

Oncology Emergencies

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Learning Objectives (Section 2.5 of Course Guide)

- Complications of chemotherapy and radiotherapy
 - Common vs. Rare
 - Short-term vs. Long-term
- Oncology emergencies and their management



Oncology Emergencies - Plan

- Introduction
- 2 Case Histories
- Break
-
-

INTERACTIVE TEACHING...

What are Oncology Emergencies?

- Complications of known cancer diagnosis
- Complications of cancer treatment
- Emergency presentation of new cancers

Complications of Known Cancer Diagnosis

- Examples?
- Cancer is a multi-organ disease
- Patients often poorer performance status

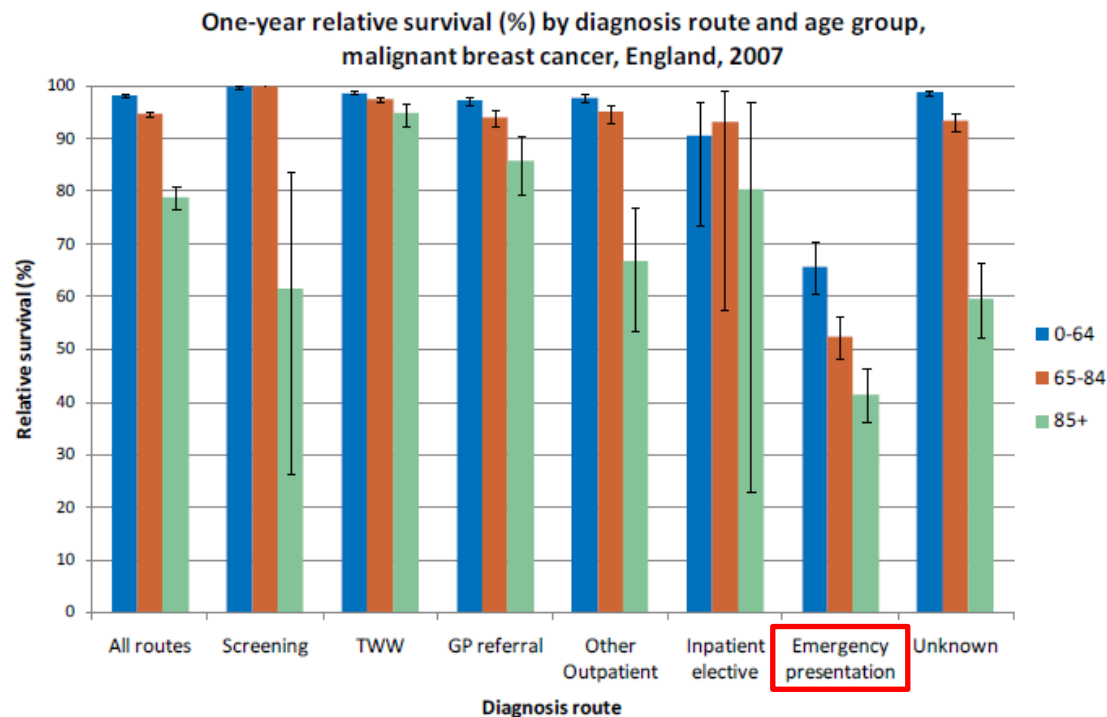
Complications of Cancer Treatment

- Chemotherapy or radiotherapy or others
- Examples?

- Chemotherapy given at highest tolerated dose
- Narrow therapeutic window
- Trial drugs with unknown toxicities

Emergency Presentation of New Cancer

- Proportion of cancer presents as an emergency? **25%**
- Especially: CNS, lung, pancreas, stomach
- Rare: melanoma, breast



Importance of Oncology Emergencies

Bad Things...

- Often present to DGH
- Complex patients
- Can deteriorate rapidly
- Collateral history missing
- No oncologists around
- Treatment often poor
- **No-one knows what to do!**

Good things...

- Limited list of emergencies
- Initial management simple
- Your input invaluable
- Potentially life saving
- **You will know what to do!**

Case History #1: 72 year old man

P/C: **'Congested'** for past 24 hours

PMHx: Diagnosed with small cell lung cancer 9 months ago
Chemotherapy completed 3 months ago
Mycetoma 3 months ago, treated with voriconazole

DHx: No allergies

SHx: Clergyman and retired civil servant
Smoker: 40 pack year history
Alcohol: Nil

FHx: Nil

Examination

Well, and comfortable at rest

Not dyspnoeic

Sats 98% (air)

BP = 118/70

Chest clear

Nil else of note

Hb 10.3

WCC 10.1

Plts 450

Na 138

K 4.0

Ur 6.7

Cr 70

Clotting normal

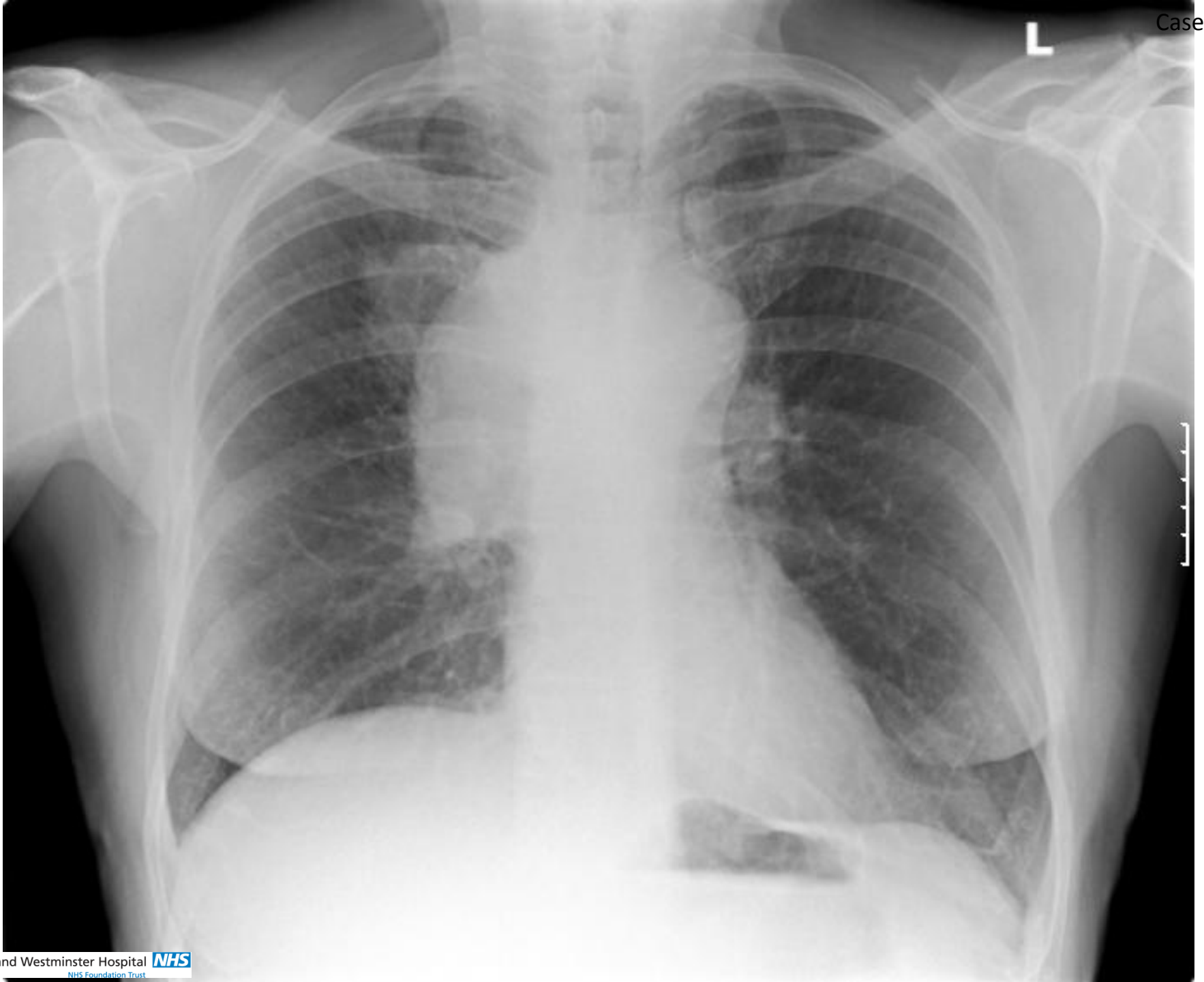
ALT 15

ALP 45

BR 6

Alb 31

CRP 96

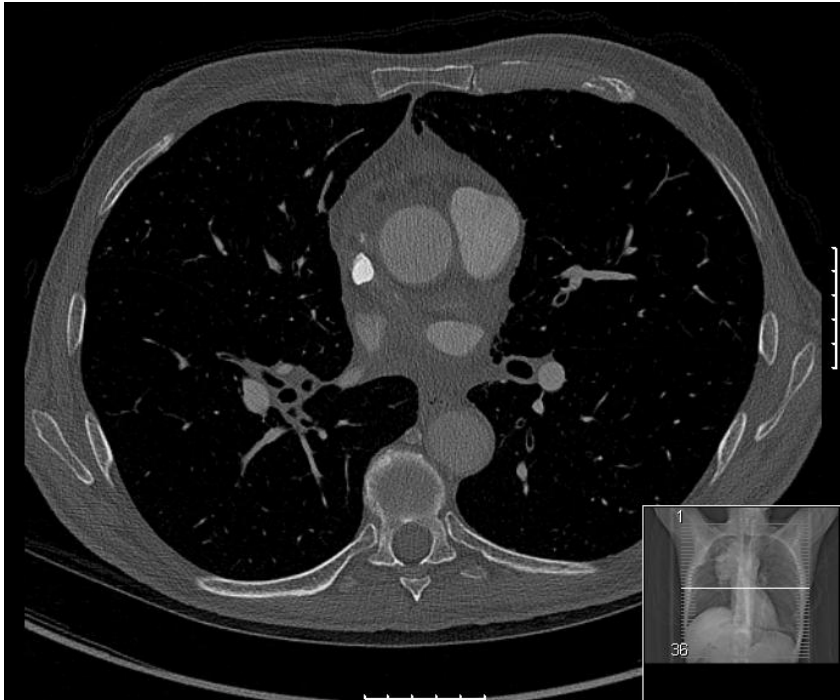
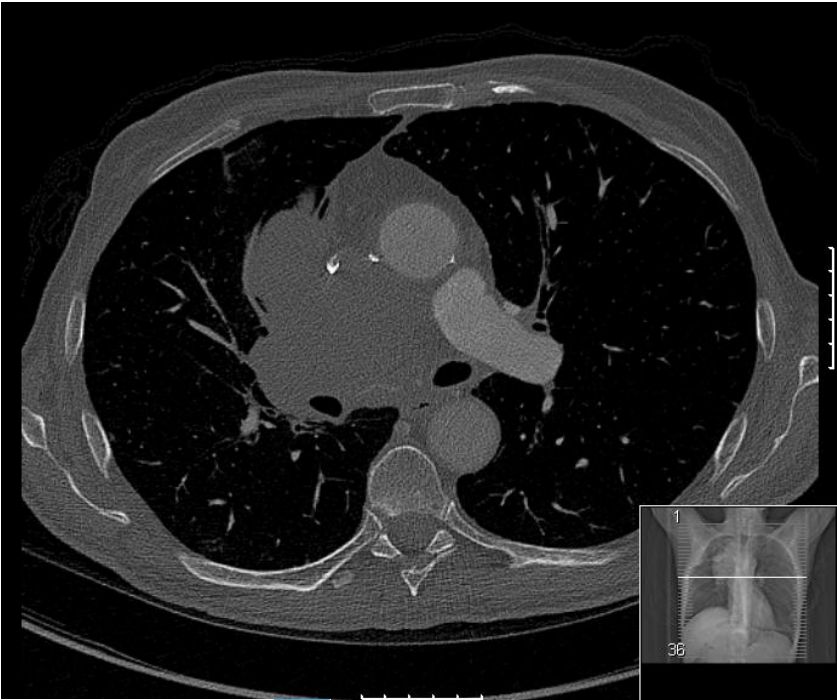


Any Ideas?

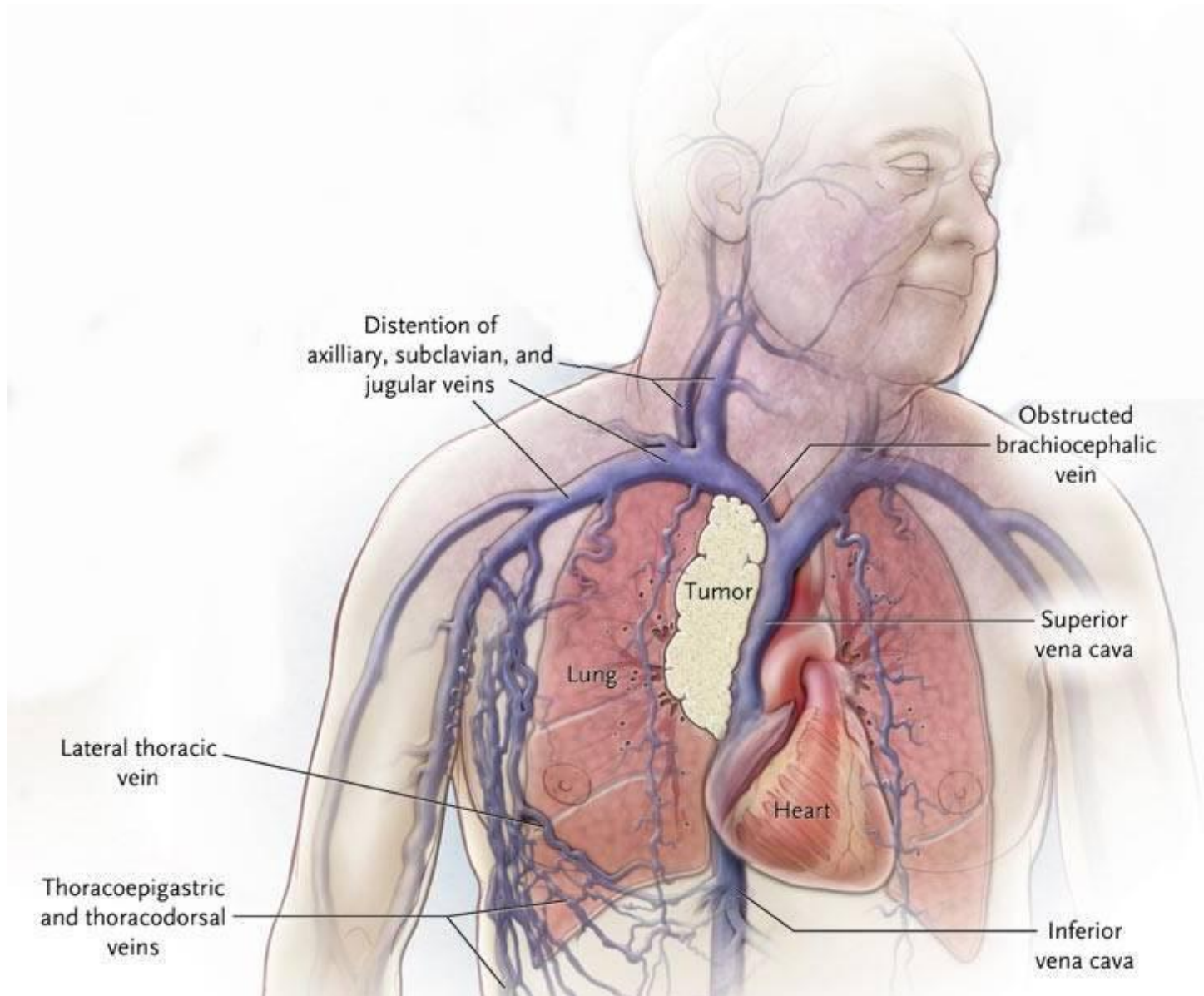
- Differential Diagnosis
- Investigations



SVCO



Superior Vena Cava Obstruction



Superior Vena Cava Obstruction

- **Malignant causes**

Responsible in >90%

NSCLC (50%), SCLC (20%), lymphoma (10%), other (7%), GCT (3%)

2-4% of patients with lung cancer develop SVCO

Non-malignant oncology cause (CV catheter thrombosis)

- **Symptoms**

Depend on rate of onset

Dyspnoea, dysphagia, dizziness, headaches

- **Signs**

SOB, stridor, upper limb and facial oedema, neck vein engorgement, dilated superficial veins





SVCO - WHAT DO YOU DO?

Superior Vena Cava Obstruction - Management

Dexamethasone

Biopsy (if indicated)

Rare that there is not time to do this

Stenting

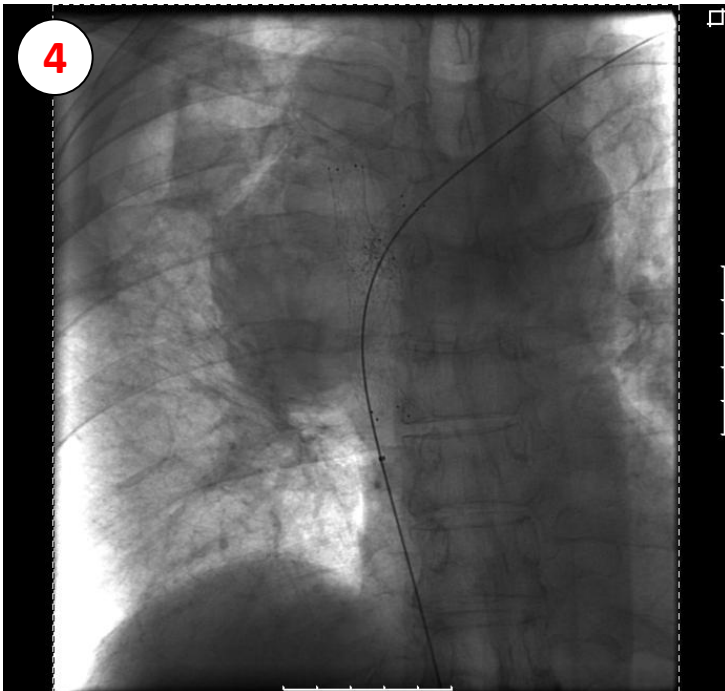
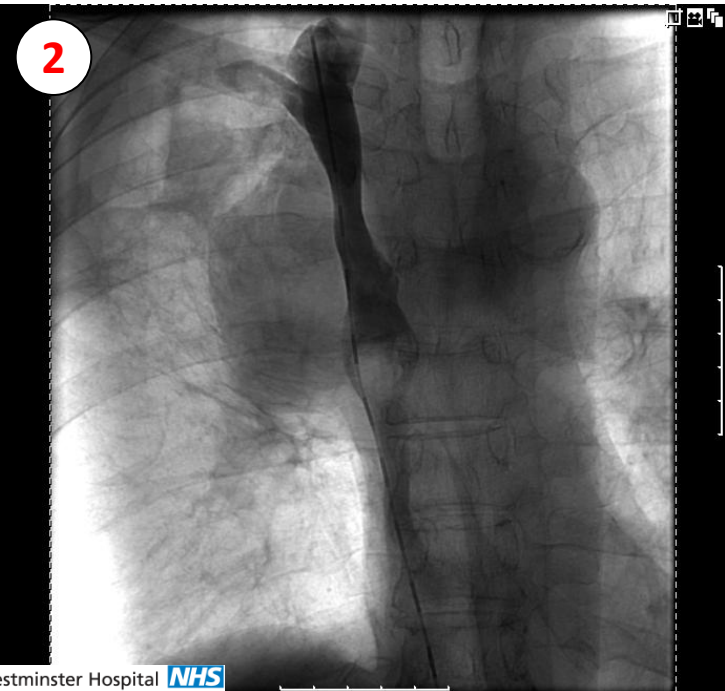
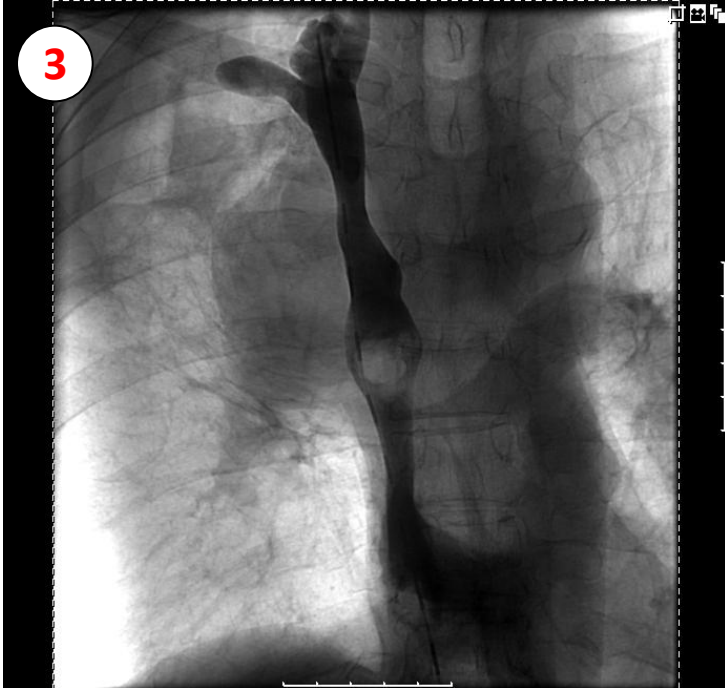
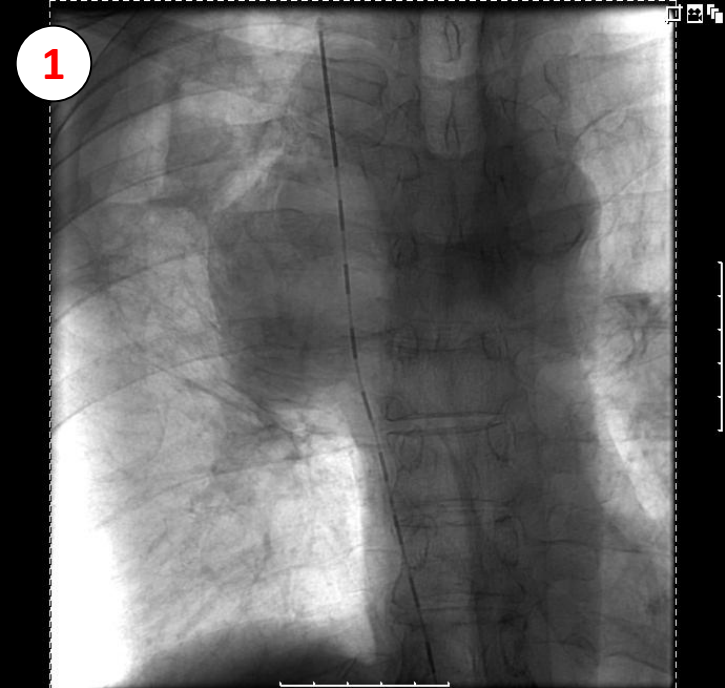
If haemodynamically unstable and/or chemotherapy or radiotherapy not possible

Chemotherapy

For lymphoma, germ cell tumours and SCLC
Response rate up to 80%

Radiotherapy

Symptomatic improvement within 48 hours
Effective in 50-95% (depends on cause)
Precludes subsequent biopsy



Case History #2: 87 year old man

P/C: **Confusion** (several days)
Poor mobility (2 months)

PMHx: Cervical spinal surgery (5 years ago)
TCC bladder 1 year ago
Radiotherapy at CXH, completed 10 months ago
No apparent follow up

DHx: Dicofenac, Tramadol, Omeprazole, Macrogol, GTN
No allergies

SHx: Widower. Resident of Chelsea Hospital.
Normal MMSE = 10/10

Examination

Confused (MMSE = 0/10)

BP 215 / 90

P 115/min

Sats 98% (air)

Sacral tenderness

Unable to do neurological examination

Hb 12.8

WCC 10.8

Plts 276

Na 136

K 3.9

Ur 8.7

Cr 91

ALT 11

ALP 137

BR 8

Alb 25

Corr Ca 3.46

PO₄ 0.98

ABG Not done

MSU Blood +
Protein +

Sugar -

Ketones -

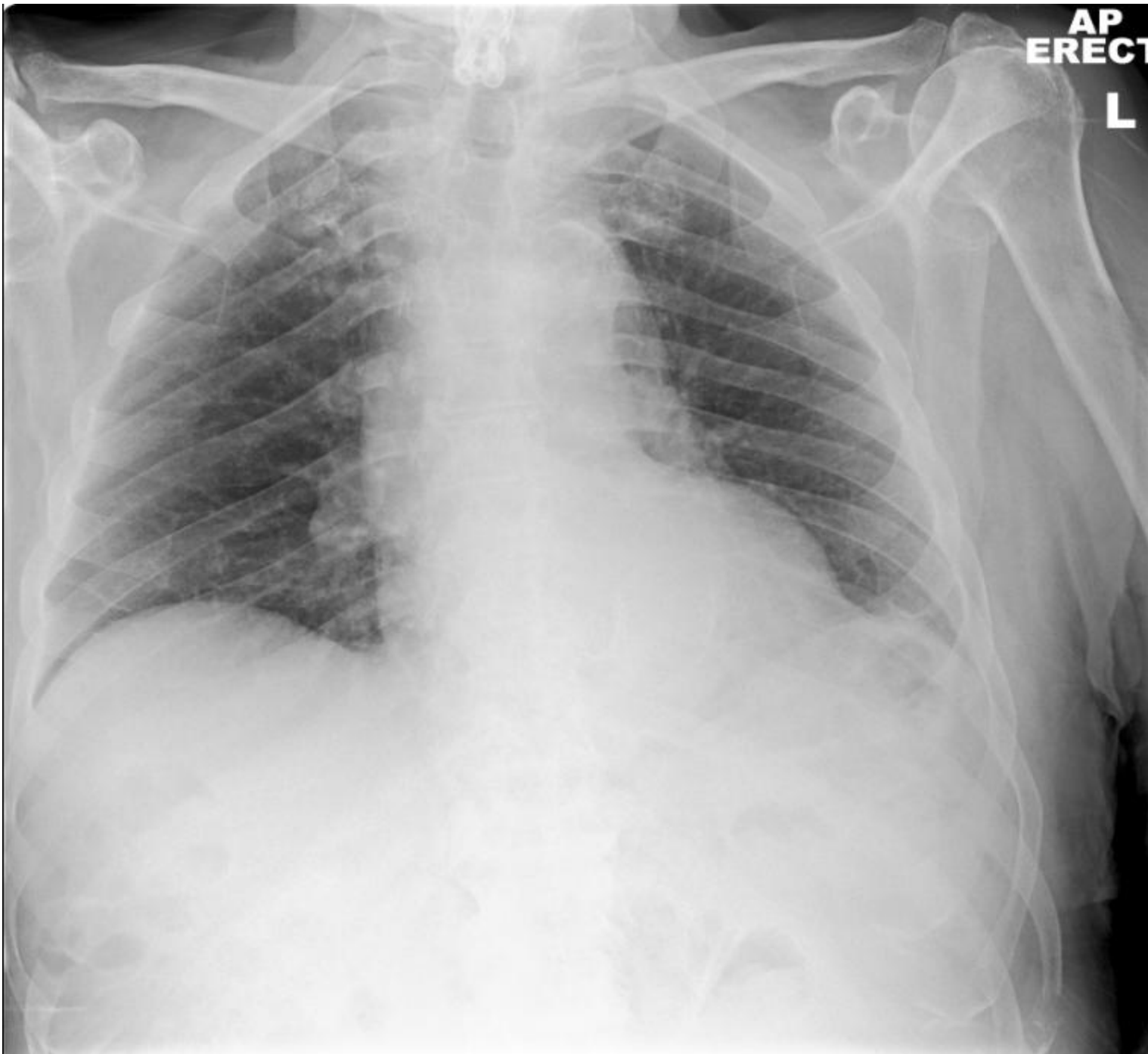
Culture = mixed growth

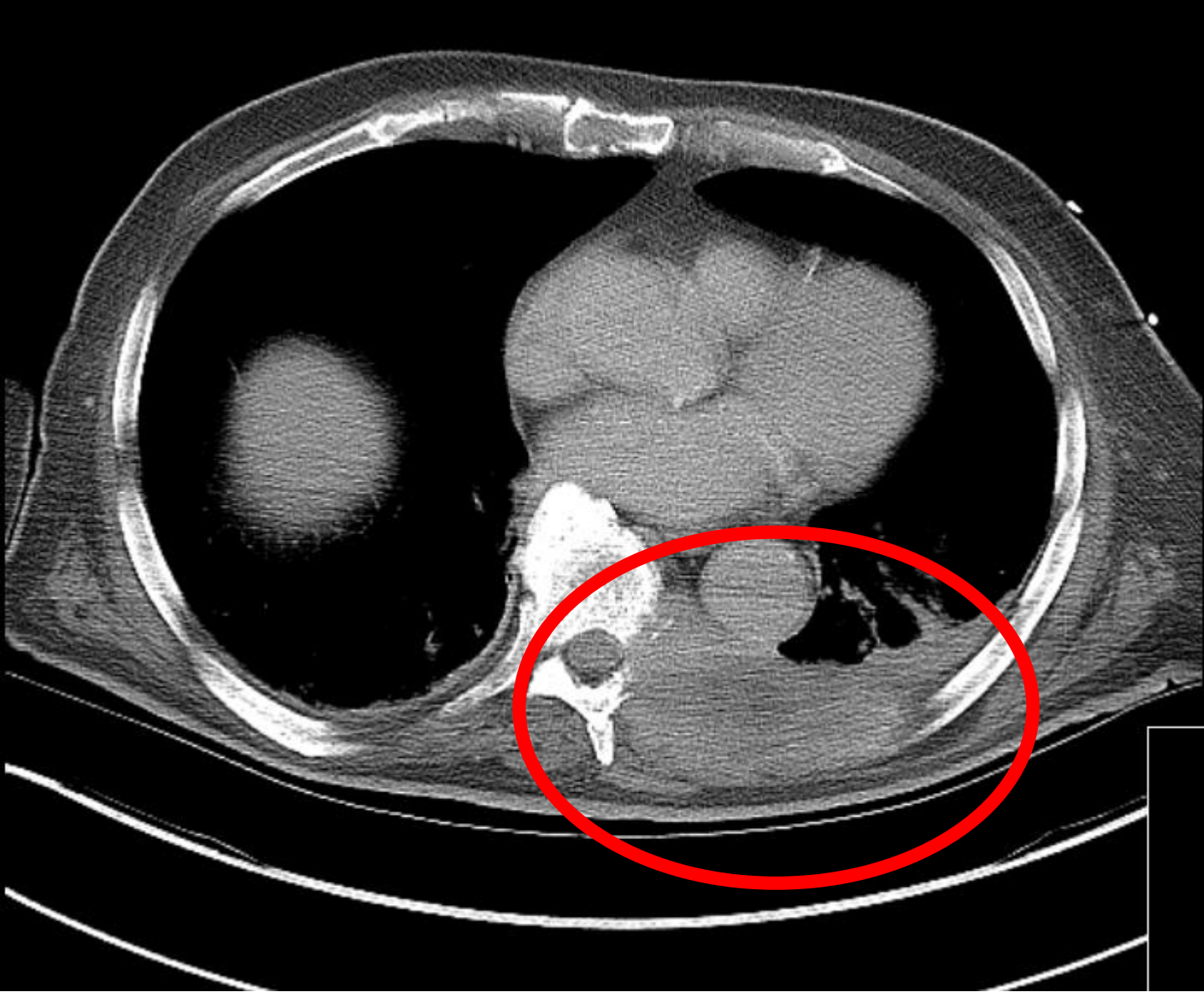
CRP 152

Glucose 6.3

Any Abnormalities?

WHY IS HE HYPERCALCAEMIC?





Hypercalcaemia of Malignancy

Affects 1.5% of cancer patients

- **Malignant Causes**

80% tumour production of PTHrP

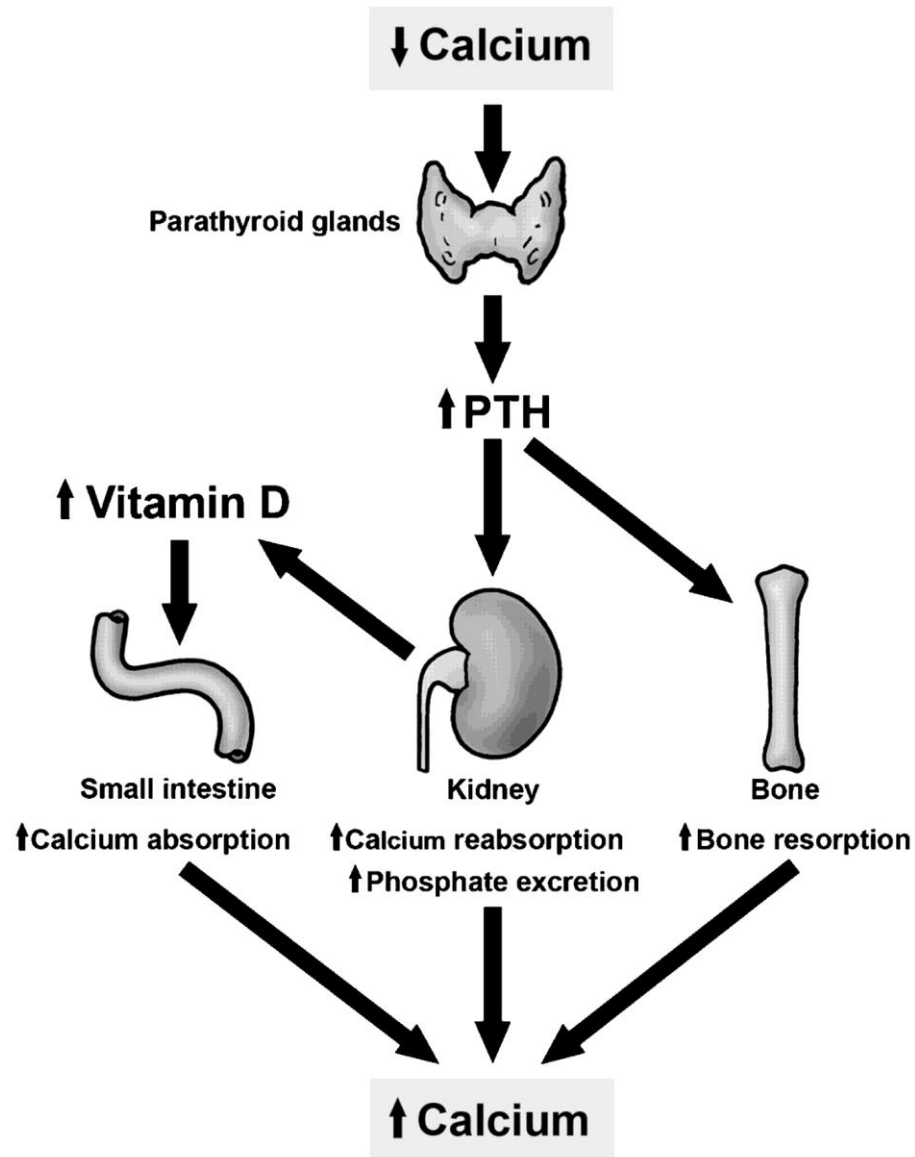
20% osteolytic bone metastases

1% ectopic PTH secretion, vitamin D secreting lymphomas

- **Presentation**

Anorexia, fatigue, muscular weakness, nausea, abdominal pain, constipation, anxiety, and confusion

Parathyroid Axis – Volunteers Please...



Hypercalcaemia of Malignancy - Management

- Rehydration Normal saline
Sufficient in mild cases (Corr Ca <3.00)
- Review medications Stop thiazides and calcium supplements
- Bisphosphonates Inhibit osteoclasts; better than rehydration alone
Response within 2-4 days; Nadir 7-10 days;
Effective in 90%
- Investigations PTH (?), PTHrP (??)
- Refractory cases Repeat bisphosphonate; calcitonin; steroids

15 Minute Break



Case History #3: 59 year old Lady

P/C **Back pain** (7 weeks)

PMHx Gastric banding (previous year)

DHx Co-codamol

SHx Ex-smoker. 40 pack year history

No alcohol

Splits her time between France and the UK

FHx Sister died of lung cancer in her 40s

Examination:

Tender over mid-thoracic spine

Chest clear, abdomen soft and non-tender

WHAT DO YOU DO NEXT?

Examination:

Tender over mid-thoracic spine

Chest clear, abdomen soft and non-tender

Neurological examination

Normal tone

Normal power (but leg raises limited by pain)

Normal coordination

Normal reflexes

Normal sensation

FBC	Normal	ABG	Not done
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Na	141	MSU	Not done
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K	4.3
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Ur	5.4
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Cr	74
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ALT	28
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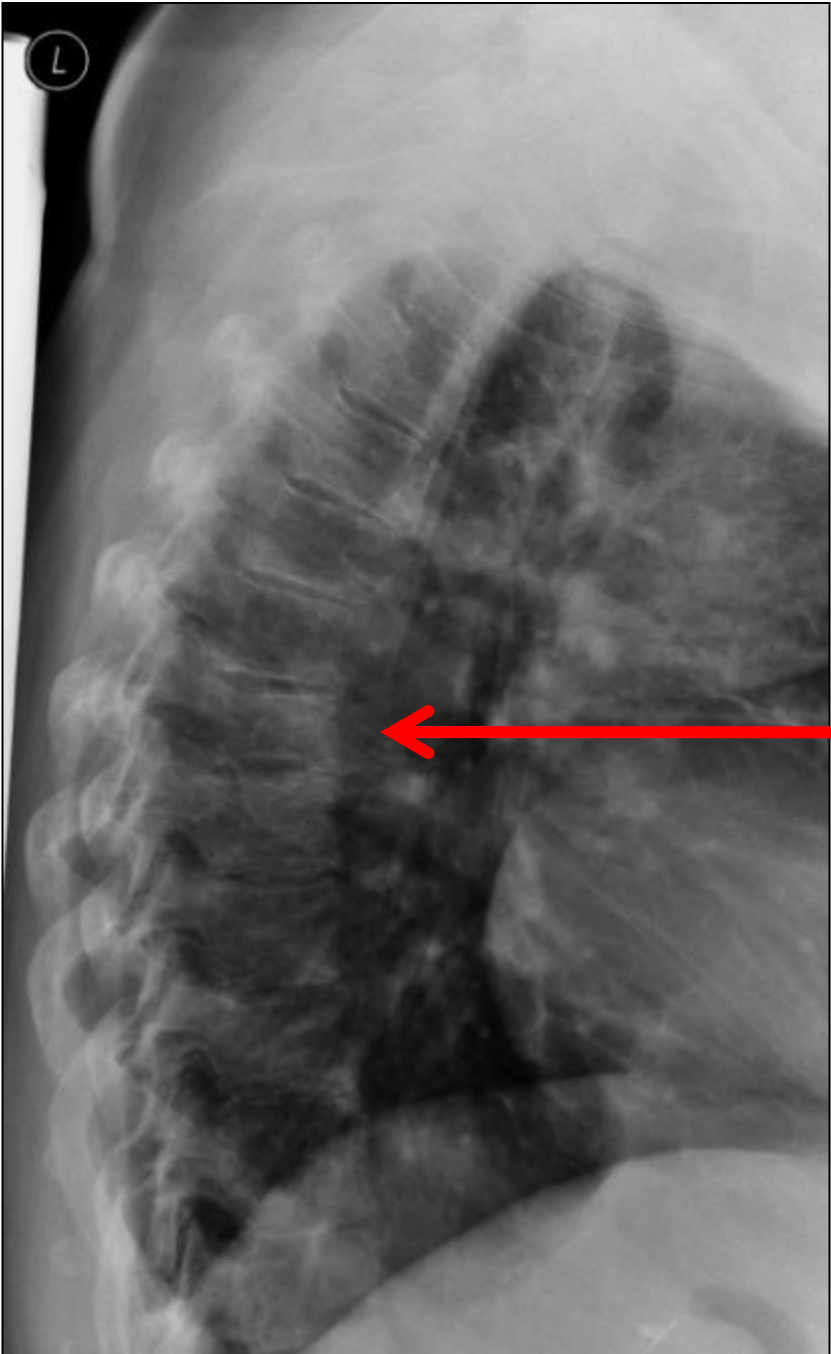
ALP	93
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BR	10
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Corr Ca	2.55
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CRP	3.7
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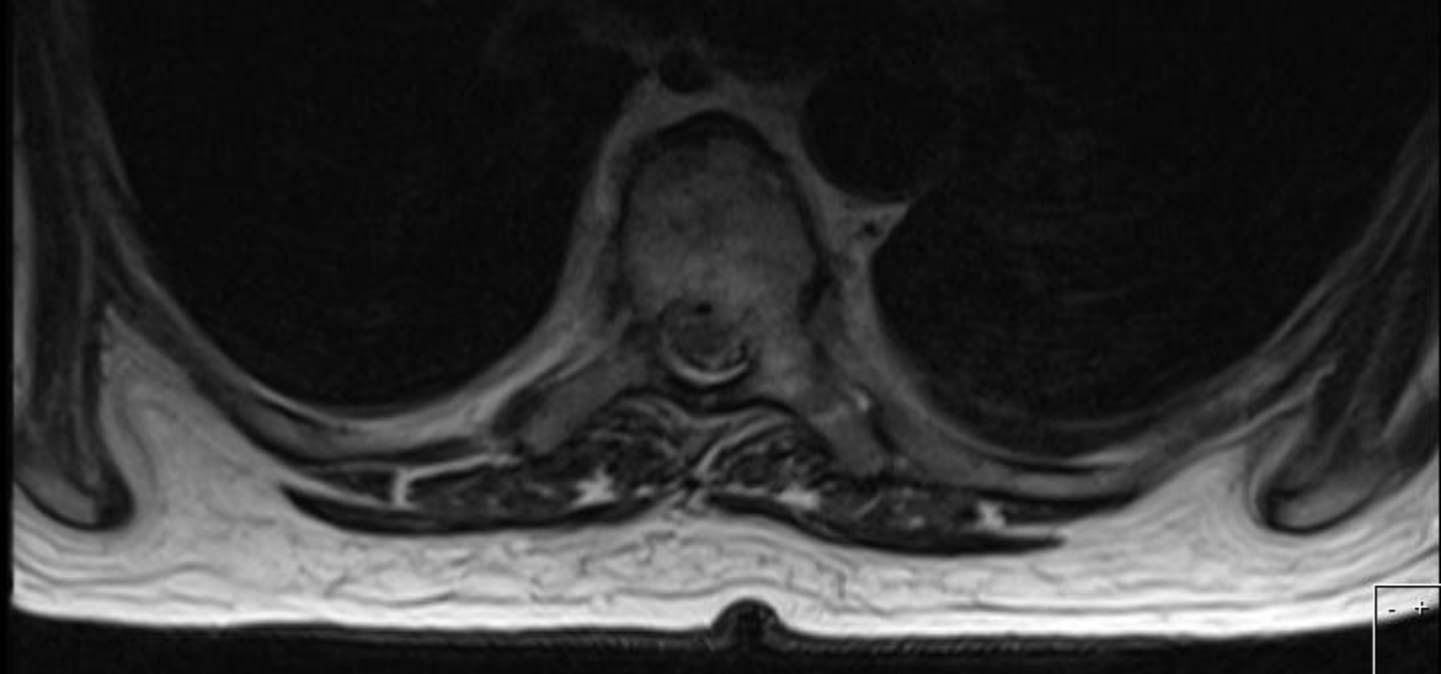
WHAT DO YOU DO NOW?



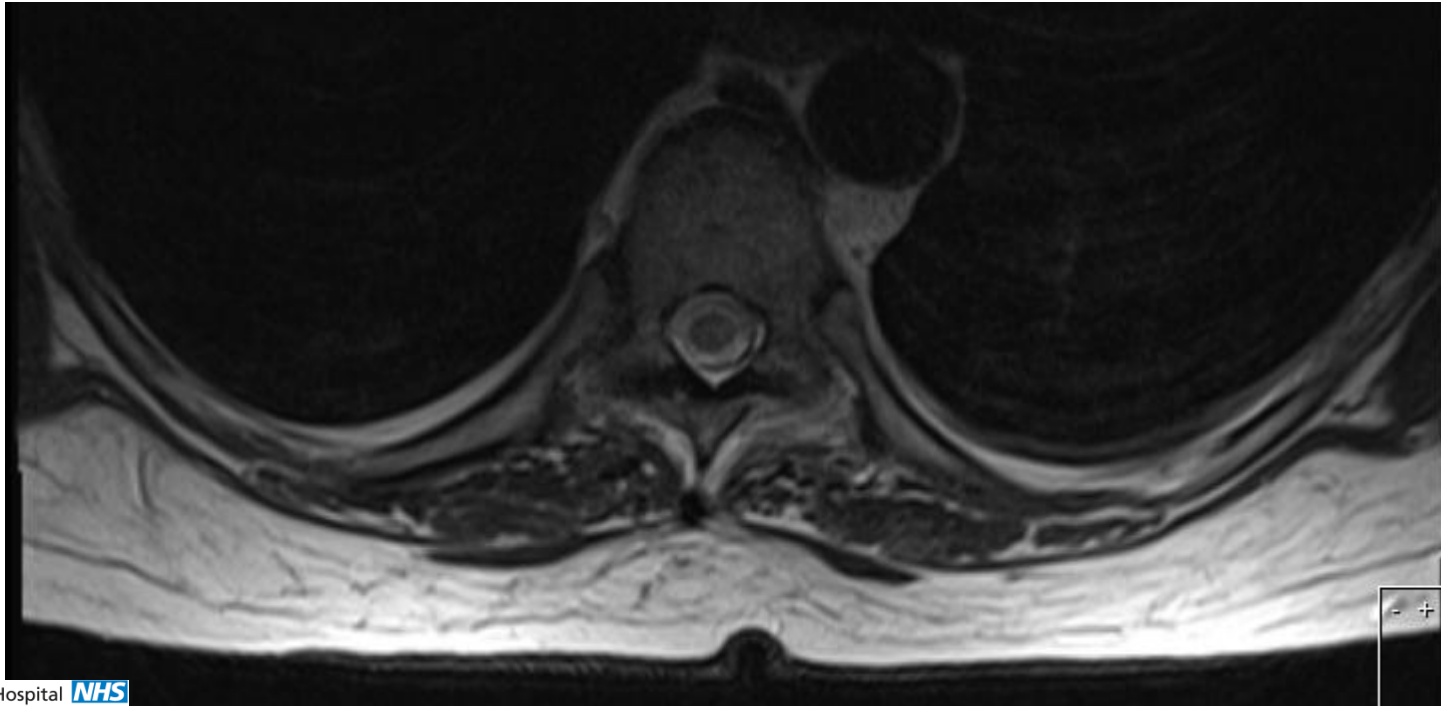
T7 collapse



T7



T8



WHAT DO YOU DO NOW?

Metastatic Spinal Cord Compression – Management

- Dexamethasone
- Surgical decompression
- Radiotherapy
- Symptom control
- Rehabilitation

Metastatic Spinal Cord Compression

Affects 5% of cancer patients: 60% thoracic, 30% lumbar, 10% cervical

- **Causes**

60% of cases caused by breast, prostate or lung cancer

- **Symptoms**

95% have back pain, on average 3 months prior to diagnosis

Exacerbated by coughing, sneezing, bending: *wakes patient from sleep*

- **Signs**

85% have weakness

65% have sensory disturbance

50% have autonomic dysfunction

Later That Month...

- Completed radiotherapy
- On reducing dose dexamethasone regimen
- New leg weakness
- O/E:
 - Power 3/5
 - Poor coordination
 - Hyperreflexia in knee jerks
 - Tone and sensation normal

Differential Diagnosis?

- Radiotherapy flare
- Progression of T7 metastasis
- Further T7 vertebral collapse
- New area of cord compression



Information for patients

Sometimes cancer which has spread to the bone can put pressure on the spinal cord. This can cause damage so it is important to treat this early. The symptoms are:

- severe or worsening back pain
- pain in arms or legs
- pain in or around chest/stomach
- leg or arm weakness or numbness
- tingling, pins & needles
- difficulty walking
- difficulty emptying your bowels or bladder

If you have any of these symptoms:

- Avoid bending your back
- **Within 24 hours** contact your **cancer key worker** if you know their number or phone Chelsea and Westminster Hospital on **020 8746 8000** and ask them to **page the on-call Oncology Team**
- Tell the Oncology Team that you have this card

Spinal cord compression alert card

Name

Hospital n°

Name

Hospital n°

Chelsea and Westminster Hospital 
NHS Foundation Trust

Information for medical staff

This patient is at high risk of metastatic spinal cord compression. This is spinal cord or cauda equina compression by direct pressure and/or vertebral collapse or instability by metastatic spread or direct extension of malignancy that threatens or causes neurological disability.

Symptoms include:

- Severe unremitting back pain (thoracic, cervical or progressive lumbar spine)
- Severe back pain aggravated by lying, standing, coughing, sneezing, lifting or straining, which prevents sleep
- Neurological symptoms including radicular pain, limb weakness, difficulty walking, sensory loss or bladder/bowel dysfunction.

If any of these symptoms are present, please consider metastatic spinal cord compression in your diagnosis and treat as an **oncological emergency**.

In working hours
Mon-Fri, 9am-5pm)

Contact the **Acute Oncology Service** at Chelsea and Westminster Hospital on **020 8746 8000 bleep 5019** or call **07791 472 630**

Out of hours

Contact the Chelsea and Westminster Hospital switchboard on **020 8846 8000** and **bleep the on-call Oncology SpR**

Case History #4: 45 year old Lady

P/C **Pyrexia** at home (38.2°C)

Fatigue over past 3 days

PMHx Breast cancer: mastectomy 3 months ago

Adjuvant chemotherapy and Herceptin

Last chemotherapy 10 days ago

DHx Paracetamol PRN. Anti-emetics with chemotherapy

SHx Lives with husband and children

Non-smoker; Occasional alcohol

FHx Not recorded

Examination

Looks well

T = 37.0°C

P = 115/min. BP 90/55

Sats 98% (air)

Chest clear, abdomen soft and non-tender

WHAT DO YOU DO NOW?

Options...



a) iSTAT



b) Phlebotomists



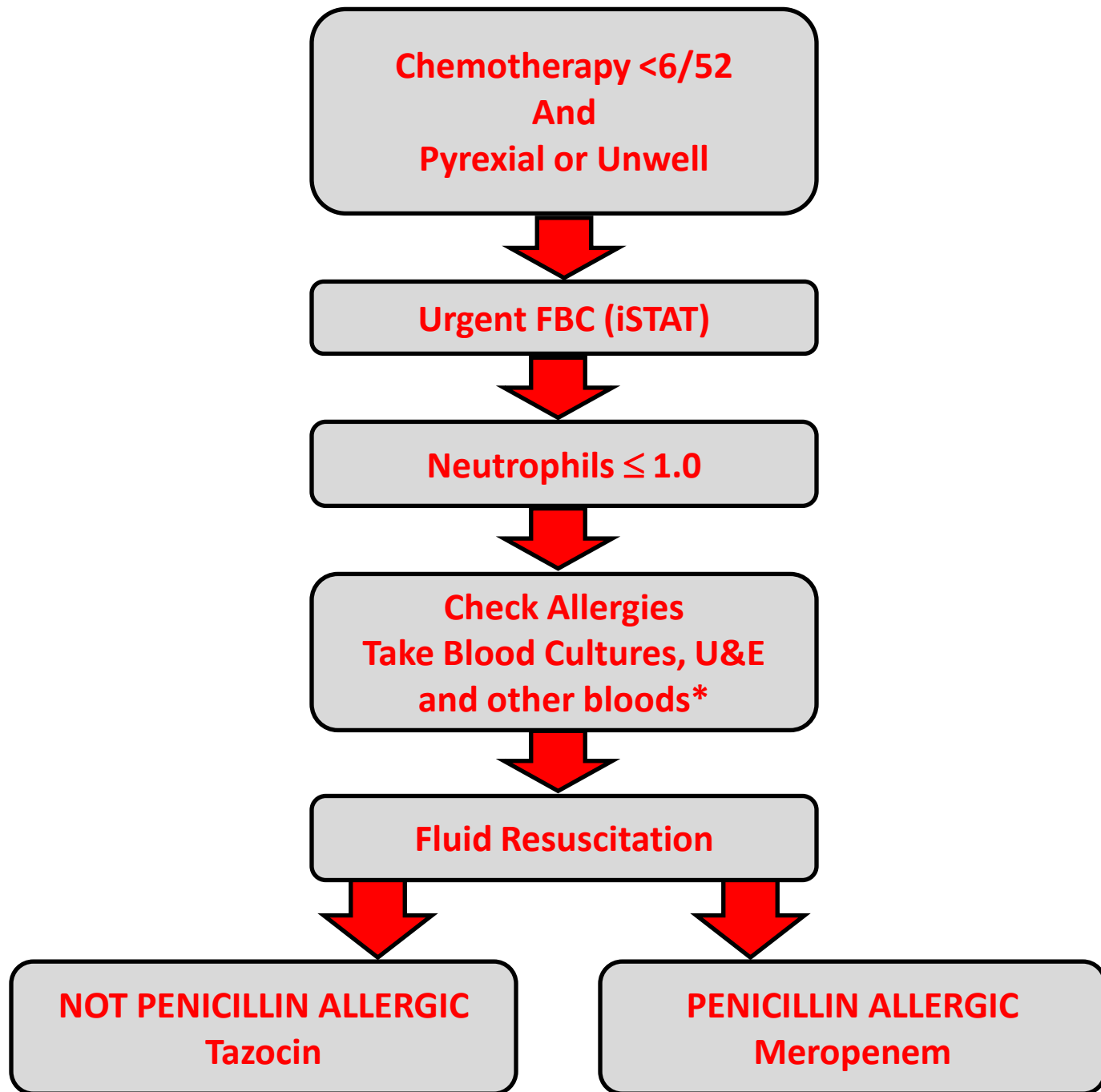
c) Pub

Hb	8.9
WCC	1.2
Nt	0.0
Plts	56

← **What Do You Do Now?**

Na	137
K	3.3
Ur	2.1
Cr	60

ALT	45
ALP	105
BR	12
Alb	34



Febrile Neutropenia

- **Temperature $>38^{\circ}\text{C}$ and neutrophils $<1.0 \times 10^9/\text{L}$**
- 50% chance of occult or established infection
 - Increased risk if neutrophils $<0.5 \times 10^9/\text{L}$
 - 20% chance bacteraemia if neutrophils $<0.1 \times 10^9/\text{L}$

Febrile Neutropenia - Microbiology

- **Gram negative organisms:** commonest in 1970s

- *E. Coli*
- *Klebsiella*
- *Pseudomonas*
- *Enterobacter*

- **Gram positive organisms:** commonest today

- *Staphylococcus:*
aureus, coagulase negative
- *Streptococcus:*
pyogenes, viridans, pneumoniae
- *Enterococcus*
- *Corynebacterium* spp

Febrile Neutropenia – Mortality

- **Mortality** – improving but still significant
 - 5% Solid tumours
 - 11% Haematological malignancies
- **Clinical Signs** – may be minimal
 - Don't be fooled by the 'well' patient
- 70% clinical response rates to appropriate antibiotics

Febrile Neutropenia – Management

1. Immediate assessment and vigorous resuscitation
2. Blood cultures
3. Empirical antibiotics
 - Tazocin[®] (ESBL resistant to 3rd generation cephalosporins)
 - +/- Aminoglycoside (better Gr-ve cover; less developing resistance)
 - +/- Vancomycin (if MRSA suspected – e.g. long line infection)
 - Meropenem (if penicillin allergic)

Febrile Neutropenia – Prevention

Dose reductions

Reduce dose

Dose delays

Prophylactic GCSF:

If risk of FN >20%

Risk of splenic rupture?

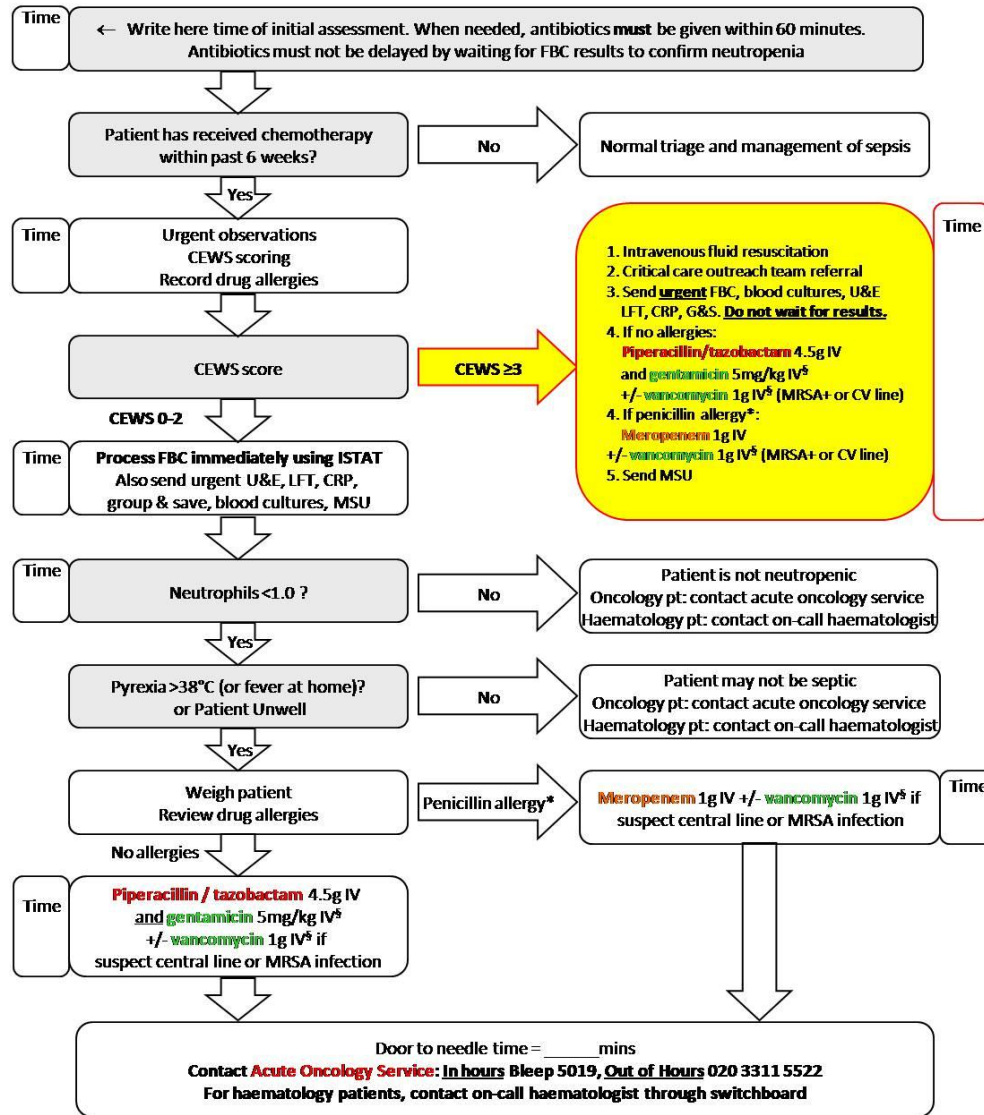
Prophylactic antibiotics

Not routinely used

Reduce mortality

Increased resistance and *C.Diff*

Management Of Suspected Febrile Neutropenia



*This refers to previous skin reactions with penicillins. If previous anaphylaxis with penicillins, please contact on-call microbiologist for advice before giving meropenem.

§Dose of gentamicin and vancomycin should be reduced if there is renal impairment. Gentamicin should be dosed on ideal body weight if >20% obese. Please refer to trust anti-microbial guidelines.

Case History #5: 54 year old Lady

P/C	Dyspepsia Breathlessness Abdominal pain
PMHx	Hypertension, hypercholesterolaemia
DHx	Bendroflumethiazide, atorvastatin
SHx	Housewife Ex-smoker, 30 pack year history Nil alcohol
FHx	None relevant

“We Think She Might Have Cancer...”

- Repeated attendances to GP
- Normal shoulder x-ray previous month
- Eventually referred for abdominal U/S
 - Ill-defined abdominal mass
 - Oncology directly contacted by radiology department

Examination

In pain. Obese

Dyspnoeic on exertion

Apyrexial and normotensive

Sats 98% (RA)

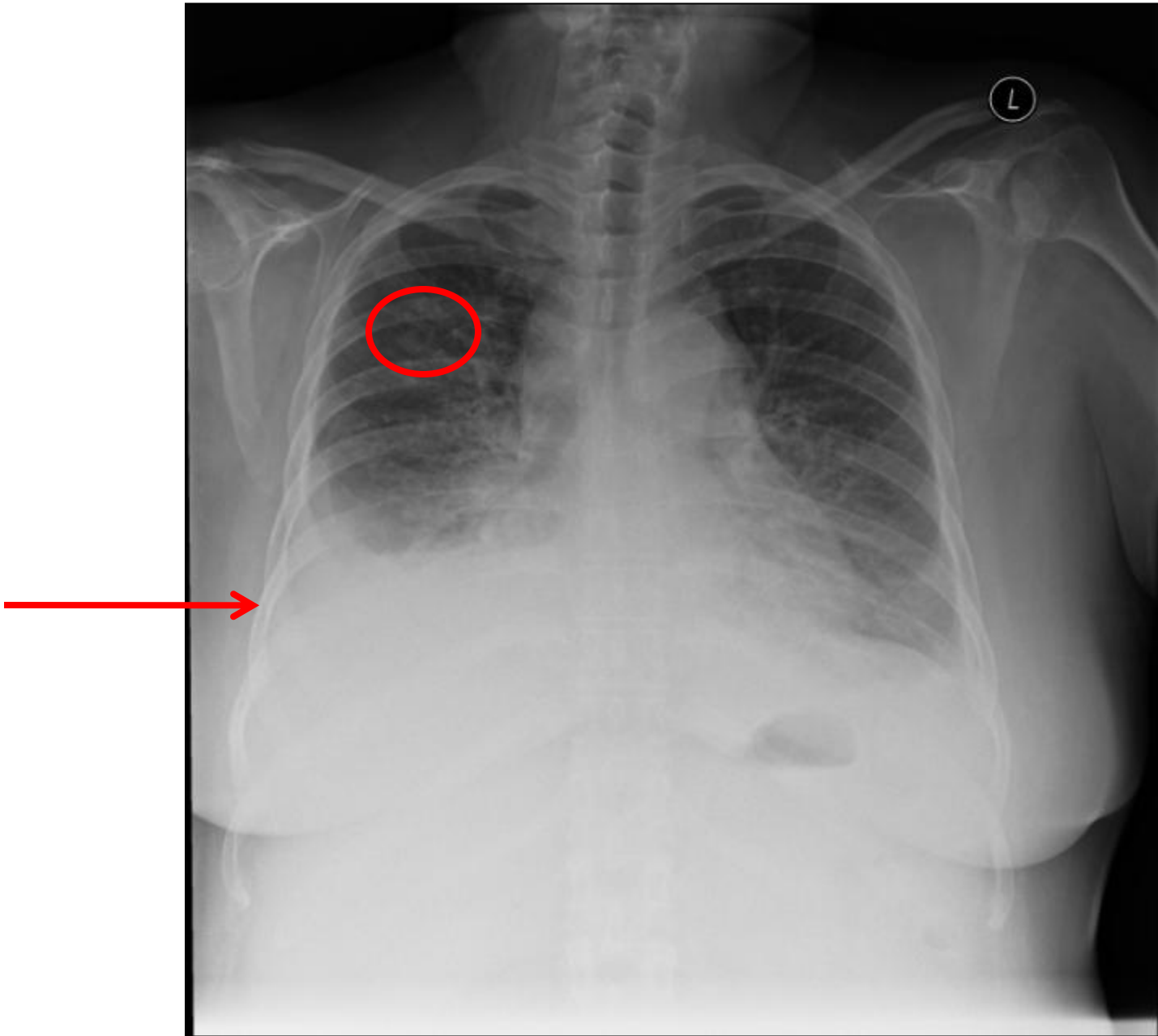
Chest: Dull right base with absent breath sounds

Abdomen: Difficult to examine given body habitus

Suprapubic fullness

No ascites

Neuro: 'Grossly normal' (i.e. no one bothered)



NOW WHAT DO YOU DO?

- **Blood tests**

- FBC, U&E, LFTs, Ca⁺⁺, clotting all normal

- Tumour markers? Ca125 ←

CEA

Ca153

Ca199

HCG

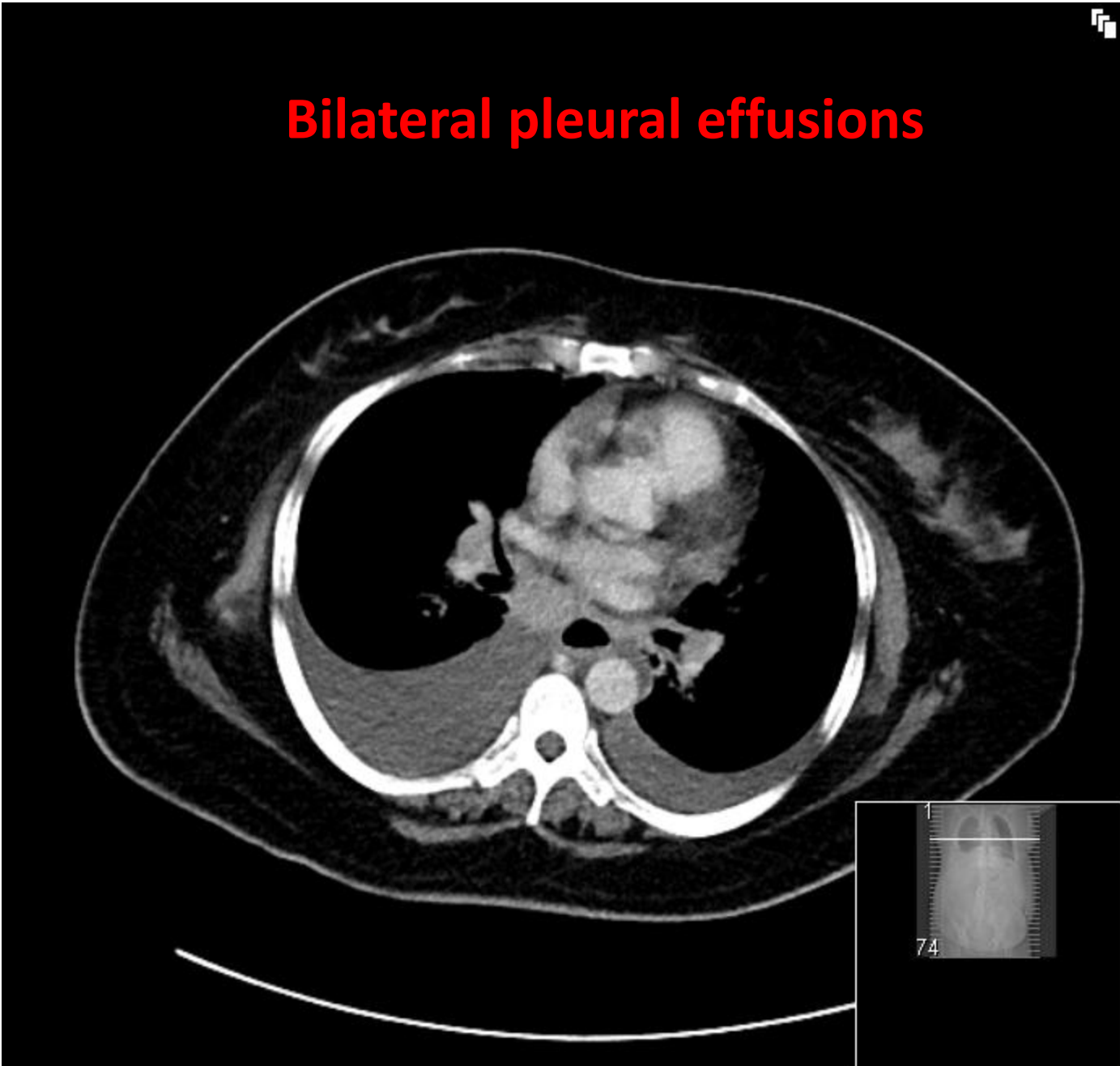
AFP

SCC

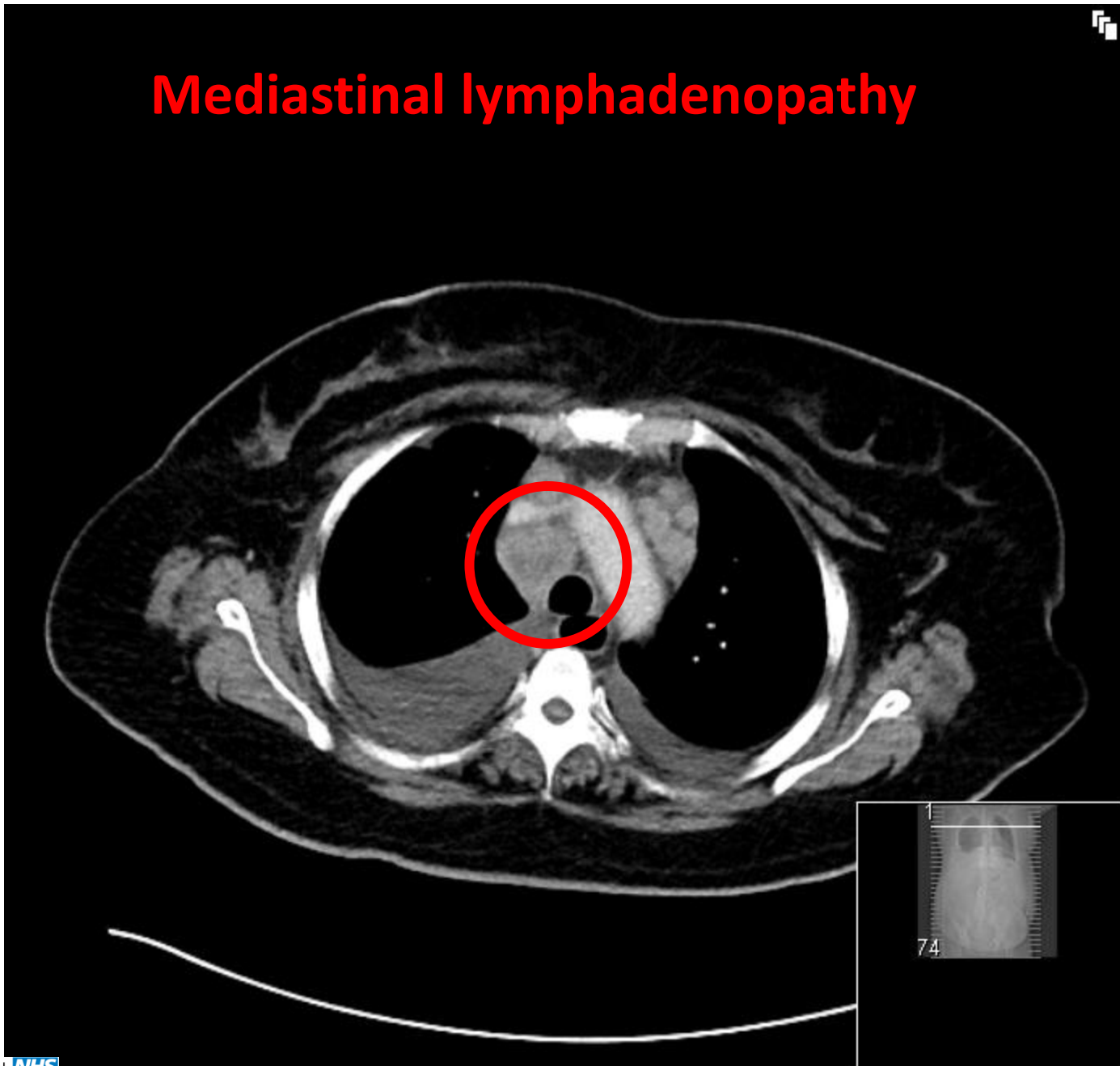
S100

- **Blood tests**
- **Imaging**

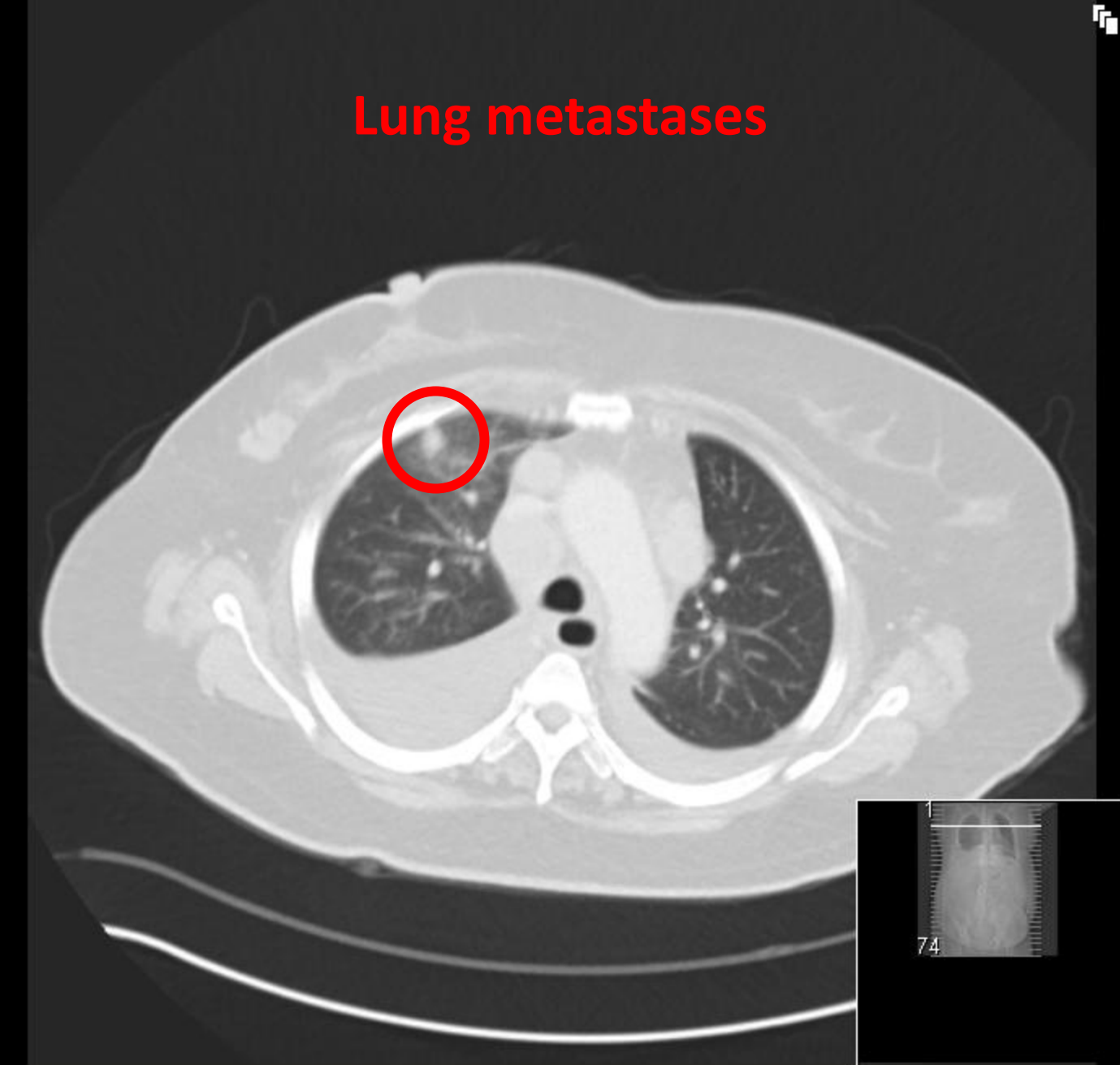
Bilateral pleural effusions



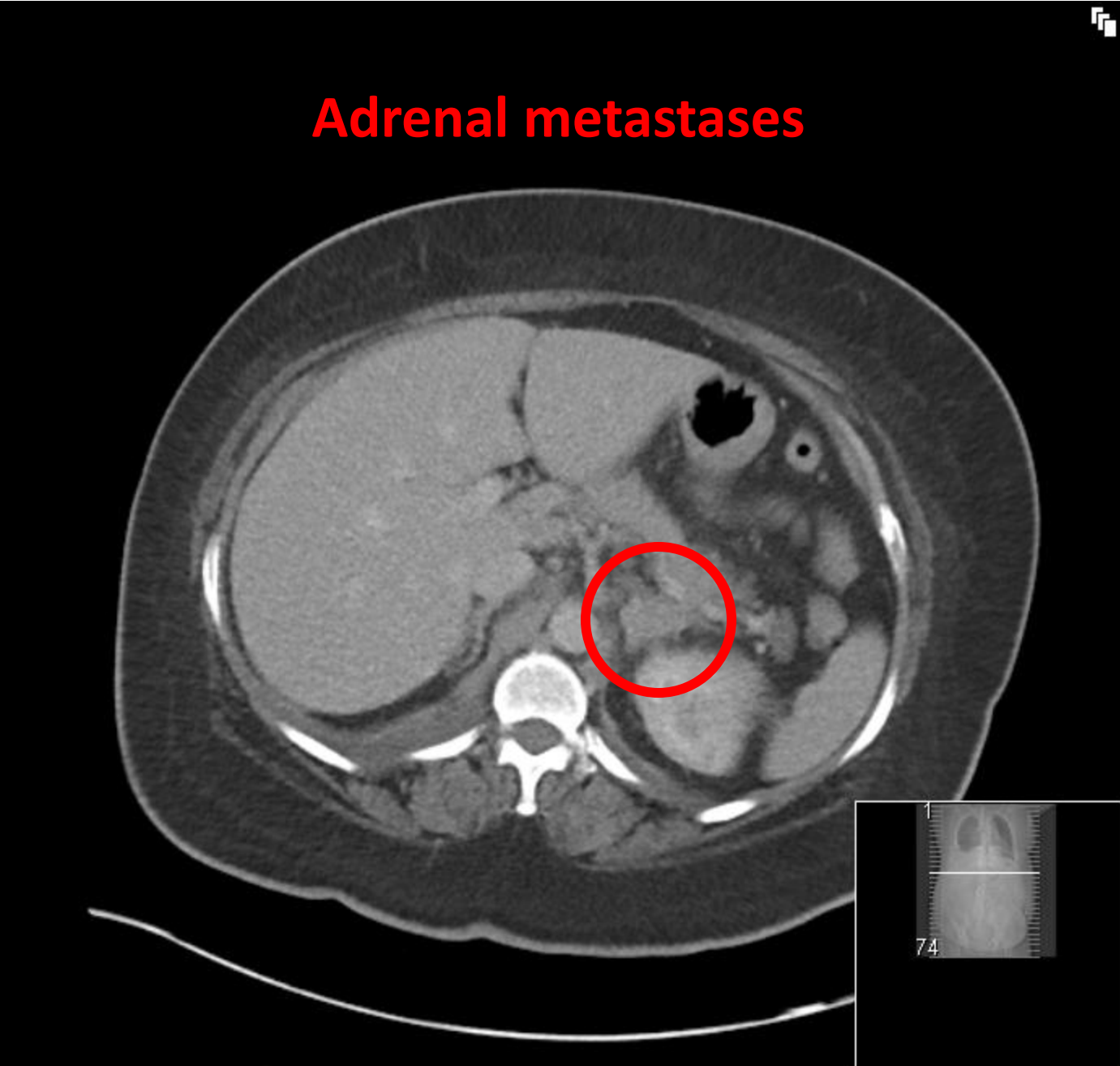
Mediastinal lymphadenopathy



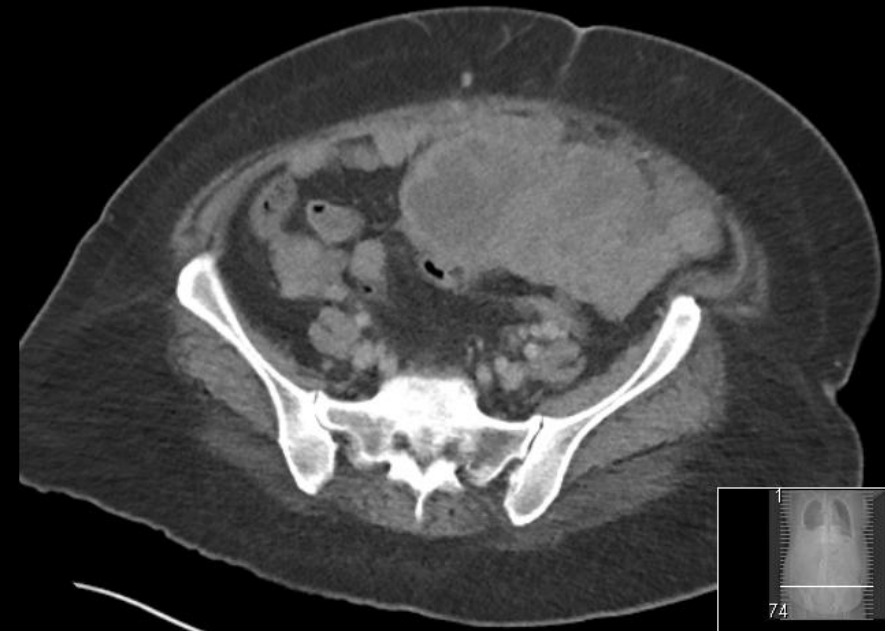
Lung metastases



Adrenal metastases



Complex pelvic and peritoneal mass



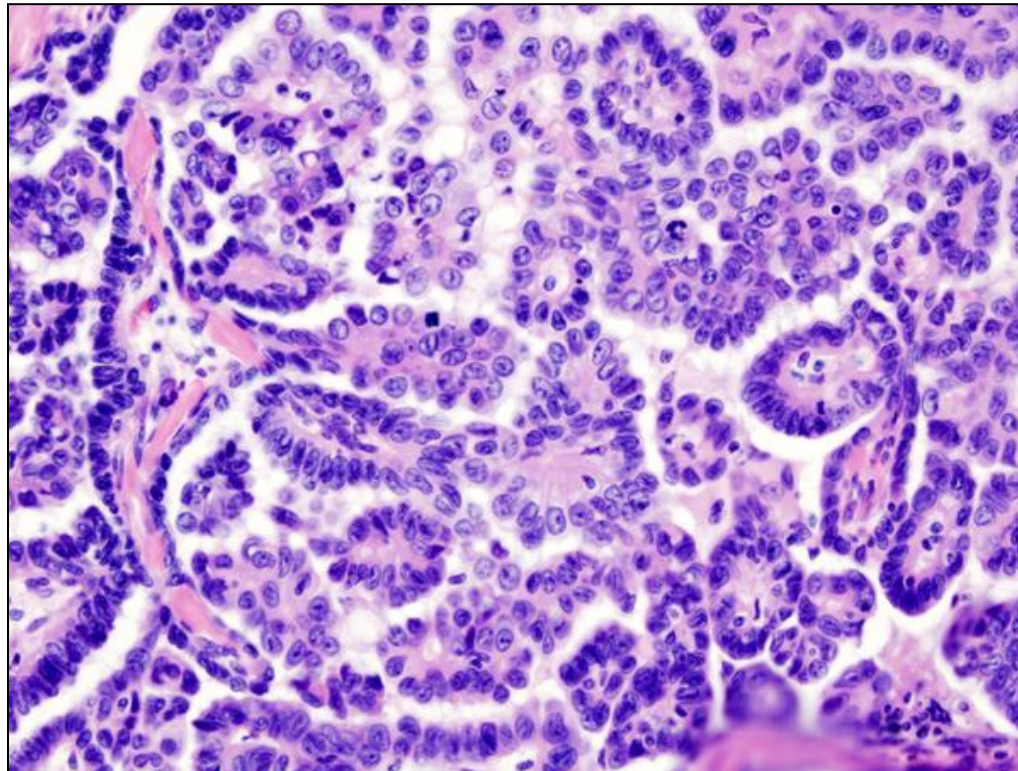
Differential Diagnosis?

- Ovarian
 - Lung
 - Breast (with ovarian metastases)
 - GI (with ovarian metastases)
- } Krukenberg Tumour

- **Blood tests**
- **Imaging**
- **Endoscopy**
- **Biopsy**
 - Pleural cytology
 - Pelvic biopsy

Results

- Ca125 = 511 U/ml (normal range <35)
- Biopsy = Poorly differentiated serous adenocarcinoma
Consistent with ovarian origin



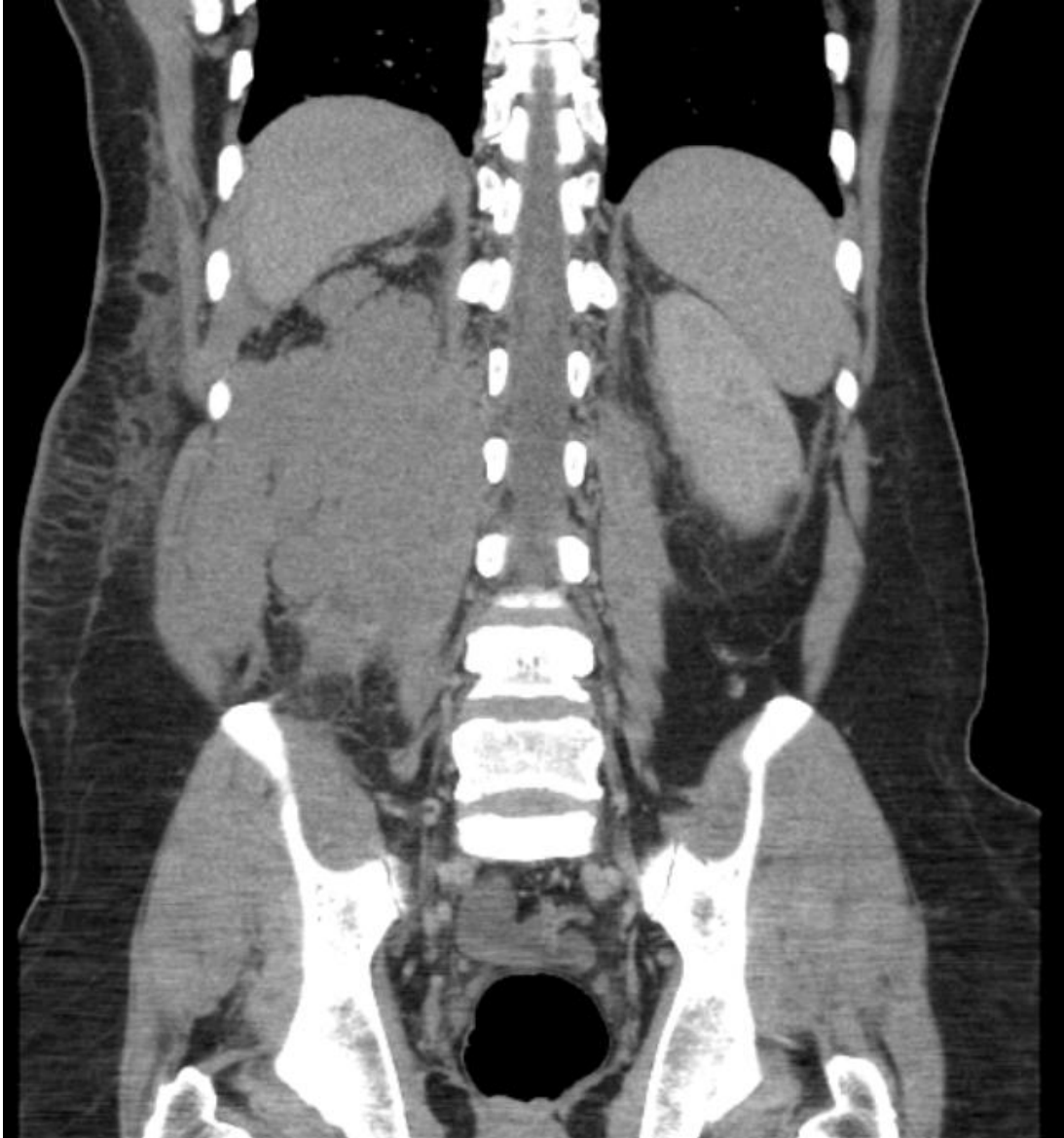
Now What?

- Tell the patient
- Specialist nurse involvement
- MDT discussion
- Symptom relief (pain, drain effusion)
- Palliative medicine input
- Appropriate referral

49 Year Old Man

- Abdominal pain.
- U/S: renal mass.
- Biopsy: Burkitts Lymphoma.
- Stage IVB E

- New HIV +ve.
- Started: HAART, OI prophylaxis, rasburicase



	Pre Chemo	Post Chemo
Na	134	129
K ⁺	4.9	5.8
Ur	8.0	18.6
Cr	33	197
BR	9	28
ALT	13	13
ALP	64	64
Corr Ca ⁺⁺	2.51	2.05
PO ₄	1.18	2.79
Alb	35	28
Hb	11.5	10.6
WCC	7.6	5.7
Plt	314	218

	Pre Chemo	Post Chemo
Na	134	129
K ⁺	4.9	5.8
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Cr	33	197
BR	9	28
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PO ₄	1.18	2.79
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Plt	314	218

Tumour Lysis Syndrome

↑**PO₄**

Phosphate binder, frusemide, mannitol

↑**K⁺**

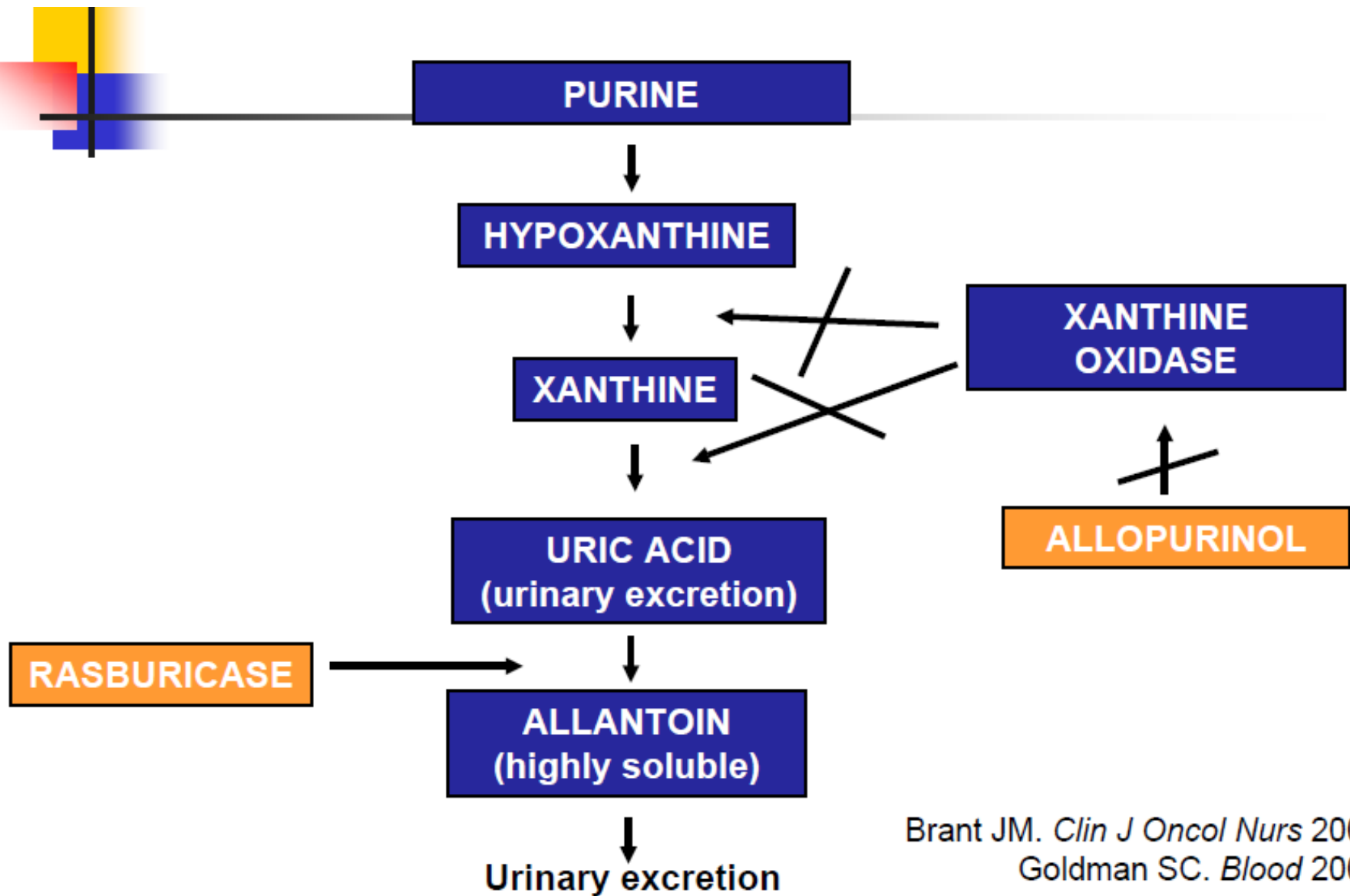
Insulin/glucose, frusemide, ca gluconate

↓**Ca⁺⁺**

Correct phosphate

↑**urate**

Allopurinol or rasburicase



Brant JM. *Clin J Oncol Nurs* 2002.
Goldman SC. *Blood* 2001.

Summary

- Complications of cancer treatment
 - Neutropenic sepsis*
 - Nausea and vomiting
 - Diarrhoea
 - Mucositis
 - Radiation pneumonitis
 - Radiation induced cerebral oedema

Summary

- Complications of cancer treatment
- Complications of known cancer diagnosis
 - Metastatic spinal cord compression*
 - Effusions (pleural, pericardial)
 - Lymphangitis carcinomatosa
 - Hypercalcaemia of malignancy
 - SVCO*
 - CNS space occupying lesions

Summary

- Complications of cancer treatment
- Complications of known cancer diagnosis
- Emergency new presentation of cancer
 - Whether to investigate
 - How to investigate
 - Communication

Any Questions?

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