

# A strange case of deep venous thrombosis (DVT)

Dr. Rosa Lombardi

IRCCS Ca' Granda Ospedale Maggiore Policlinico di  
Milano, Milan

Department of Internal Medicine 1B

(Prof S.Fargion)

University of Milan



FONDAZIONE IRCCS CA' GRANDA  
OSPEDALE MAGGIORE POLICLINICO



Brazilian woman, 50 years old

In Italy for 10 years (last trip to Brazil 6 months before)

Pain and swelling of the left lower limb

### Medical history:

- 4-year history of post-prandial abdominal pain, constipation and 7 kg weight loss (reduced food intake) → upper and lower endoscopy and barium enema negative
- Left ovarian cyst in follow-up
- Kidney stones
- Menopause state, no HRT
- No therapy
  - No allergy
  - No smoking

# On Admission

- ✓ BP 80/40 mmHg, HR 80 b.p.m rt, SatO<sub>2</sub> 97% AA; TA 36° C, RR 16/min; BMI 18 kg/m<sup>2</sup>.
- ✓ Normal ECG
- ✓ Physical examination: mild diffuse abdominal discomfort and tenderness, especially in left iliac fossa; edema of the lower left limb
- ✓ Neurological examination: normal

## Other investigations:

- ✓ Chest X-ray: nodule in the upper right lung (result of past infection?)
- ✓ Doppler US lower limbs: Left deep venous femoro-popliteal thrombosis (DVT) → treatment with subcutaneous nadroparin and compression stockings

Bloods	
Hb (g/dl)	10,5
MCV (fl)	84
WC (mmc)	13250
PTL (mmc)	350000
Creatinine (mg/dl)	0,6
AST (U/L)	20
ALT (U/L)	25
GGT (U/L)	15
Albumin	3,2
Cholinesterase (U/L)	3364
Total cholesterol (mg/dl)	110
CRP (mg/dl)	6,6
Procalcitonin (mg/dl)	0,08
PT	1,24
PTT	0,92
D-dimer (µg/ml)	923
LDH (U/L)	110

# Causes of DVT

## Risk factors (causes) for the development of venous thrombosis

<b>Inherited thrombophilia</b>
Factor V Leiden mutation
Prothrombin gene mutation
Protein S deficiency
Protein C deficiency
Antithrombin (AT) deficiency
Rare disorders
Dysfibrinogenemia
<b>Acquired disorders</b>
Malignancy
Presence of a central venous catheter
Surgery, especially orthopedic
Trauma
Pregnancy
Oral contraceptives
Hormone replacement therapy
Tamoxifen, Thalidomide, Lenalidomide
Immobilization
Congestive failure
Antiphospholipid antibody syndrome
Myeloproliferative disorders
Polycythemia vera
Essential thrombocythemia
Paroxysmal nocturnal hemoglobinuria
Inflammatory bowel disease
Nephrotic syndrome

### Also:

- Obesity
- Smoking
- Chronic inflammatory state

### But in this case we excluded:

- Smoking
- Obesity
- Hormonal therapy
- History of surgery, trauma or immobilization
- Familiarity for DVT or abortion
- IBD (endoscopy)

# Which exams would you ask for?

- ✓ Inflammatory markers: Blood count (WC 8000-12000/mm<sup>3</sup>), CRP 3-6 mg/dl, Procalcitonin 0,04-0,08 mg/dl → stable
- ✓ Thrombophilic screening: ANA, Ab anti DNAs, protein C and protein S levels, Antitrombin level, Antiphospholipid antibodies (LLAc, ACA IgM, Ab anti beta2-microglobulin), Factor V Leiden mutation, prothrombin gene mutation, homocystein level → negative
- ✓ Neoplastic markers: CEA, Ca 19.9, AFP, Ca 125, Ca 15.3 → negative

# During the following day in the ward

Persistent and worsened abdominal pain, BP 90/60 mmHg, HR 90 rt, SpO<sub>2</sub> 94% AA, TA 36° C. Mild dyspnea. Normal ECG and BGA.



**What do you suspect (DVT)?  
What do you do???**

- ❖ **Thorax / coxofemoral CT**: exclusion of pulmonary embolism (PE) BUT evidence of two solid hypodense lesions in the upper and inferior lobe of the right lung characterized by contrast enhancement. Large hypodense lesion in the ileopsoas muscle bilaterally. Similar lesions in the left ovarian and obturator area, in the Pouch of Douglas and at the hepatic hilum (neoplastic vs infectious?).

# AND NOW?

- ❖ **Abdomen CT**: complex hypodense septed cystoid lesion at the hepatic hilum, between head of pancreas, portal vein and IVC, similarly large hypodense lesions in the ileopsoas muscle bilaterally (left 3x 2,5x8 cm), along the left common iliac artery and left external iliac artery (diam max 4 cm) and in the left ovarian area. Similar lesion in the inferior lobe of the right lung. (NEOPLASTIC vs INFECTIOUS)

How to better characterize these complex lesions?

## **CT/PET total body**

actively inflammatory nodal colligated lesions (SUV max 6,3)

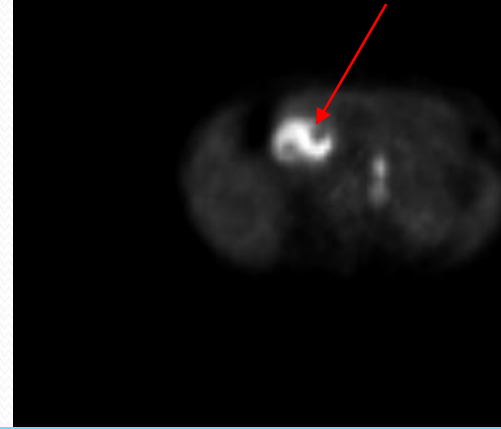
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## COLLIQUATED ABDOMINAL LYMPHADENOPATHIES AND BILATERAL PSOAS ABSCESS

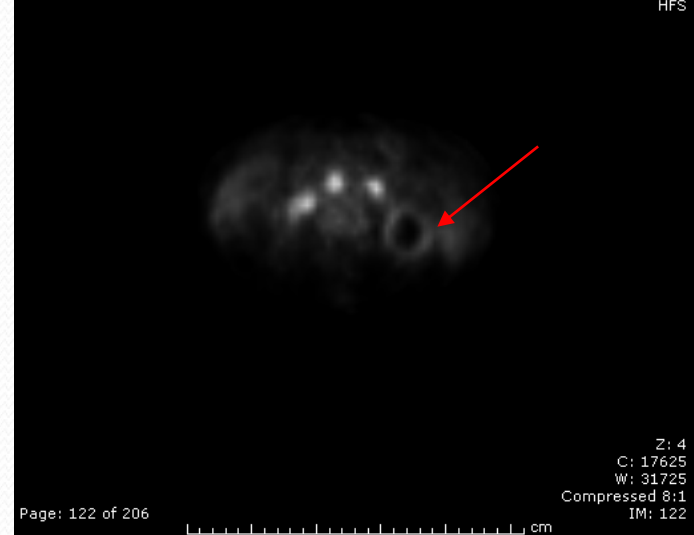
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# Lymphadenopathy

- ✓ Infectious disease:
  - Bacteria, virus, mycobacteria, fungi, protozoa, spirochaete, parasites
- ✓ Neoplastic disease
  - Head/neck squamocellular carcinoma
  - Metastasis
- ✓ Lymphoproliferative disease
- ✓ Immunological disease (serum sickness, drug reaction)
- ✓ Miscellany (sarcoidosis, SLE, RA, Still's disease, Dermatomyositis, Churg-Strauss syndrome, Castelman syndrome)

# Psoas Abscess

- ✓ Infectious disease
  - Primary (20%): S.Aureus (80%), immunocompromised (dialysis, CT, NPL, AIDS, DM)
  - Secondary (80%): direct diffusion from a focus near by → especially G.I in Chron disease; E.coli, M.TBC, Streptococcus
- ✓ Neoplastic disease
  - Direct diffusion from retroperitoneal tumors (skeletal or colic/urogenital)
  - Primary (lipo/fibrosarcoma)
  - Metastasis

CT appearance similar to abscess
- ✓ Others
  - Hemorrhagic lesions (oral anticoagulation, spontaneous rupture of vascularised neoplastic lesion or aneurisma; trauma)
  - Iatrogenic post urologic or orthopaedic surgery

# What's next?

1. Serologic screening for infection
2. Autoimmune screening
3. Neoplastic and haematologic markers
4. Quantiferon-TC Gold In-tube assay
5. Drainage of the lesions
6. All them

# Serological investigations

## ✓ Serology for

- Virus: HIV, HCV, HBV neg
- Fungal, protozoa, parasites:
  - *Toxoplasma gondii* neg
  - *Trypanosoma cruzii* neg
  - *Cysticercosis* neg
  - *Trichinella spiralis* neg
  - *Echinococcus* (IgG pos, Ig M doubt)
  - *Histoplasma capsulatum* neg
- Mycobacterium tbc: Quantiferon-TC Gold In-tube assay positive

✓ Markers npl: CEA, Ca19.9, Ca125, Ca15.3 neg

✓ Autoimmune screening: ANA 1:80 (speckled granular)

✓ LDH and protein electrophoresis neg  
b2microglobuline 3.9 µg/ml

Previous tubercular contact

Doubt echinococcal serology

# Which is your diagnosis?

1. Piogenic abscesses (S. aureus, E.coli..)
2. Tubercular infection
3. Echinococcal infection
4. Solid neoplastic disease
5. Lymphoproliferative disease
6. Sarcoidosis

# WOULD YOU DRAIN THE LESION???

## Echo-guided percutaneous fine needle aspiration of the psoas abscess: PUS COLLECTION

- Cultures negative for bacteria, myceti or parasites
- Microscopy examination with Ziehl-Nielsen stain negative for Mycobacterium tbc (acid fast bacilli)
- Culture and PCR for Mycobacterium tbc in progress (Quantiferon positive)
- Cytopathological examination not diagnostic (purulent sample)

**AND NOW?????**

**Echoendoscopy** of the lesion between hepatic hilum and pancreas: lymph nodes with max diam 8 cm and necrotic aspect → aspiration of nodal material BUT INADEQUATE SPECIMEN.


## *In the meanwhile..*

- Patients still symptomatic for abdominal pain, responsive to paracetamol
- Partial resolution of the left femoro-popliteal thrombosis (US Doppler) but disappearance of the edema of the left lower limb
- Still on anticoagulant therapy (nadroparin 0,5 twice a day)

Colture of the psoas specimen positive for  
***Mycobacterium tuberculosis***

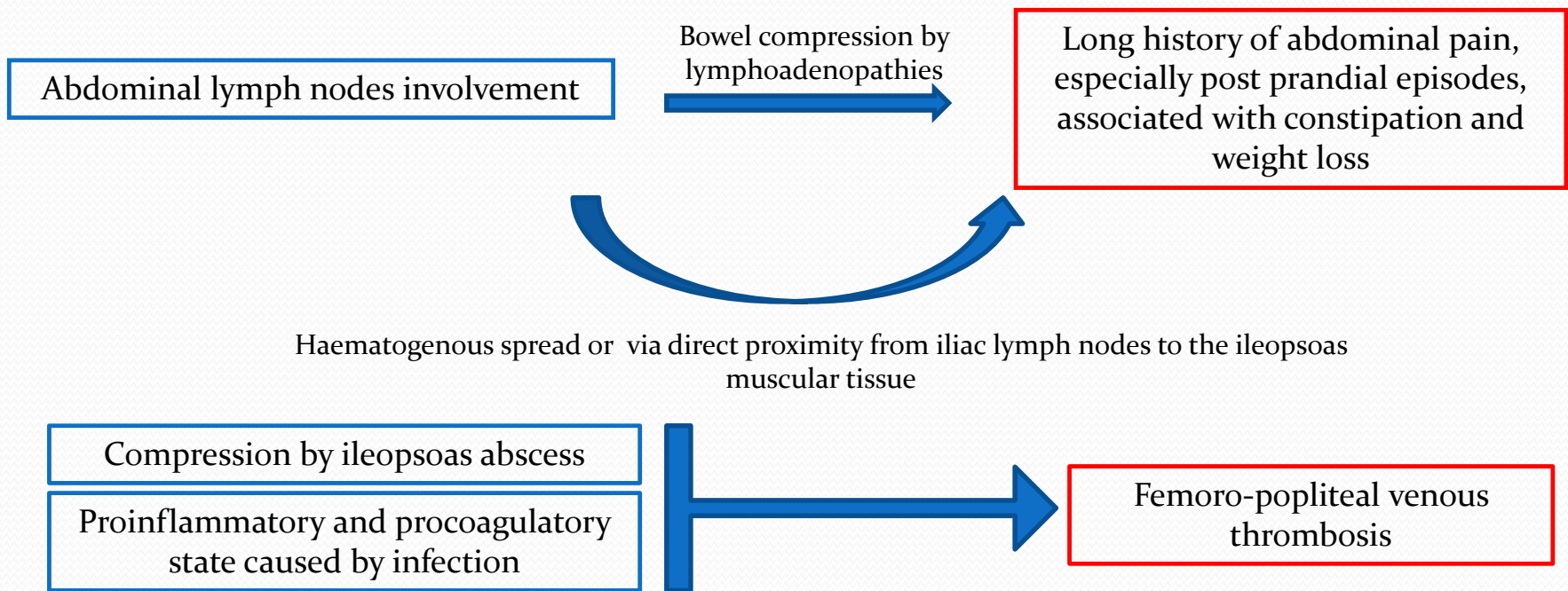


→ patient referred to an antitubercular Centre (Villa Marelli, H. Niguarda, Milan) and started to a quadruple therapy with ethambutol 1200 mg, rifampin 600 mg, isoniazid 250 mg and pyrazinamide 1500 mg



**DIAGNOSIS:  
ABDOMINAL NODAL TUBERCULOSIS  
AND BILATERAL TUBERCULAR  
ILEOPOSOAS ABSCESS**

# HOW SYMPTOMS COULD BE EXPLAINED?



- Virchow-'s triad**
1. **Direct endotelial injury** by the mycobacterium
  2. **Hemodynamic changes:** stasis cause of external compression by lymph nodes and muscular abscesses
  3. **Hypercoagulability** (↓ PC, PS, ATIII and ↑ PAI-1, fibrinogen and FVIII; Anticardiolipin antibodies; Mycobacterium tbc induces macrophages to produce pro-aggregating cytokines (IL6, IL1, TNF).

Incidence of DVT associated with TBC is nearly 1% (30% PE)





*Thank you for your  
attention!!!!*

