

Surgical Oncology

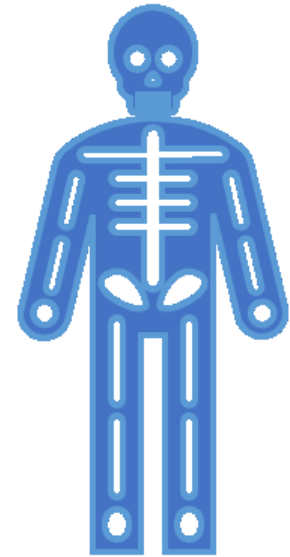
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Masaryk Memorial Cancer Institute



Surgical Oncology

- Understanding varies either in countries, but even individually
- Surgical oncology cannot be simply divided from other surgical specialisations
- Nearly in every surgical sub specialisation you can meet oncological problematic. On the other side the oncological cases can be solved only with very good knowledge of this specialisation.
- So, there is no universal surgical oncology clinic and even no universal surgical oncologist. Always a surgical oncologist is a surgeon, who is mostly dealing with oncological cases and is appropriately educated



clinical oncology



Imaging diagnostics



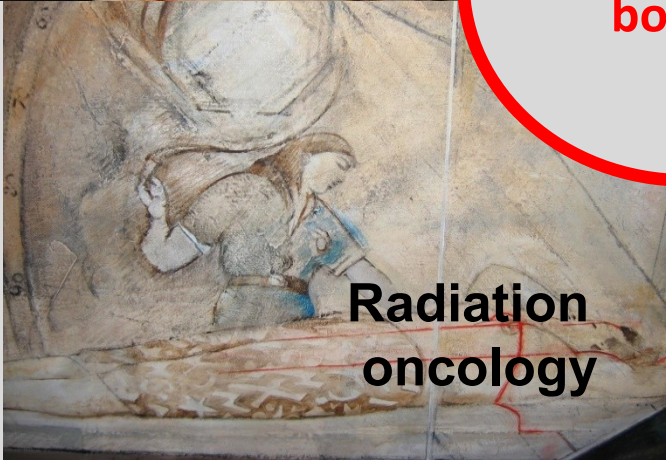
Laboratory diagnostics



Surgical oncology



Indication boards



Radiation oncology



Medical oncology

Is mostly about

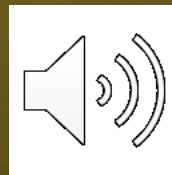
Multidisciplinary cooperation





„enlightened
Surgical oncologist“

- Operation skills
- Knowledge of oncology
- Motivation
- Empathy



Before every oncological therapy should precede a complete diagnostic.

Typing – proofing of the tumor by biopsy

Staging – the TNM classification showing the extent of the disease The local amount of the tumor (T), regional nodal metastases (N), distant metastases (M)

Grading – The degree of histological dedifferentiation and other crucial characteristics applicable for the treatment



Statistics in the Czech republic

97 diagnostic groups according to the *International Classification of Diseases and Related Health Problems*(ICD)

Incidence (new tumors per year)

90 000

including:

6000 „liquid“ (haematological) malignancies, **500** tumors in children

Prevalence (total number of patient in therapy and after therapy)

560 000

Mortality (cancer caused deaths per year)

30 000

Letality (index mortality/incidence, MI index)

- deaths to diagnosed cases ratio per year

Figures different in various diagnoses, dependent on the effectivity of therapy and aerliness of diagnostic

(examples : lung cancer 0,90, pancreas 0,89, colorectal 0,49, ovary 0,76, kidney 0,38, breast 0,30, prostate 0,26, testes 0,14, melanoma 0,17 etc.)



Timing of surgery in the combination therapy of solid tumors

Usually depends on the clinical stage of the disease

operation only (early stages)

Operation + afteroperation (adjuvant) chemo – radio-therapy

Before operation (neoadjuvant) chemo-radio-therapy + **operation**

Before operation ch-r-therapy + **operation** + afteroperation ch-r-therapy

Main therapy chemo-radio-therapy (late stages) + **operation** as a helping procedure

Notice : chemotherapy mens here any systhemic medical treatment by use of cytostatics, hormones, biotherapy or immunotherapy or combination



Three fases and goals of any oncological operation

3 in 1

Removal of the tumor

Reconstruction of the operated region

More specifying **diagnostics**

All the points are of the same validity!



Lymphatic nodes surgery- the most often first site of solid tumors metastasing

Diagnostic biopsy of suspect node (punction, open biopsy)

Targeted biopsy of the **sentinel** lymph node

Complete **dissection (exenteration)** of axilla, ilioinguinal region, neck trigonum

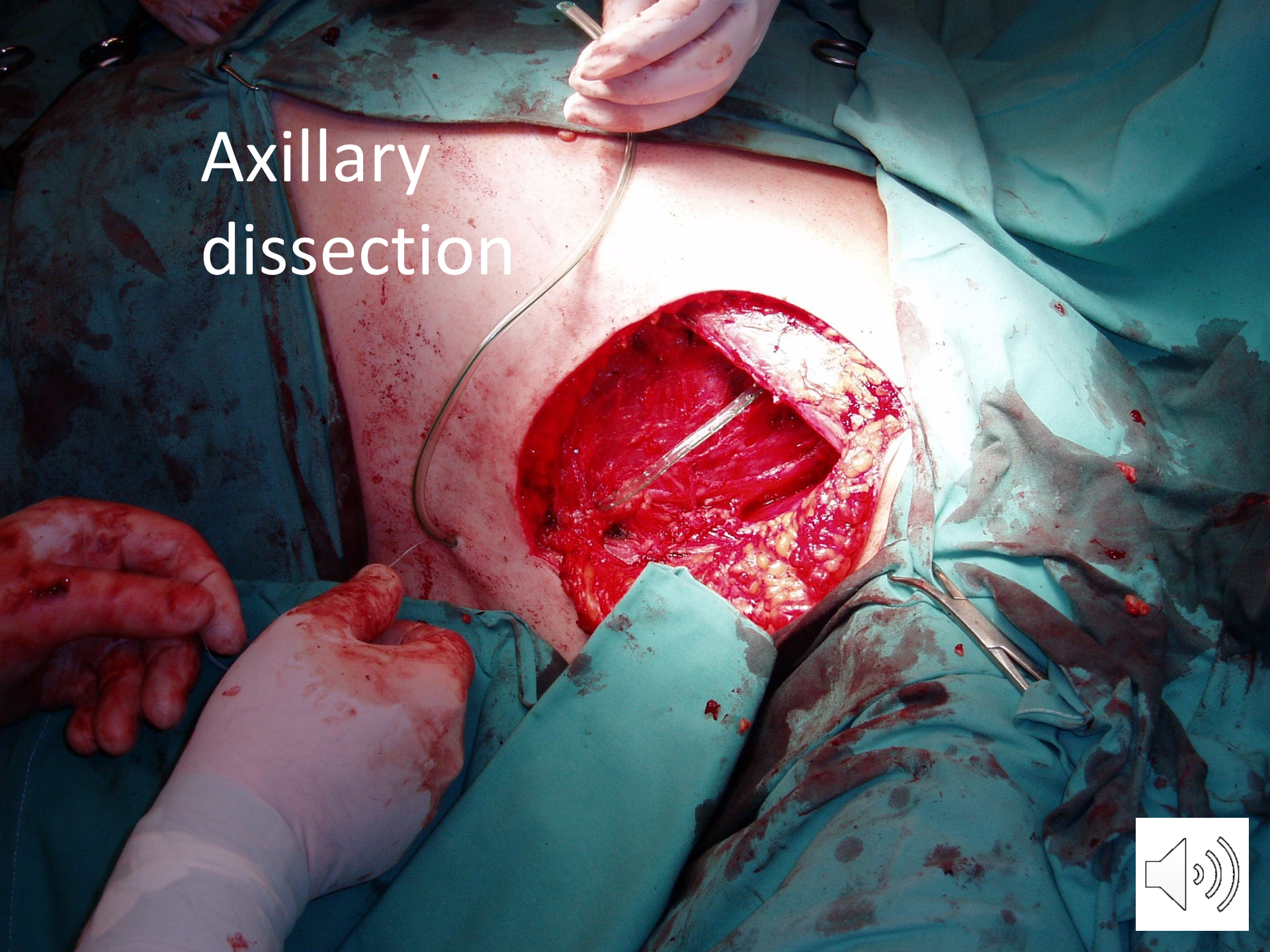
Retroperitoneal lymphadenectomy (testicular and ovarial cancers)

Organ dependent regional lymphadenectomy (perigastric, pericolic, iliac, mediastinal)

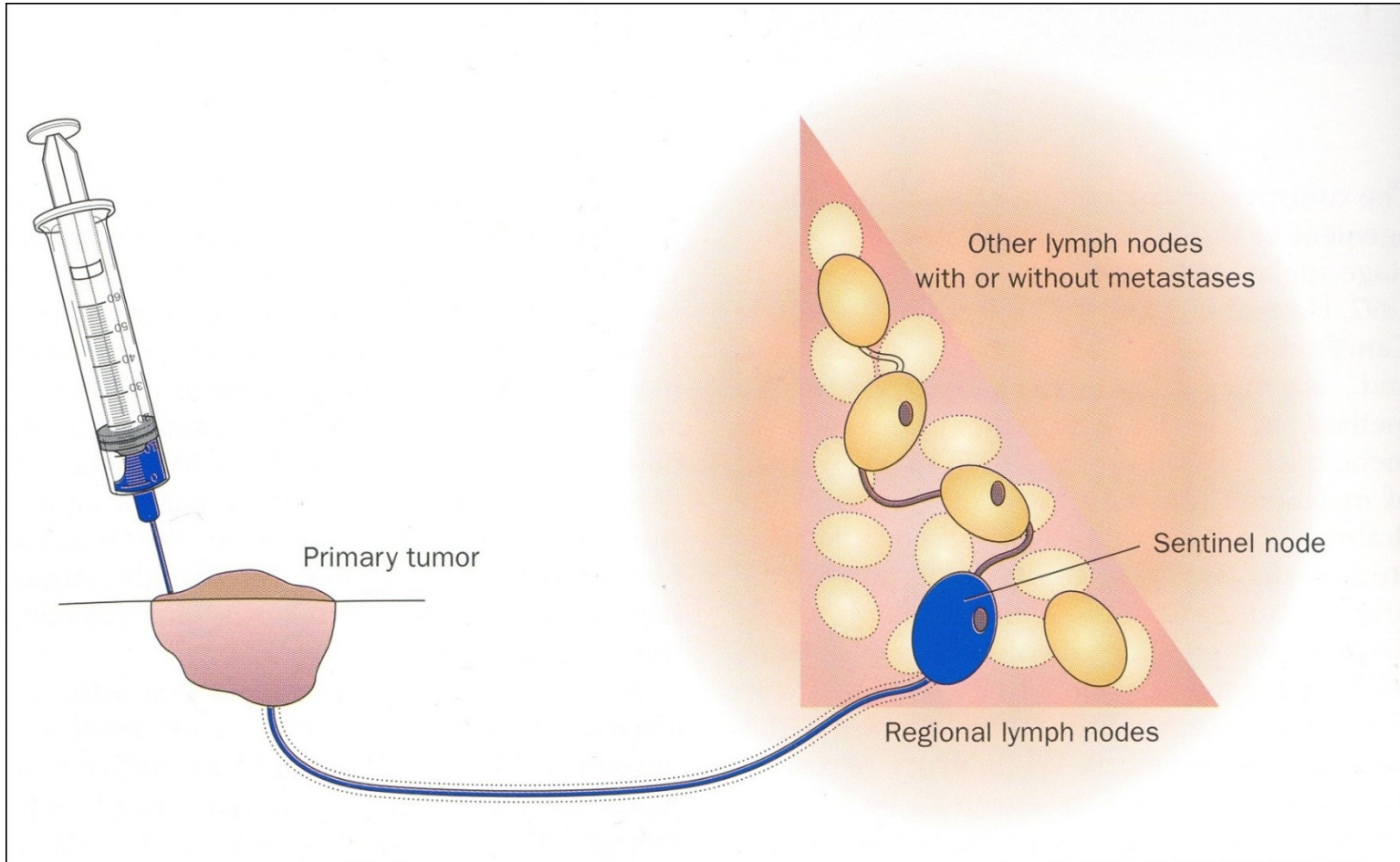
Extirpation of suspect **juxtaregional nodes** (supraclavicular, mesenterical, retroperitoneal)

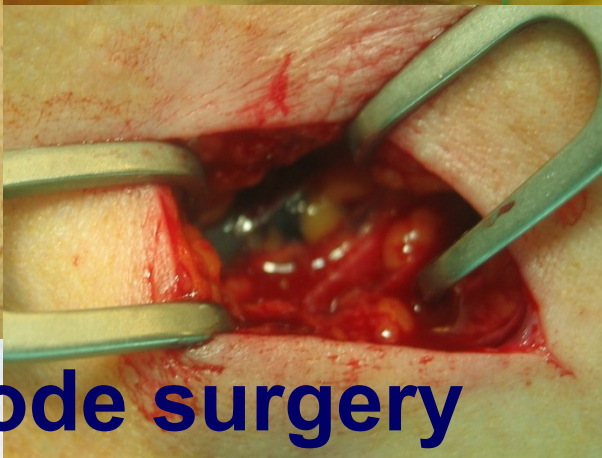


Axillary dissection

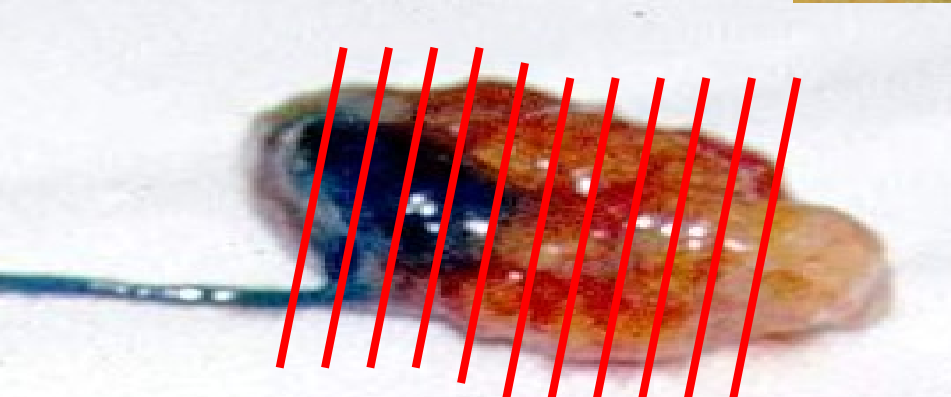


Sentinel node biopsy technique

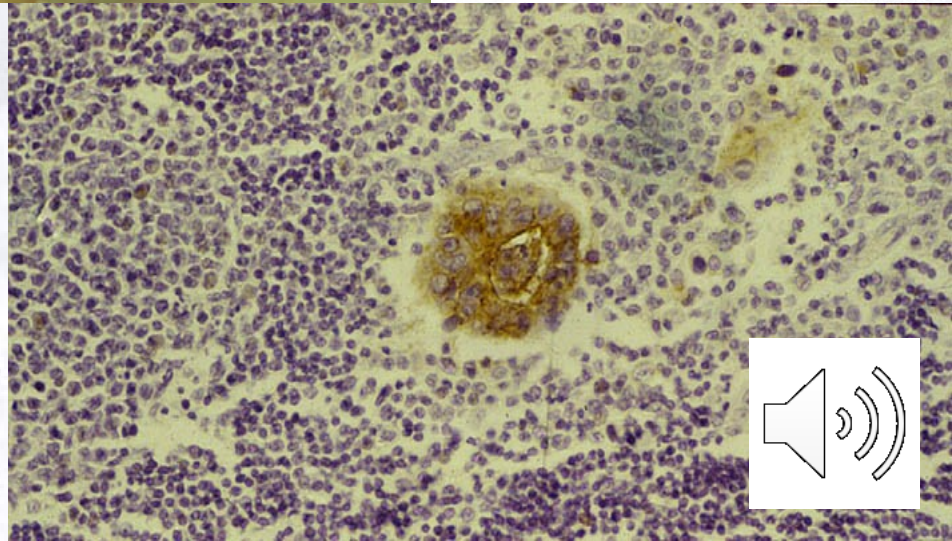


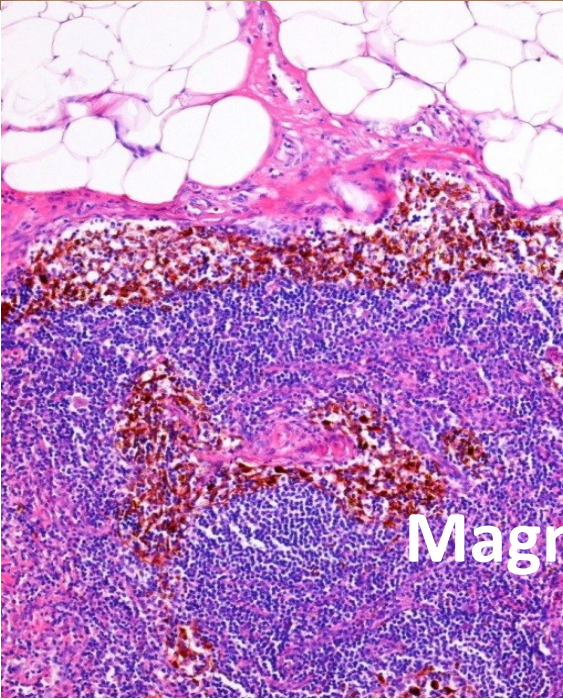
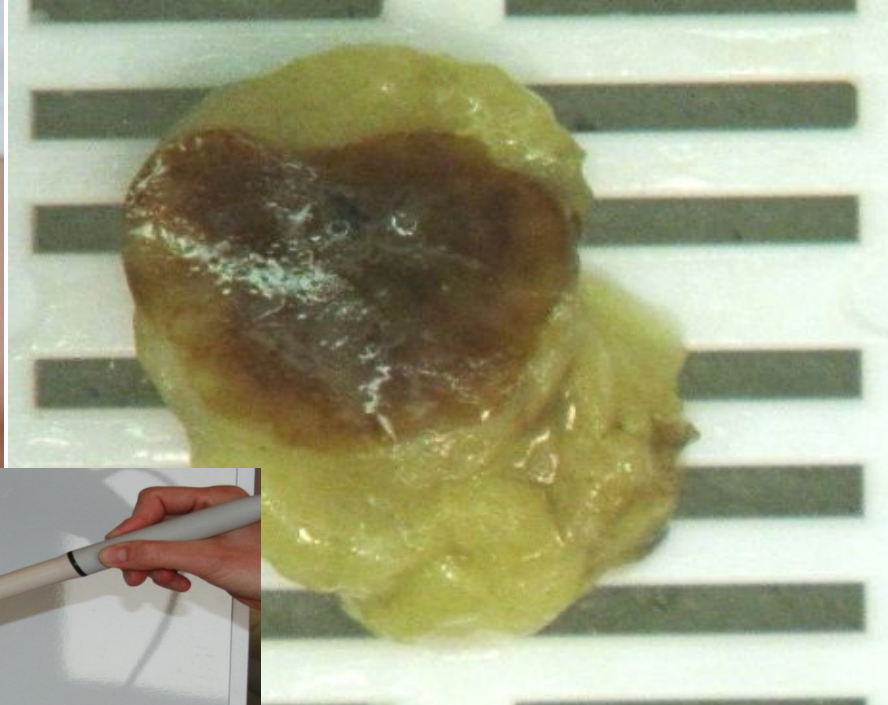


Radionavigated node surgery

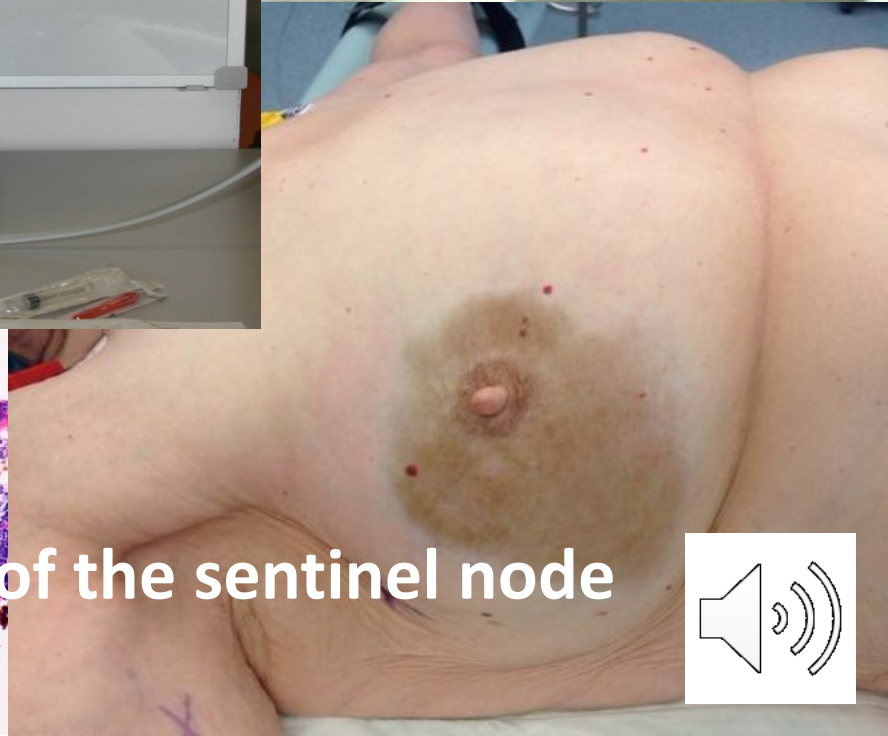


microstaging





Magnetic detection of the sentinel node



Specific approaches and concepts in surgical oncology

Narrow cooperation with **histopathologist** even in the operation theatre

Pelvic surgery (cooperation of surgeon, gynecologist and urologist in the same time)

Oncoplastic surgery (using techniques of plastic surgery)

Open delayed operation after another therapy

Intraoperation interstitial brachytherapy

Regional chemotherapy

Cytoreductive operations and HIPEC in locally advanced tumors

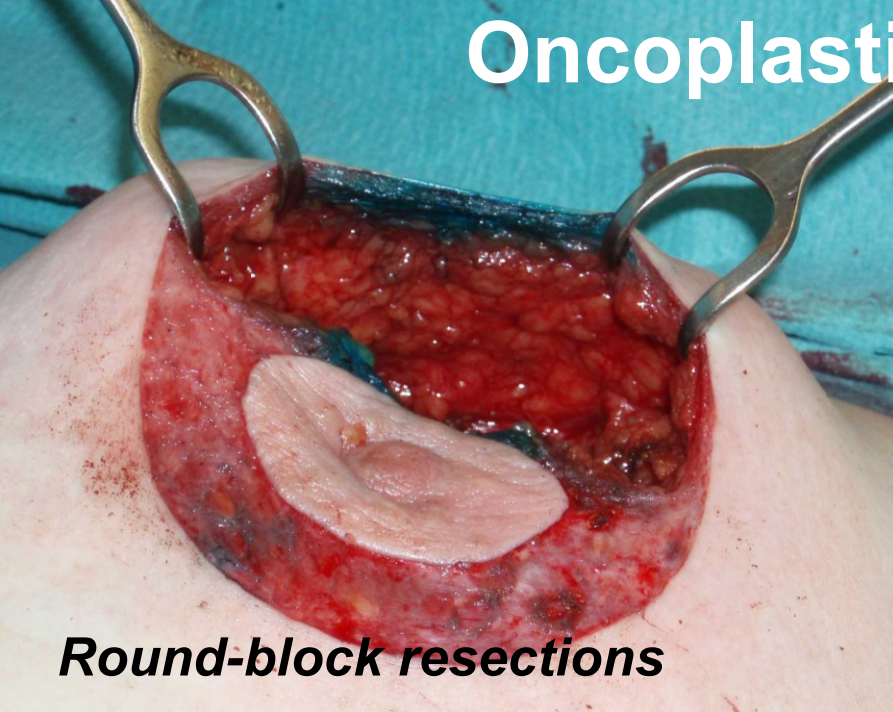
Minimally invasive and robotic operations

Kryosurgery - local destruction of tumors by low temperature

Direct cooperation in keeping the **tissue bank**



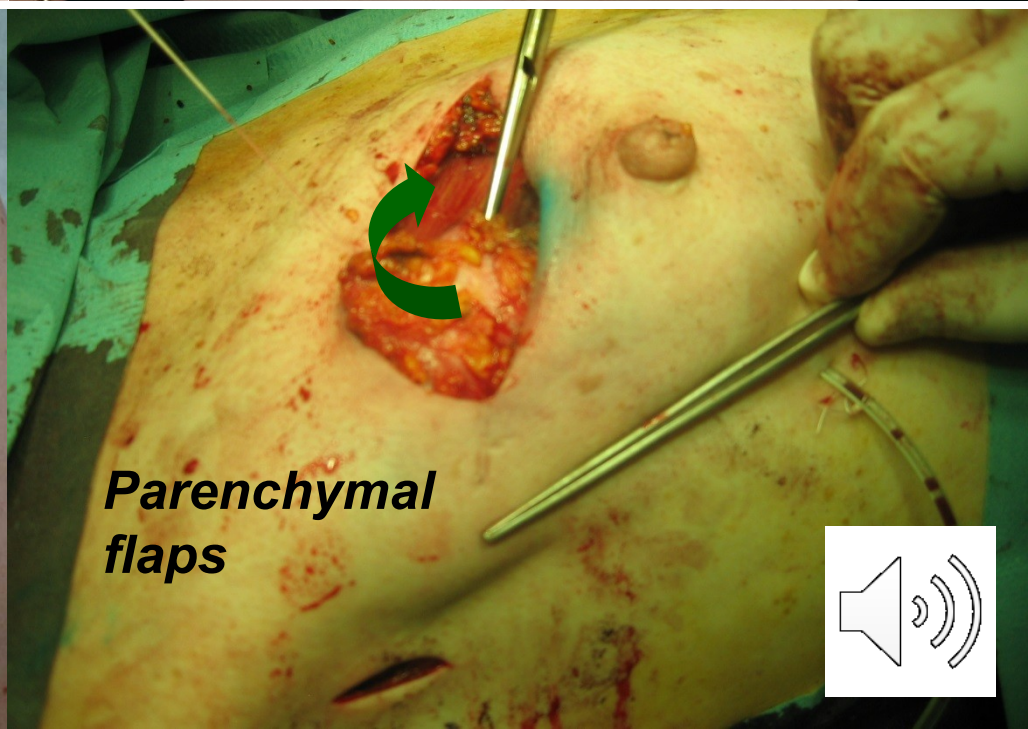
Oncoplastic surgery



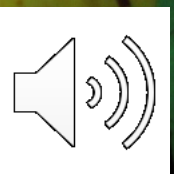
Round-block resections

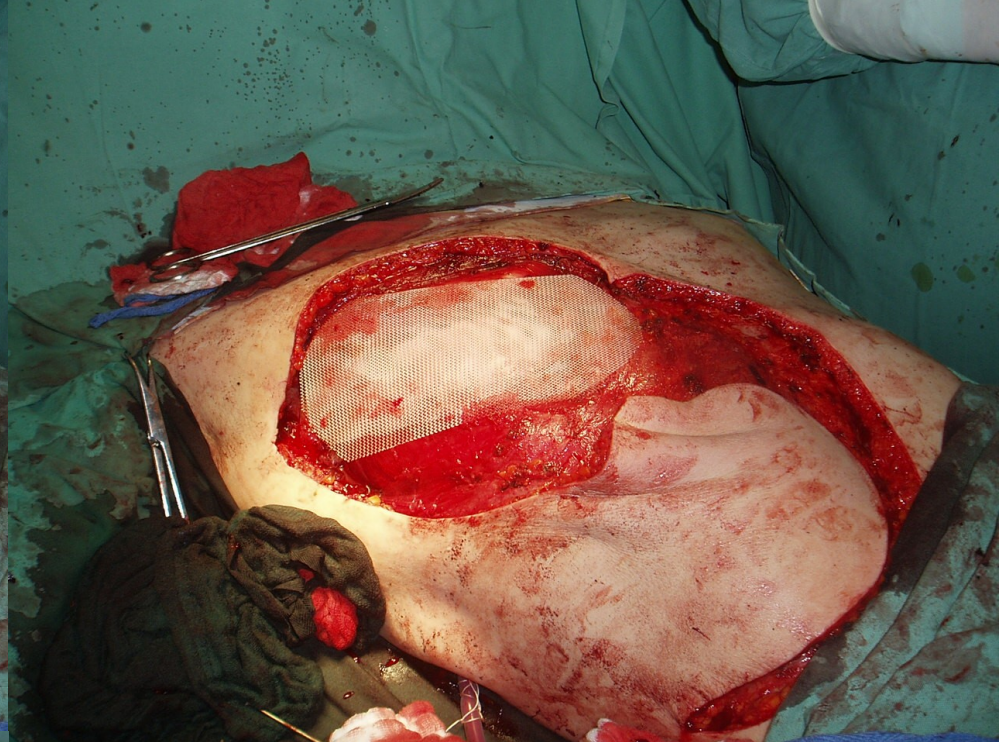
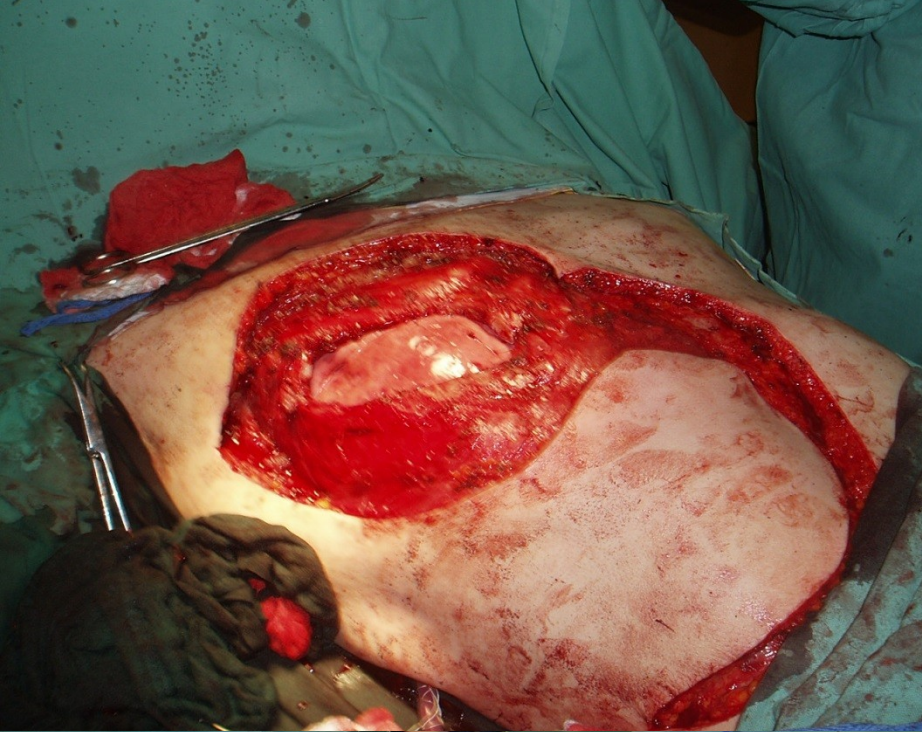


Grisotti



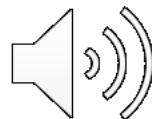
Parenchymal flaps





Huge reconstruction

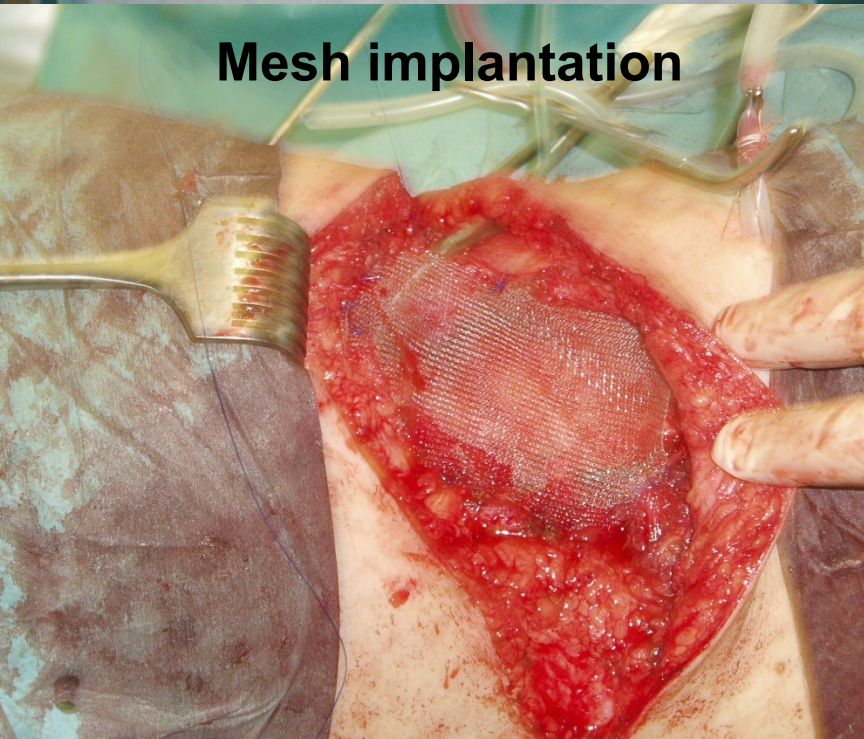
**Covering of the chest wall defect
by use of a mesh and rotation
flap**



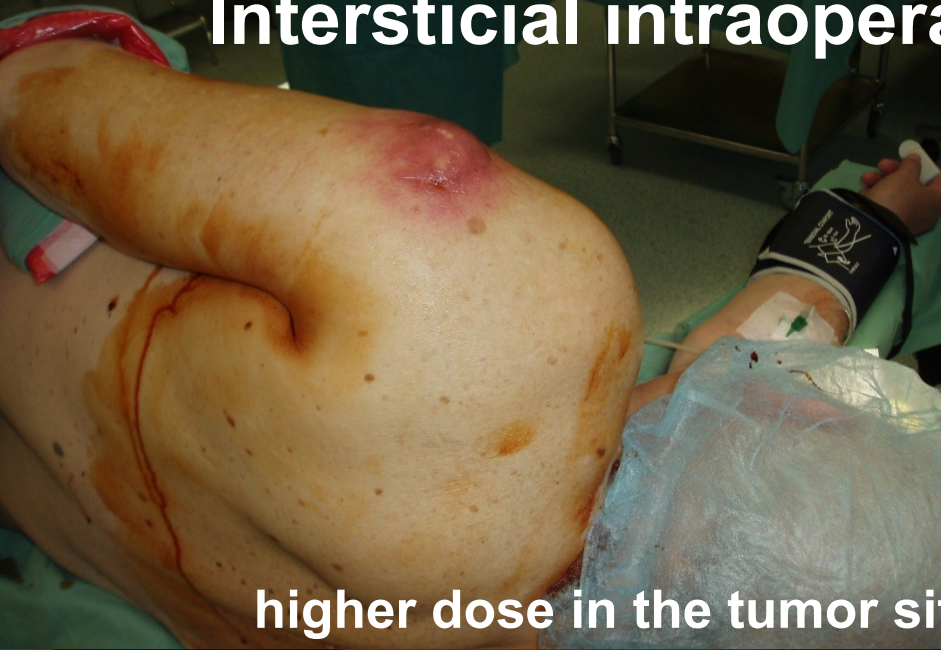
Radical and reconstructive operation



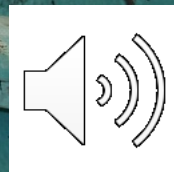
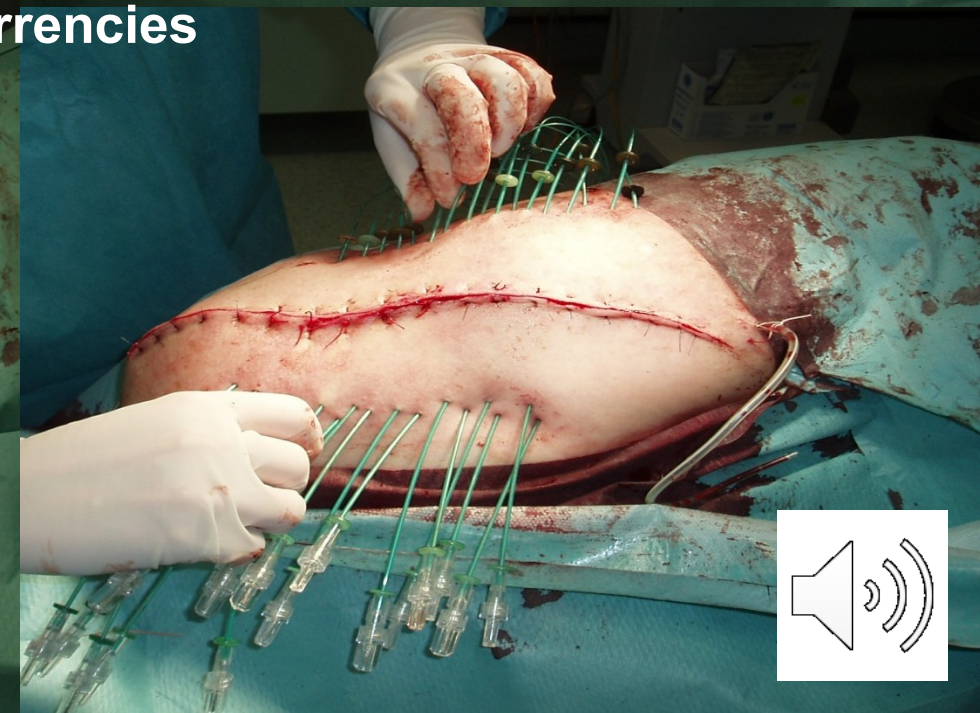
Mesh implantation

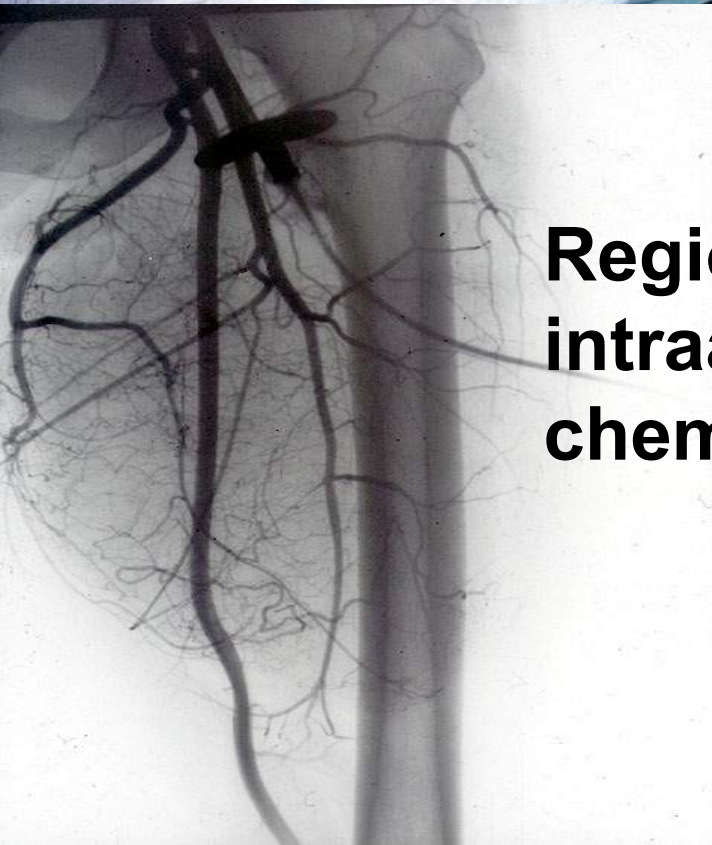
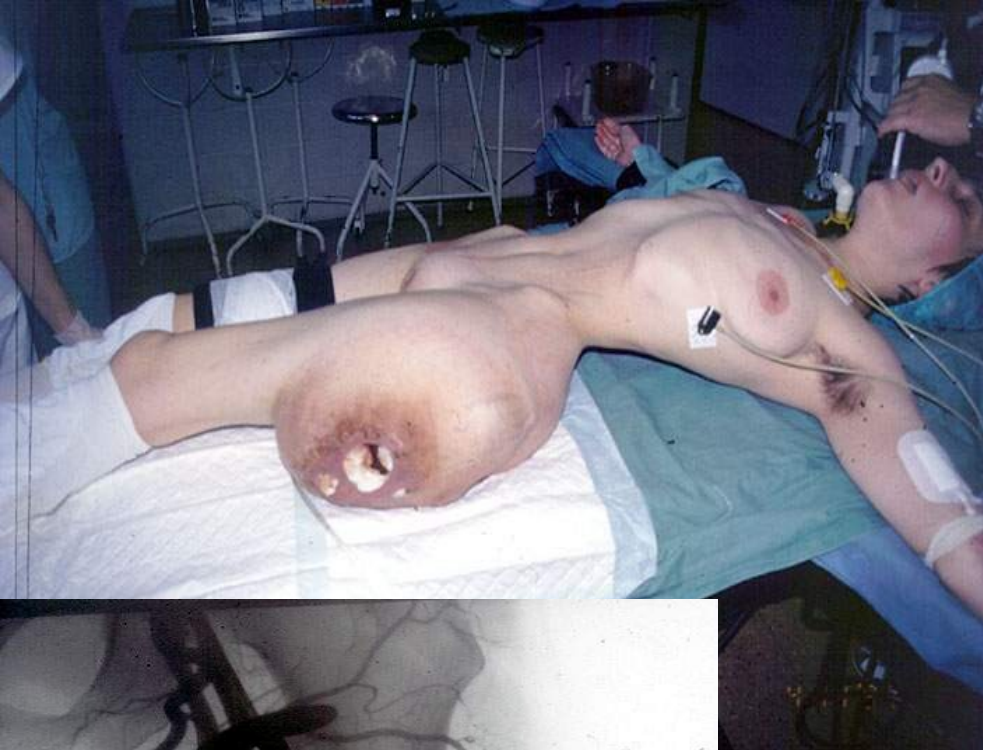


Interstitial intraoperation brachyradiotherapy

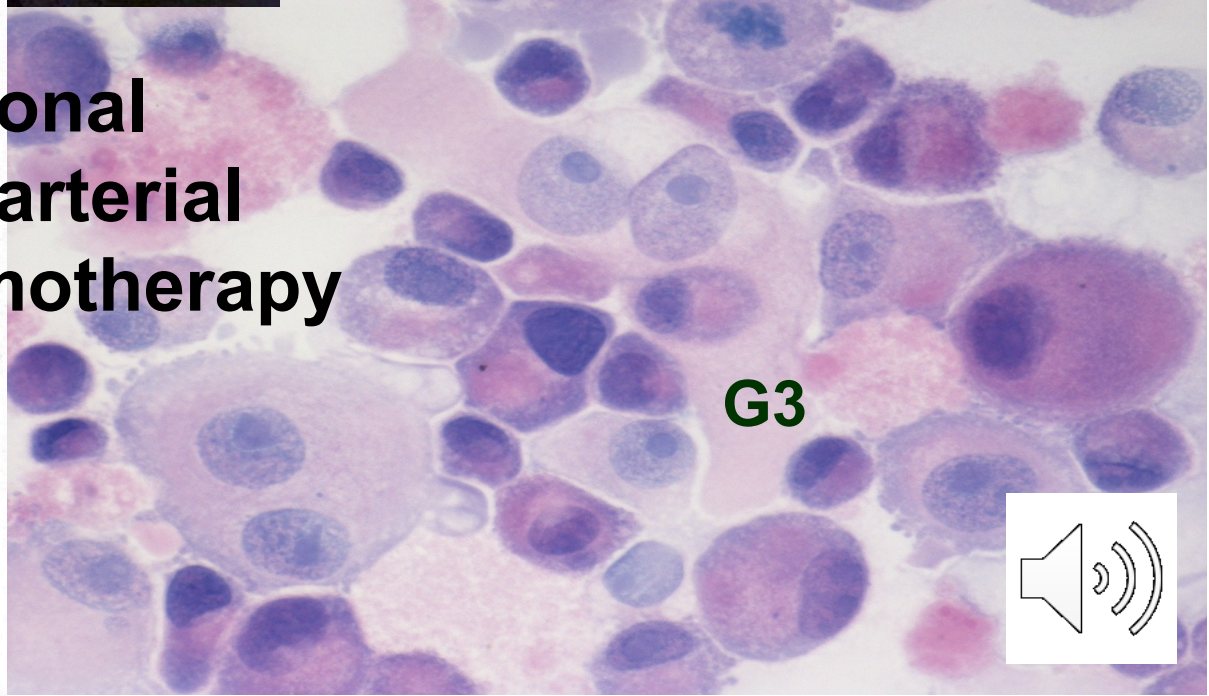


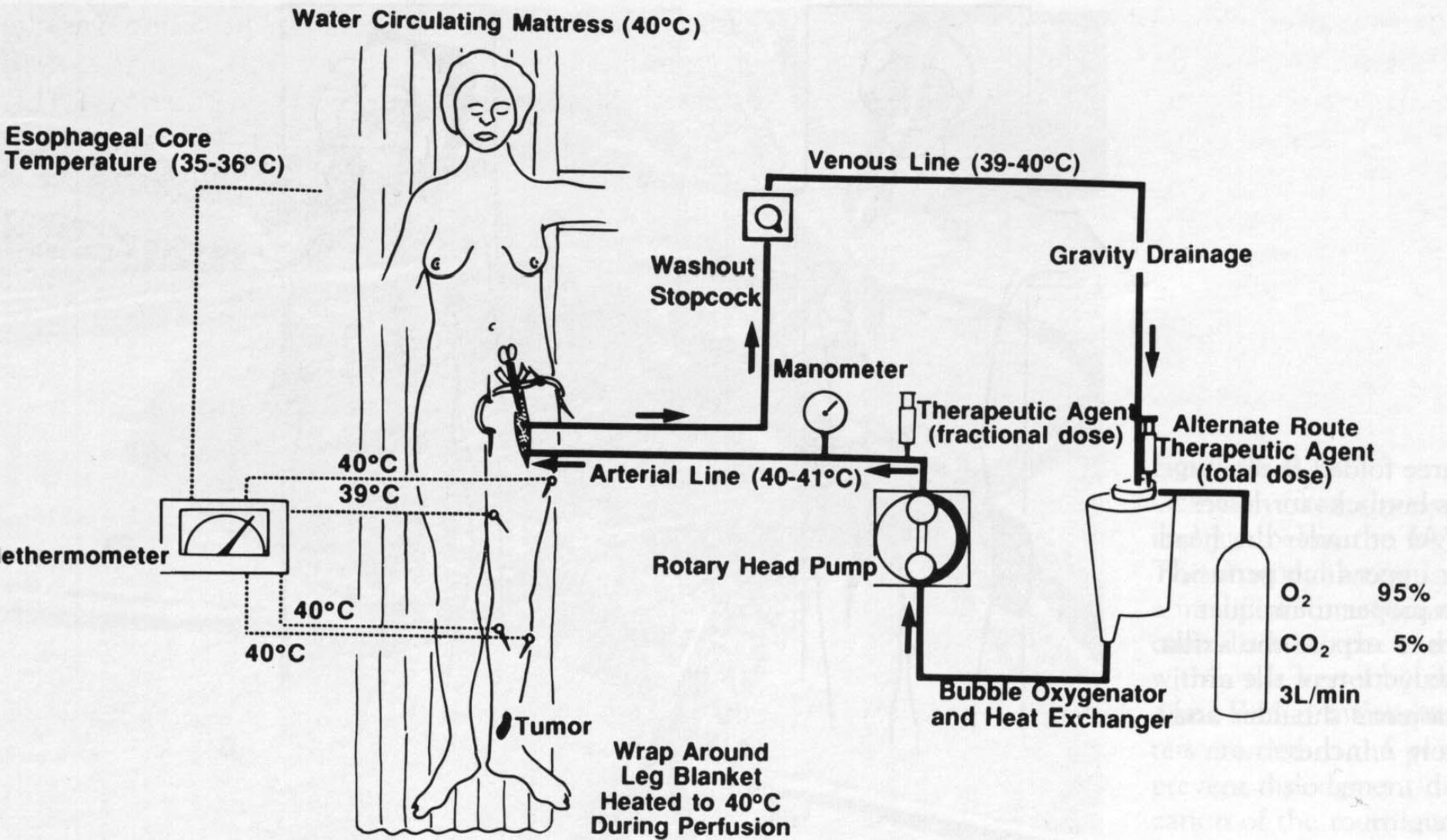
higher dose in the tumor site, lower dose in the skin,
lower number of local recurrences



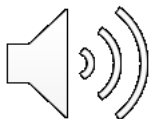


**Regional
intraarterial
chemotherapy**



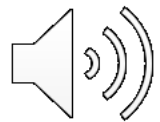


Isolated hyperthermic limb perfusion





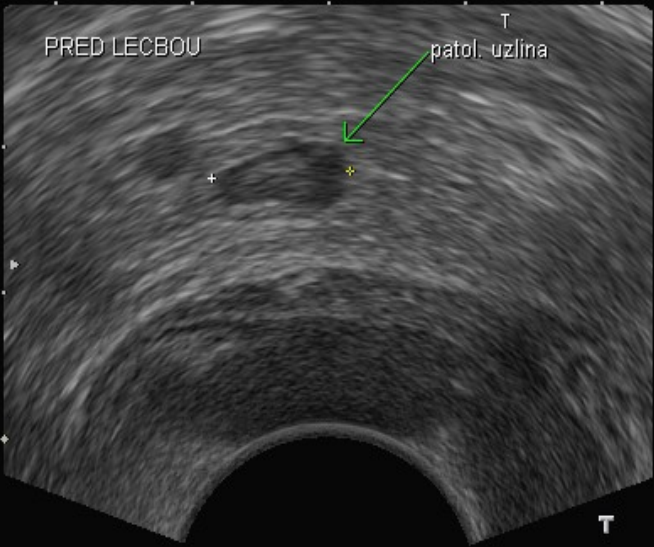
Isolated hyperthermic limb perfusion



Multidisciplinary
y cooperation
– proper
timing

Multidisciplinary indication boards





443315/433
 10/5/1944
 M
 9
 P100
 10C5
 10.0
 37fps
 DR95
 2DG
 88



20040109135239
 P100
 10.0
 37fps
 DR95
 2DG
 88

operation after neoadjuvant chemo

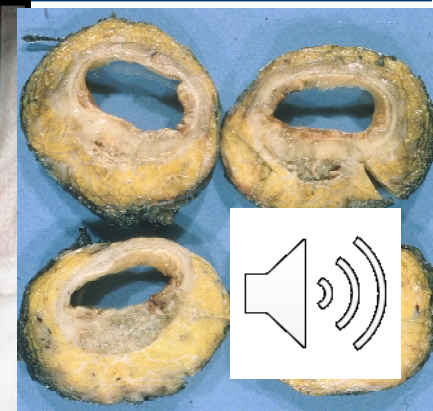
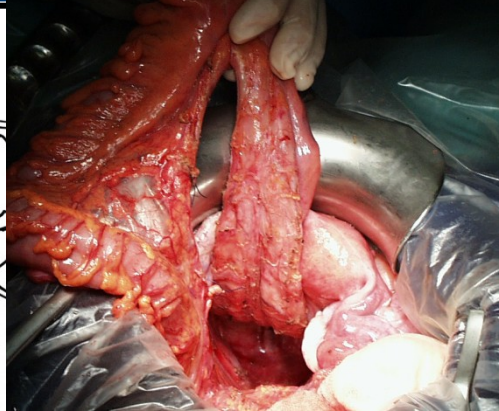
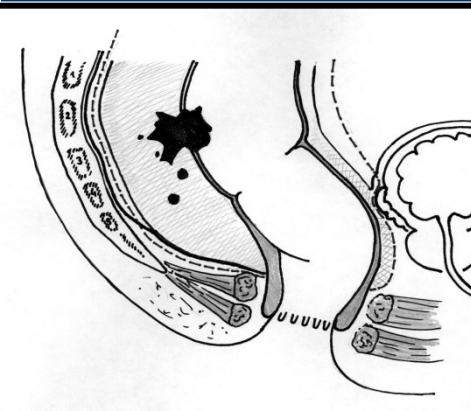
Dist A 10.1mm

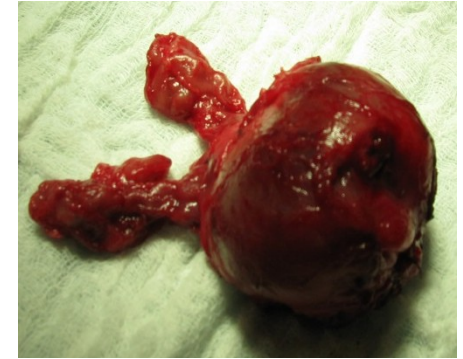
430x360
 C114
 Dist A 5.3mm

CINE REVIEW

DICOMIT DICOM.INFOR...
 CINE REVIEW SSA-550A

- A) TRUS before treatment: locally advanced rectal cancer with involved regional lymph node
- B) TRUS after neoadjuvant chemoradiotherapy : lymph node regresion, node of a normalí echostructure





Prostate with cancer, removed with use of robotic surgery

Robotic surgery

HI covers now:

Robotic **radical prostatectomy**

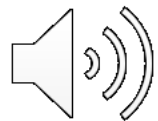
Robotic **kidney resection**

Robotic **rectal resection**

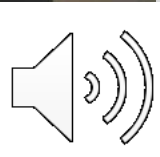
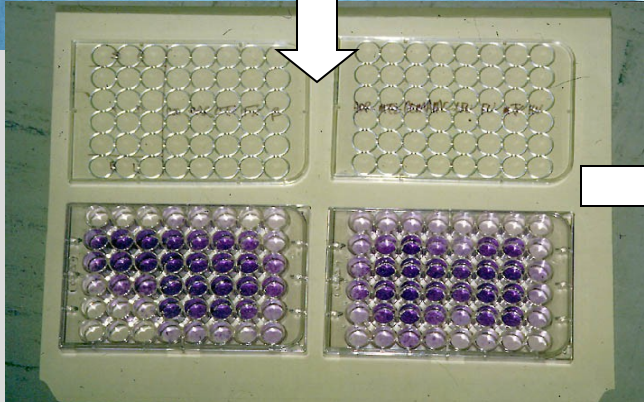
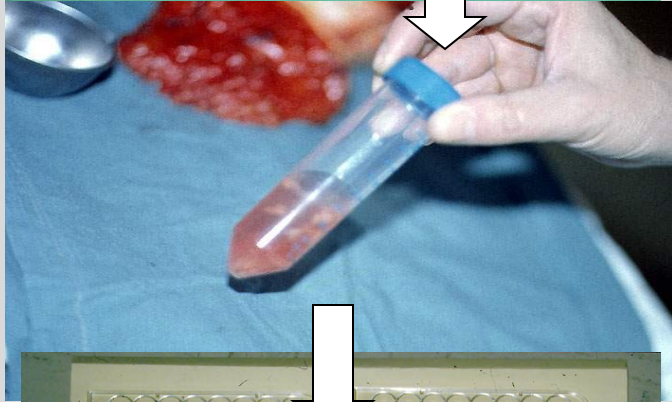
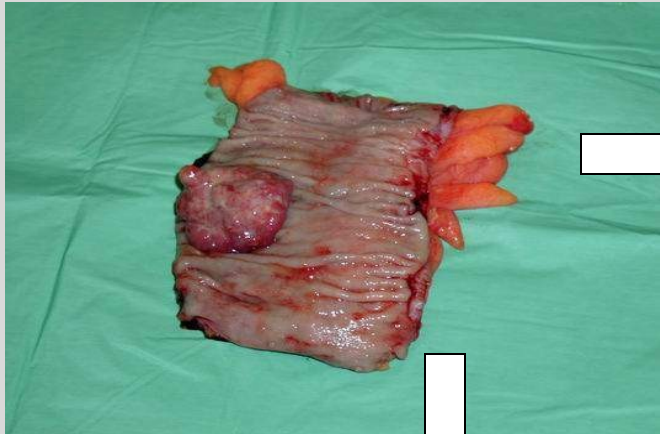
Robotic **hysterectomy**

Robotic **lymfadenectomy**

of iliac or retroperitoneal nodes



Tissue bank and predictive oncology on-line cooperation with pathologist



Surgical treatments results evaluation

1) **Subjective** patient contentment

- operation after-effects, functional result, cosmetic result

2) **Objective** parameters

a) **postoperation** complications

b) number of **local recurrences**

c) PFS – **progression-free survival**

d) OS – **overall survival** – dependig on **clinical stage**

- comparing with the country or region average comparing with the world

- comparing own results in time

example : MMCI results for the most often diagnoses on www.mou.cz

c) a d) allways in context with another modalities !

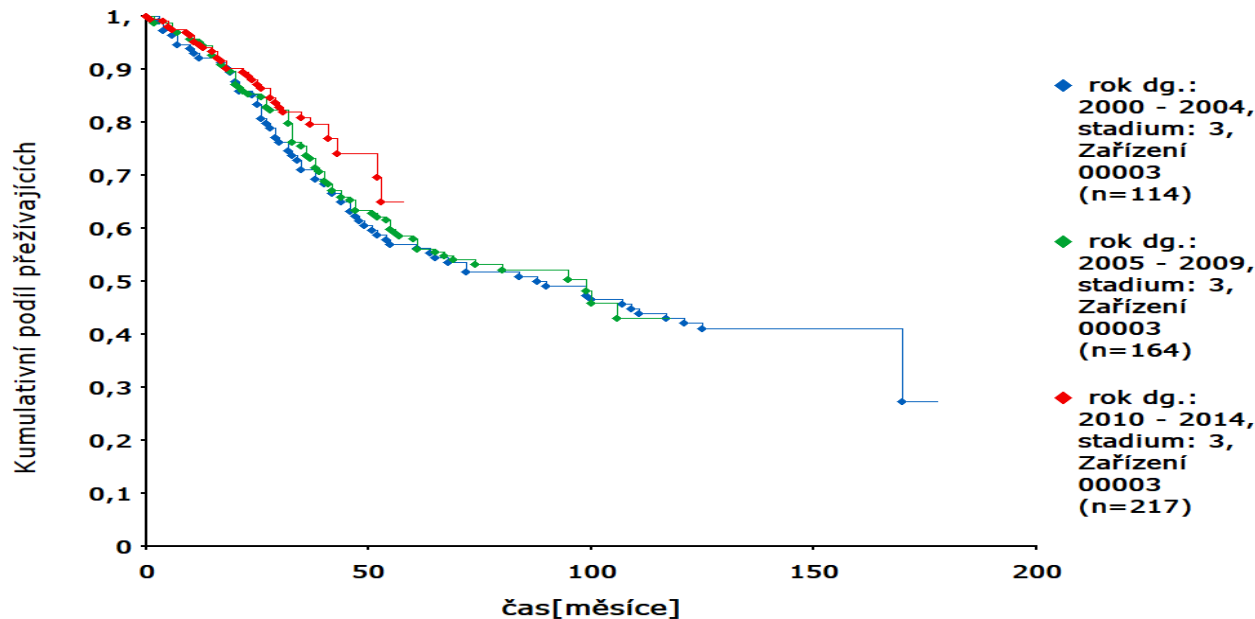
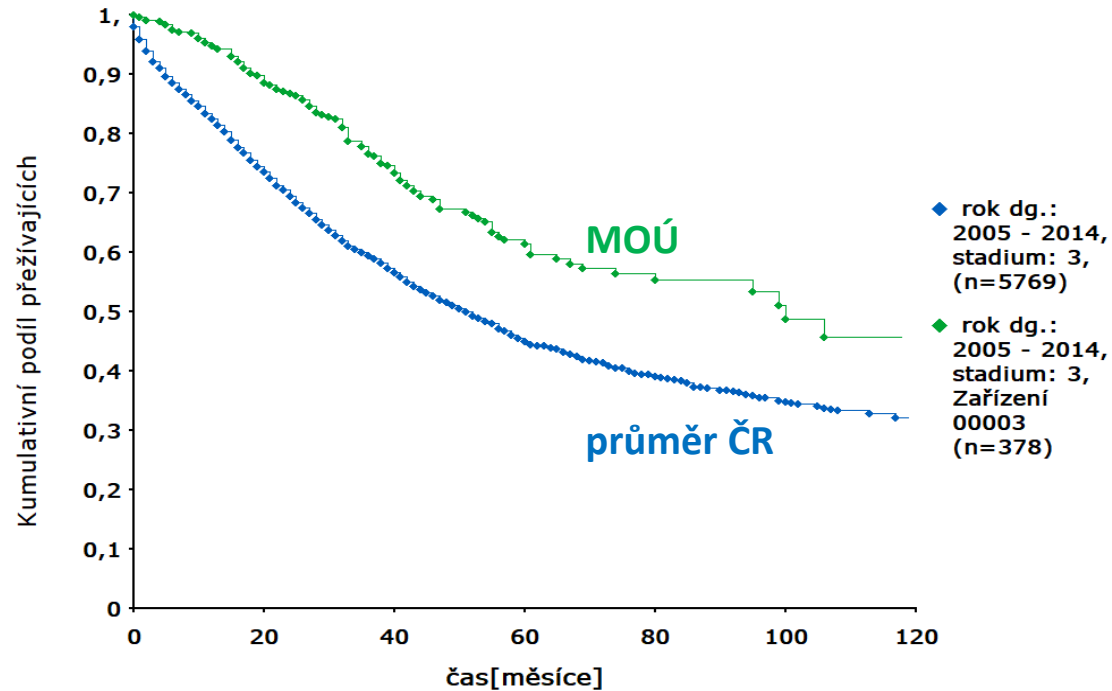
3) **Economical** parameters

cost versus **benefit** ratio (hard to use in individual – not used, cost effectivity can be judged statistically in bigger cohorts

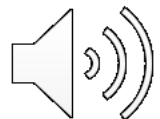


Survival analysis (MMCI) :

Rectal cancer st. III
comparing 10-year survival
(MMCI)MOÚ a Czech rep(ČR)



Rectal cancer st. III
comparing results in time
2000-2004
2005-2009
2010-2014



Mnemotechnical tool for use in the professional and private life
WHAT SHOULD I KNOW, if I, my nearets or my patient got a cancer?

? No/T Re/St/InG Sur/GEO/Ns (J.Zaloudik, 2009)

8 parameters for surgical oncology, for patient information & decision making

Diagnostic criteria derived from surgeon and pathologist :

No – Nodes

T – Tumor : T cathegory/ histological **T**yping/

Re – Resection margins (as estimated by histopathologist)

St - postoperative **S**tage, pT pN pM

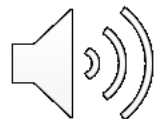
InG – Investigation on Grade (and also target molecules,receptors)

Performance of surgical department

Sur – Survival rates (general, in particular hospital or team, if available)

GEO – Guaranteed Estimation by Oncologists (multidisciplinary team)

Ns – Numbers of treated cases by team (volume effect)



Four levels of preventive dealing in the fight with cancers and as a base for **effective surgical intervention**

primary prevention : „Not to allow the cancer to arise“
(precanceroses removal, vaccination – HBV, HPV)

secondary prevention : „if the cancer occurs,
to be found in time and curable by surgical removal
with low risk of recurrence “
(screening programs, systematic preventive investigations)

tertiary prevention : „if the cancer was not found and treated in time and comes
back, to find the still curable recurrency,,
(consistent follow up, operative treatment of metachronous metastases)

quartery prevention : „ if the cancer is not curable ,
to prevent complications and useless suffering,
physical, psychological and social“
(palliative operations, nutritional care, pain treatment, social care)



Useful webs

www.svod.cz data from the Czech national oncological registry

www.nccn.org international guidelines i oncology)

www.onconet.cz the Czech oncological web

www.linkos.cz Czech Oncological Society

www.mou.cz Masaryk Memorial Cancer Institute

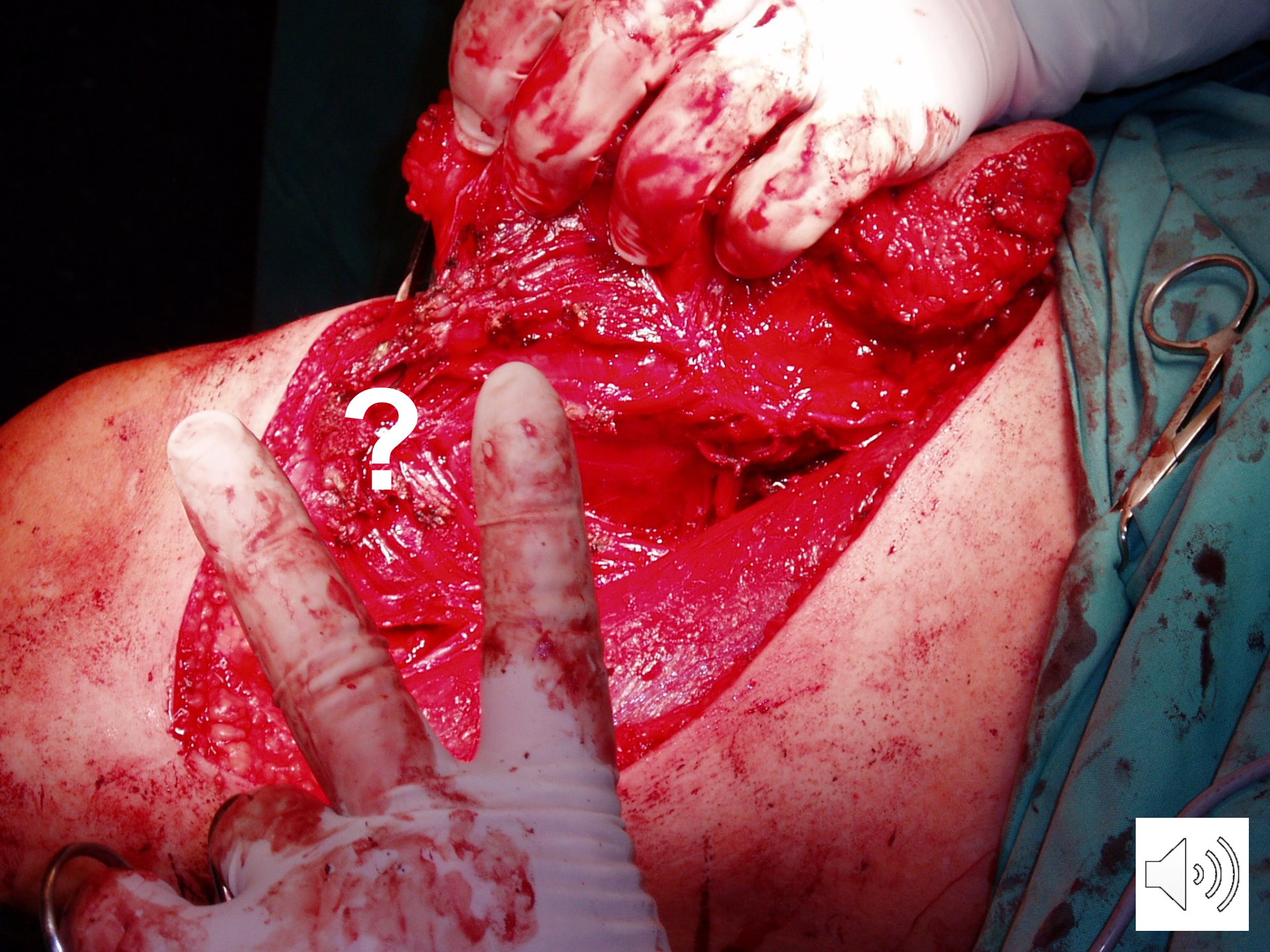
www.prevencenadoru.cz preventive oncology

www.mamo.cz Czech mammological screening

www.kolorektum.cz Czech colorectal screening

www.cervix.cz Czech cervical cancer screening





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