Clinical Case Discussion

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CUSOM

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CAMPBELL UNIVERSITY | Jerry M. Wallace School of Osteopathic Medicine

A 30-year-old woman, previously healthy, presents to an urgent care center describing a “pulled muscle in her leg” for the last two days.

Over the last week, she developed a gradual onset “tightness” in her right anterior thigh. The tightness grew worse over the last two days and now feels crampy with 4/10 severity. Her discomfort remains in the anterior thigh and does not radiate. It is constant, worse with walking and better when she sits down.

She denies any redness or warmth over the right thigh, but the right anterior thigh is tender and slightly swollen.

She denies fever, fatigue, weakness, weight loss or weight gain

She runs most days of the week, totaling about 15 miles per week. She denies recent prolonged travel and has had no other trauma or surgery.

ROS:

CV:	No chest pain, palpitations
Resp:	No SOB, cough
GI:	No abd pain, changes in bowel movements
GU:	No dysuria, hematuria, frequency
Skin:	No rashes. She describes a small “pimple” in her R inguinal region she noticed when shaving. The pimple drained some pus and is now healing up.
Neuro:	No headache, focal weakness, numbness or tingling; no balance problems
Lymph:	No swollen glands
Heme:	No easy bruising or bleeding

PMH:

- No chronic medical problems
- No hospitalizations
- No serious injuries
- Immunizations up to date

PSH: appendectomy, age 19

Meds:

- No prescription meds
- Tylenol 1000 mg po tid prn pain
- No herbals/supplements
- No vitamins

NKDA

Sochx:

- Lives with her husband
- Married x 5 years
- No children
- Works at a bank
- Tobacco: none
- Alcohol: glass of wine on weekends
- Drugs: None
- Exercise: runs 10 miles per week

Family hx:

- Mother, age 60, HTN, DVT age 45
- Father, age 62, healthy
- Brother, age 38, asthma
- No children

On exam, the patient is alert and cooperative, A+O x 3. She is in moderate distress due to leg pain

Vital signs: bp 110/70 p 88 RR 14 temp 99.7F O2 sat 98% on RA

HEENT: PERRL; EOMI. OP: no exudate

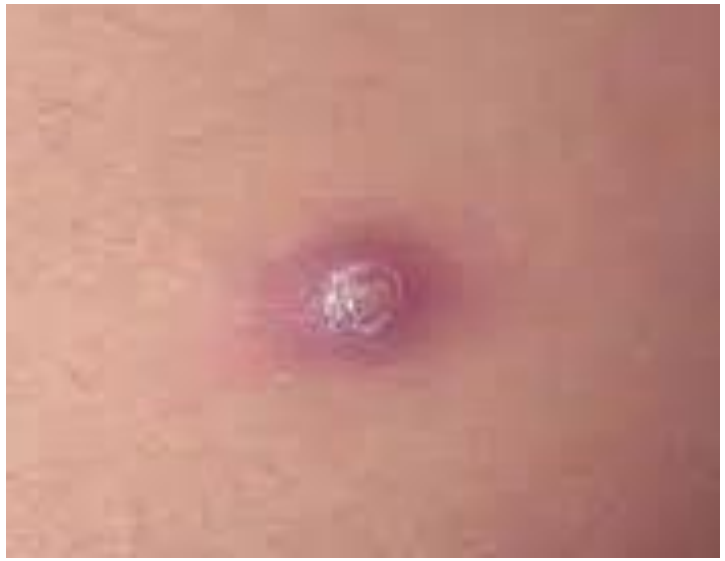
Neck: full ROM, trachea midline, no thyromegaly, no adenopathy

Car: r/r/r without r/m/g

Lungs: CTA

Abd: nondistended, normal bowel sounds, no tenderness, no guarding, no rebound, no hepatosplenomegaly

Skin: only significant for a lesion in the R inguinal region. The lesion is mildly tender



Skinsight.com

Vital signs: bp 110/70 p 88 RR 14 temp 99.7F O2 sat 98% on RA

Extr: R leg with mild swelling in the anterior thigh. No overlying erythema or warmth. Anterior thigh is exquisitely tender to palpation.
L thigh unremarkable
No distal edema in either leg
Dorsalis pedis and tibialis posterior pulses 2+ B/L
Capillary refill < 3 seconds B/L

Lymph: Mildly enlarged tender inguinal lymph nodes R > L

Neuro: Lower extremities:
Motor: strength 5/5 throughout B/L
Sensation: light touch grossly intact B/L
Reflexes: patellar, ankle jerks 2+ B/L
Babinski signs not present in either foot

The physician at urgent care is concerned about a deep muscle pull or a DVT, given her mother's history.

A STAT d-dimer is checked which is moderately elevated: 487 ng/ml (normal < 250 ng/ml)

A R LE venous doppler is done which shows no evidence of DVT.

The patient is diagnosed with a deep muscle pull of the anterior thigh. She is prescribed ibuprofen 600 mg po q6 hrs, is told to apply a heating pad 20 minutes, three times per day and to abstain from running for one week. She is also instructed to follow up with her primary care physician.

Three days later, the patient presents to the emergency department in severe pain in the R anterior thigh with fever and fatigue. Ibuprofen does not relieve her pain.

On exam, she is in marked distress due to R anterior thigh pain.
Vitals: bp 90/70 p 110 RR 20 temp 100.2F O2 sat 96% on RA

Extr: R thigh is exquisitely tender but the overlying skin appears normal.
Her exam is otherwise unchanged.

Na	141
K	3.2
CL	108
CO2	22
BUN	23
Cr	1.3
Glc	104

wbc	22.5
hgb	12
hct	36
platelets	180,000
neutrophils	90%

Impression: This is a case of worsening R anterior thigh pain, new fever and fatigue in a previously healthy 30-year-old woman with family hx of DVT. Physical examination is significant for borderline hypotension, tachycardia, fever, exquisite R anterior thigh tenderness with normal overlying skin, intact distal pulses and no motor or sensory abnormalities in the R leg. Laboratory studies are significant for leukocytosis with L shift. An outpatient LE venous doppler is negative for DVT.

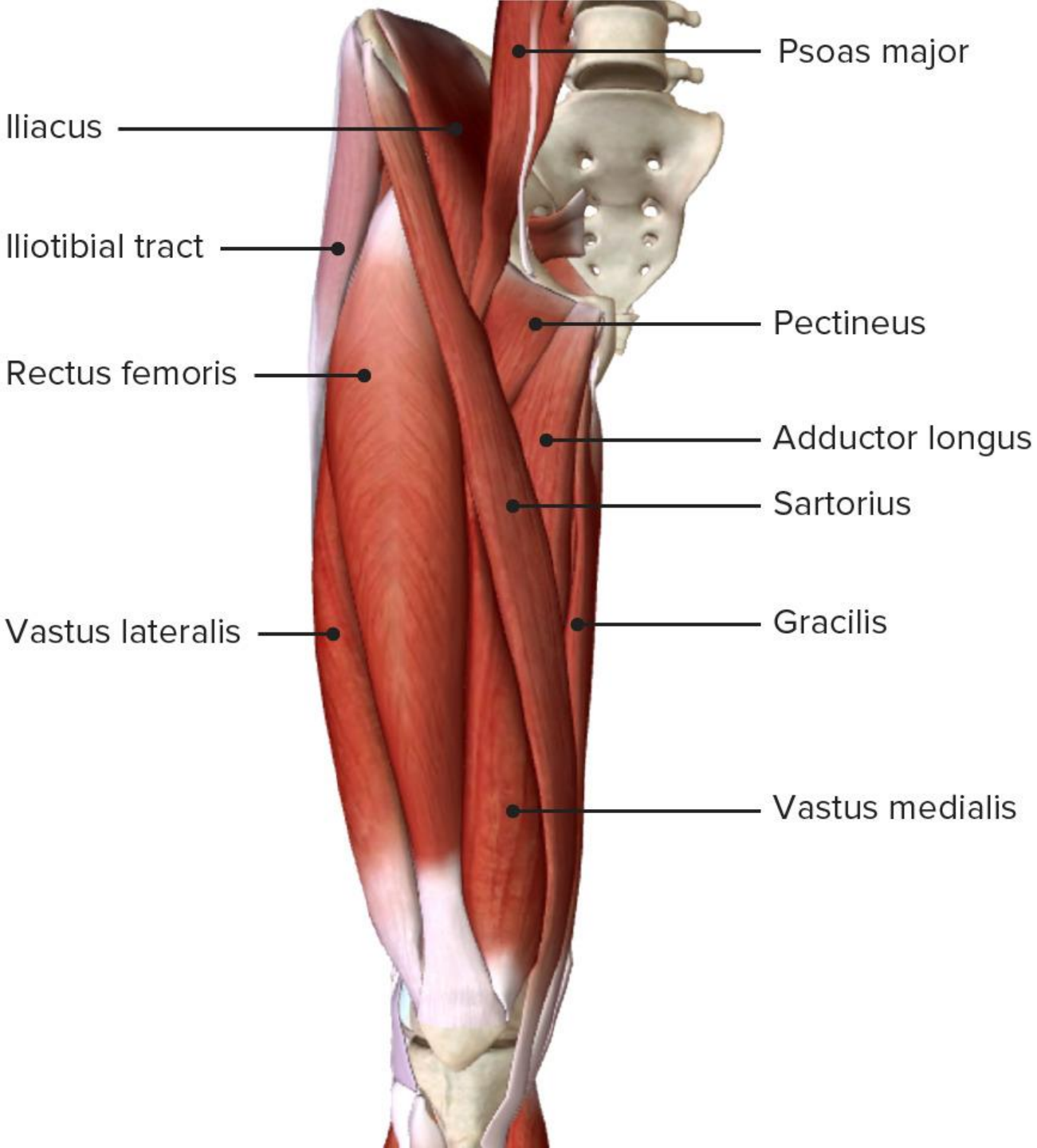
Differential diagnosis?

Differential Diagnosis:

V	Vascular
I	Infectious
N	Neoplastic
D	Drugs
I	Iatrogenic, Inflammatory
C	Collagen Vascular
A	Allergic, autoimmune
T	Trauma
E	Endocrine

Differential Diagnosis:

V	Vascular	Muscle infarction
I	Infectious	Pyomyositis; necrotizing fasciitis
N	Neoplastic	Primary bone tumor
I	Iatrogenic, Inflammatory	Myopathy
C	Collagen Vascular	SLE
T	Trauma	Compartment Syndrome



Lecturio.com

Now what???

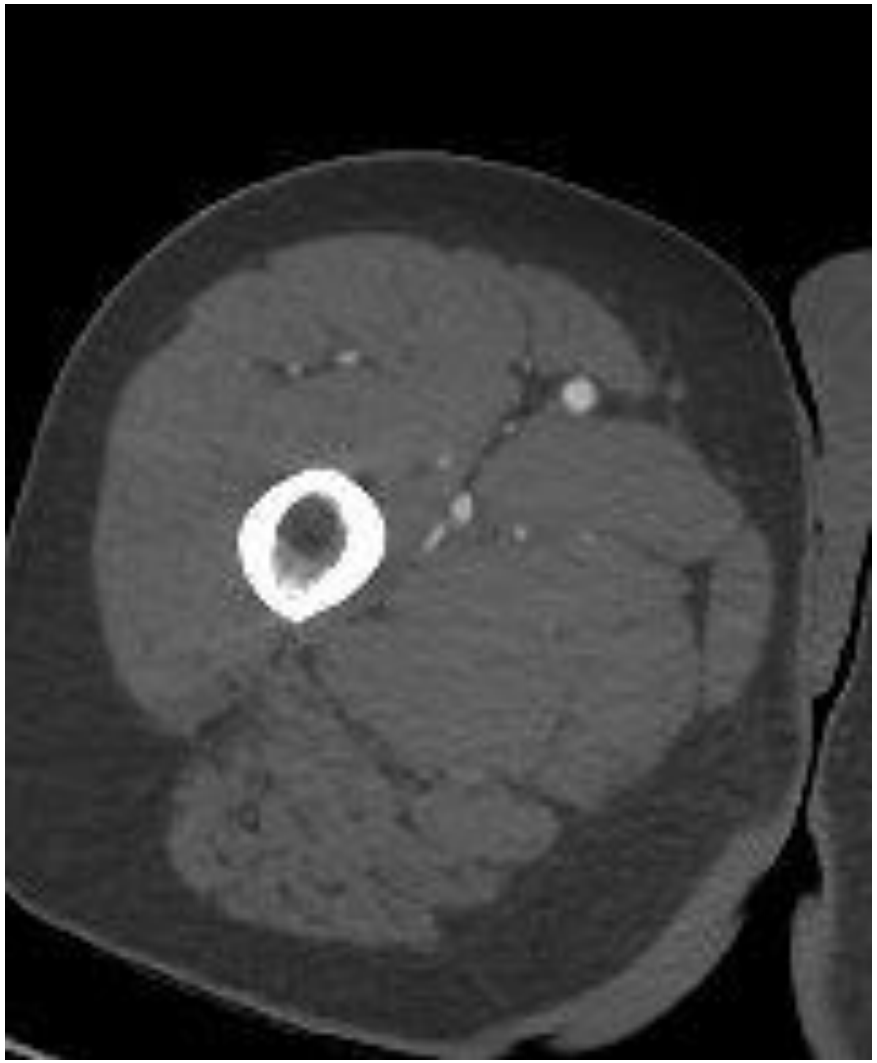
She is hospitalized. . .

Blood cultures x 2 are collected.

NS at 125 ml/hr is started.

A CT of the R thigh is performed . . .

CT is read as normal.



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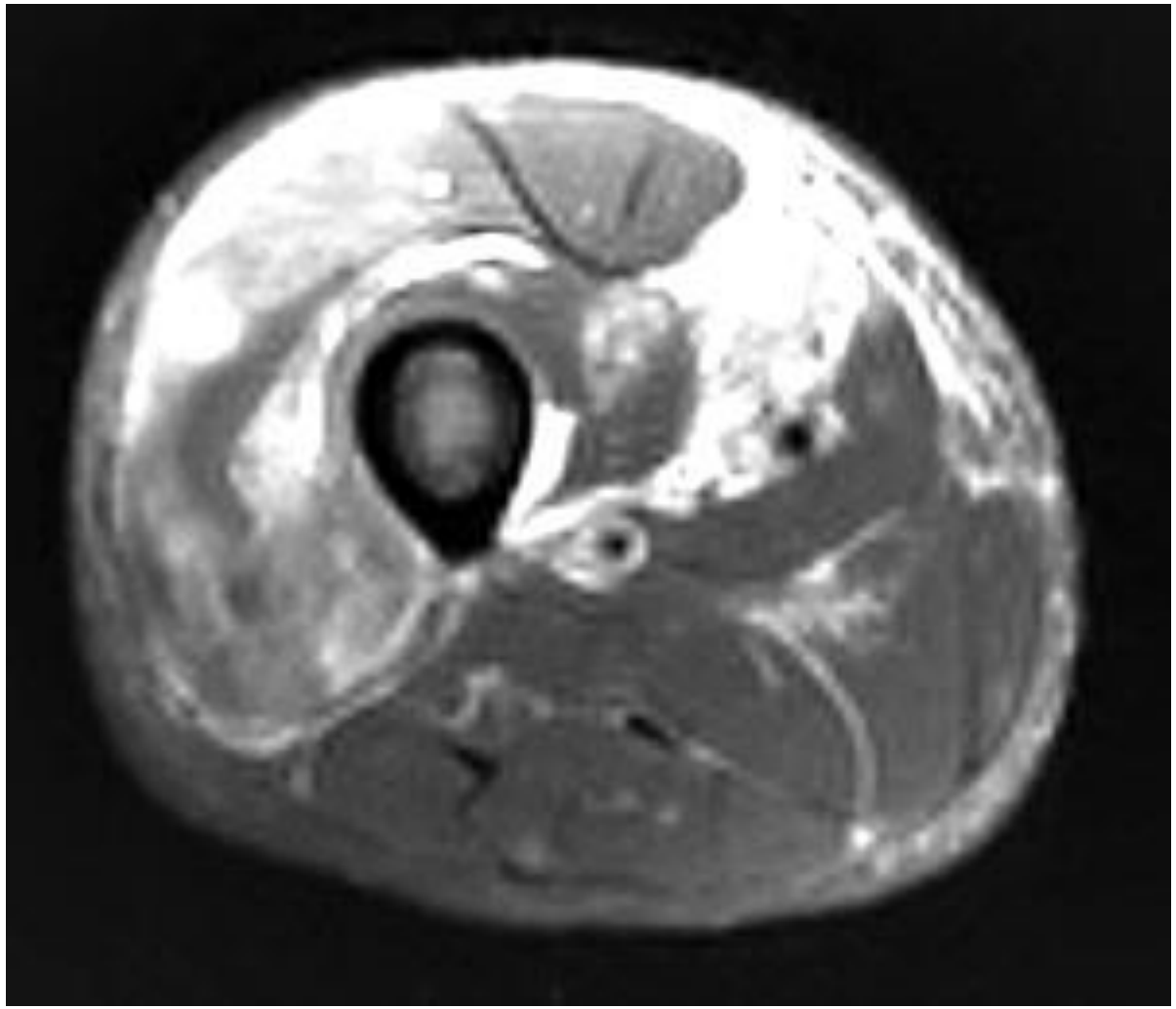
12 hours later, 4 out of 4 blood cultures are positive for gram positive cocci . . .

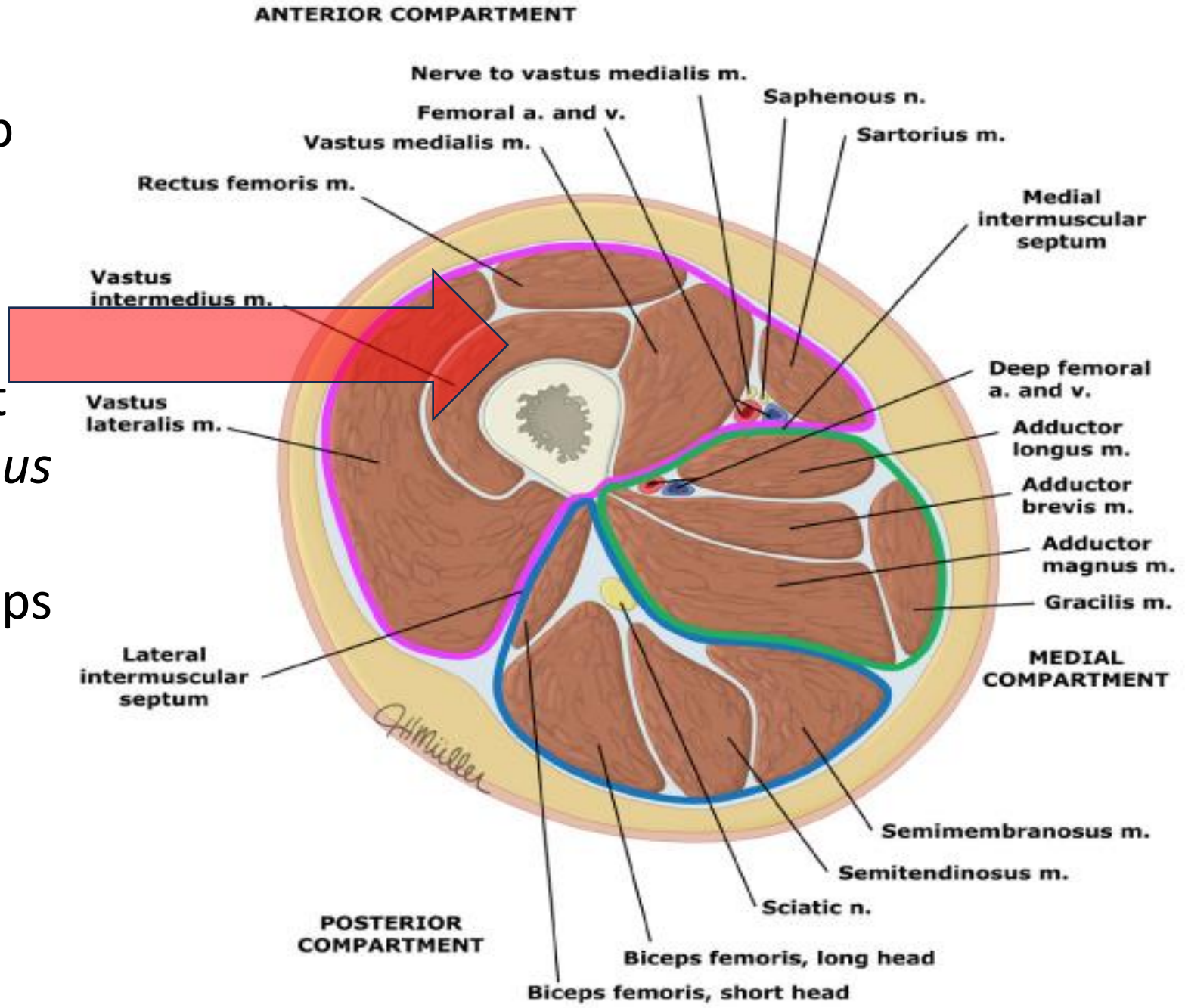
An MRI of the R thigh is performed . . .

MRI shows marked enhancement of the anterior compartment of the R thigh consistent with pyomyositis.



Pyomyositis: deep muscle infection which can develop into abscesses.

How can this happen?
Most commonly, a transient bacteremia with *Staph aureus* can lead to hematogenous spread to large muscle groups in the leg. . .



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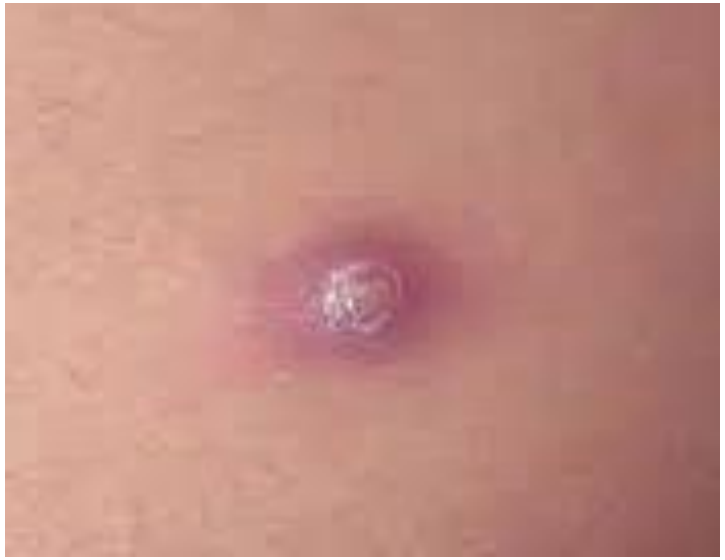
Antibiotics to treat gram positive skin and soft tissue infections

Intravenous antibiotics to treat gram positive skin and soft tissue infections

Organisms to Cover	•Staphylococcus aureus (including MRSA) •Beta hemolytic Streptococcus (Most commonly Group A; also Groups B, C, G and F)
Sample antibiotic Regimen (assumes normal renal and hepatic function)	•Cefazolin 1 gram IV q 6 hrs •If suspicion for MRSA, add Vancomycin 15 to 20 mg/kg IV q 8 to 12 hrs
Alternate regimen	Daptomycin 4 to 6 mg/kg IV daily

Where did the Staph aureus come from???

Believe it or not, a mild folliculitis in the R inguinal region became a furuncle then a small carbuncle which led to transient Staph aureus bacteremia.



Now what???

The patient goes to the OR

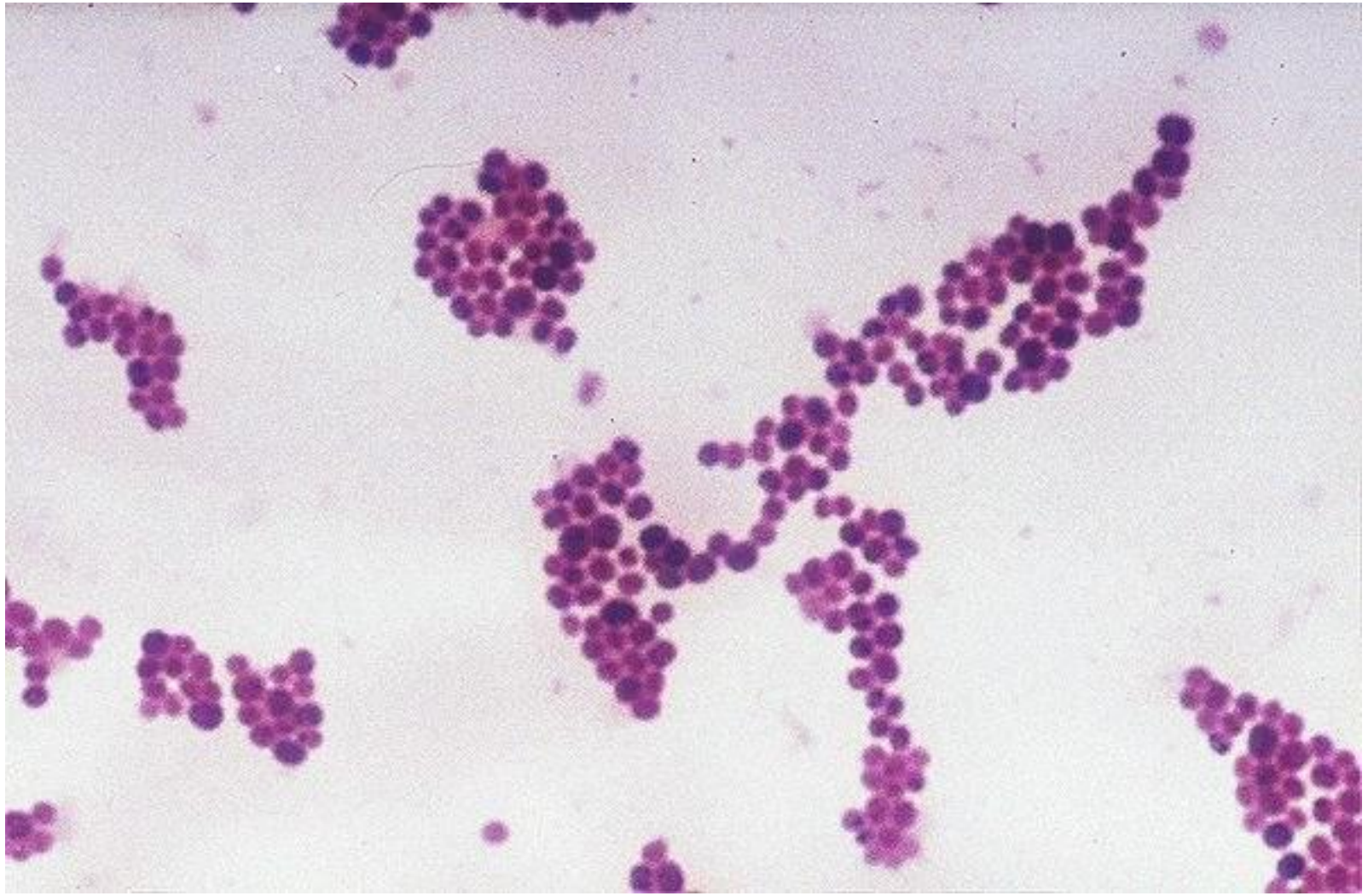
- Findings at surgery are consistent with pyomyositis

- Purulent drainage is found in the anterior thigh which is sent for gram stain and culture . . .

Intraoperative gram stain:

Staphylococcal species

Blood cultures and intraoperative cultures both confirm methicillin-resistant *Staphyloccocus aureus.*



Researchgate.net

Patient follow up

- Blood cultures are repeated 48 hours after starting antibiotics and remain negative.

- A transesophageal echocardiogram is negative for evidence of endocarditis.

Osteopathic considerations: Pyomyositis of the R thigh

- Lymphatic techniques
  - MFR of thoracic inlet
  - Dome the diaphragm
  - Pedal pump

Patient follow up

- The patient receives IV antibiotics narrowed to vancomycin for four weeks via a PICC line.
- After four weeks, she is transitioned to po antibiotics for another two weeks . . .
- She is feeling better. Her R thigh pain is much improved and she is working with PT to improve her mobility.

Oral antibiotics to treat MRSA skin and soft tissue infections

Sample antibiotic Regimen (assumes normal renal and hepatic function)	•Bactrim ds tab (160/800): 1 tab po bid •Doxycycline 100 mg po bid •Clindamycin 600 mg po four times daily •Linezolid 600 mg po bid

Eight weeks after her admission to the hospital, she is feeling back to normal.

Questions?

Thank you!