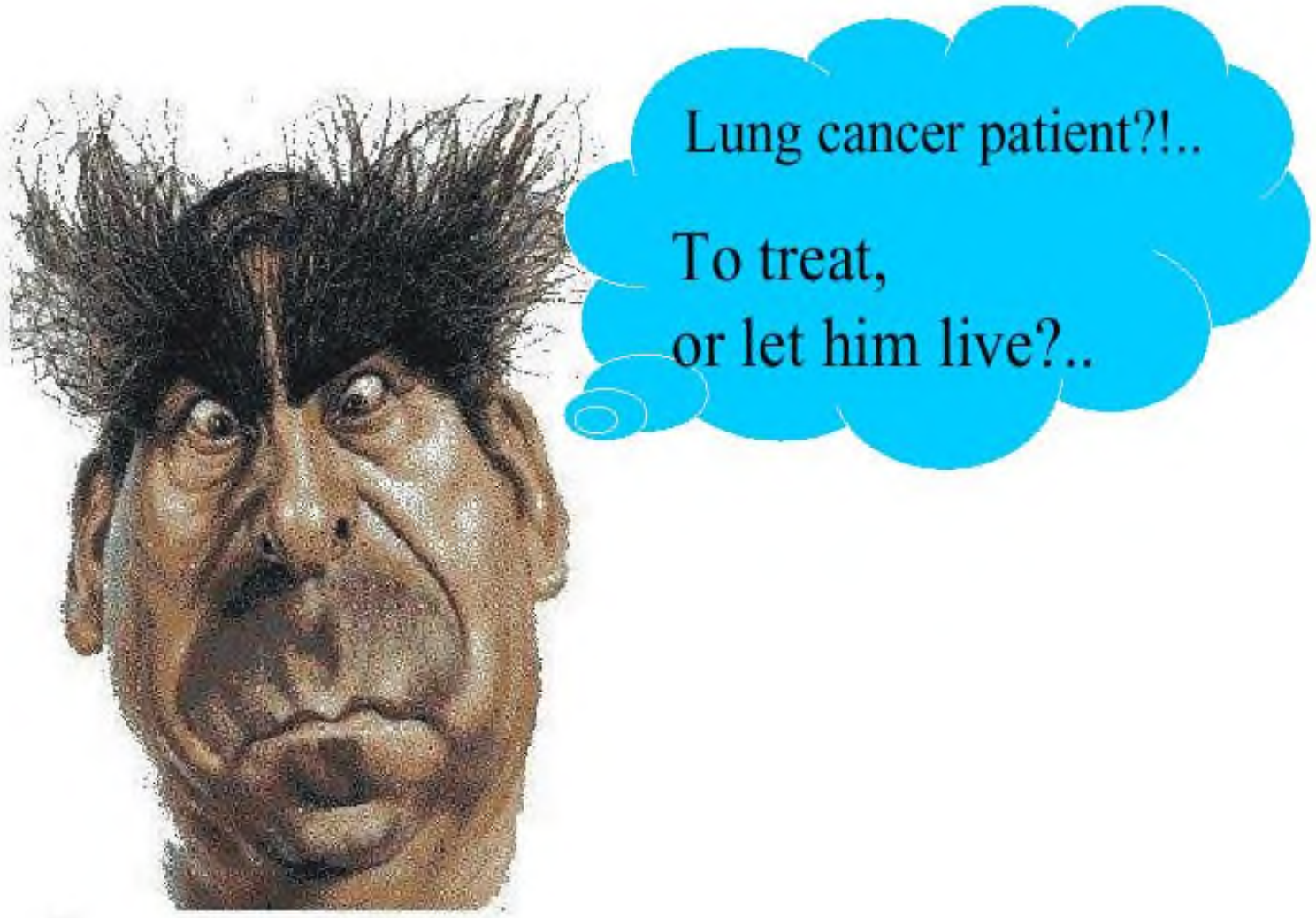
- Surgical
- - Extrapulural pneumonectomy
- - pleurectomy
- - palliative pleurodesis
- Radiation therapy (45-50 Gy)
- Chemotherapy (doxorubicin, mitoxantrone, carboplatin, alimta)
- Complex and combined treatment





Forecast

- The prognosis for all types of diffuse mesothelioma is unfavorable, but depends on the stage of the tumor. With the epithelial type of tumor, the prognosis is significantly better than with a mixed or sarcomatous one.
-
- Survival with ZMP is 10 to 17 months. after the appearance of the first symptoms and 7-13 months. from the moment of its primary diagnosis.



THANK YOU FOR ATTENTION