

# VASCULAR FAQs

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# DISCLOSURES

- NONE RELEVANT TO THIS PRESENTATION

- *DEFINITELY NOT DISCLOSING:*

*HIGH SCHOOL YEARBOOK, COLLEGE VIDEOS (DID NOT EXIST THEN),  
TWITTER FEED, INSTAGRAM, SNAPCHAT, TINDER, ETC*

# SUGGESTED TOPICS

- DVT / UEDVT
- DVT LYSIS
- DVT - ADMIT VS DC
- DVT FOLLOW UP TIME
- IVC FILTER
- ABI WHEN TO WORRY
- ACUTE LIMB ISCHEMIA



# OUTLINE

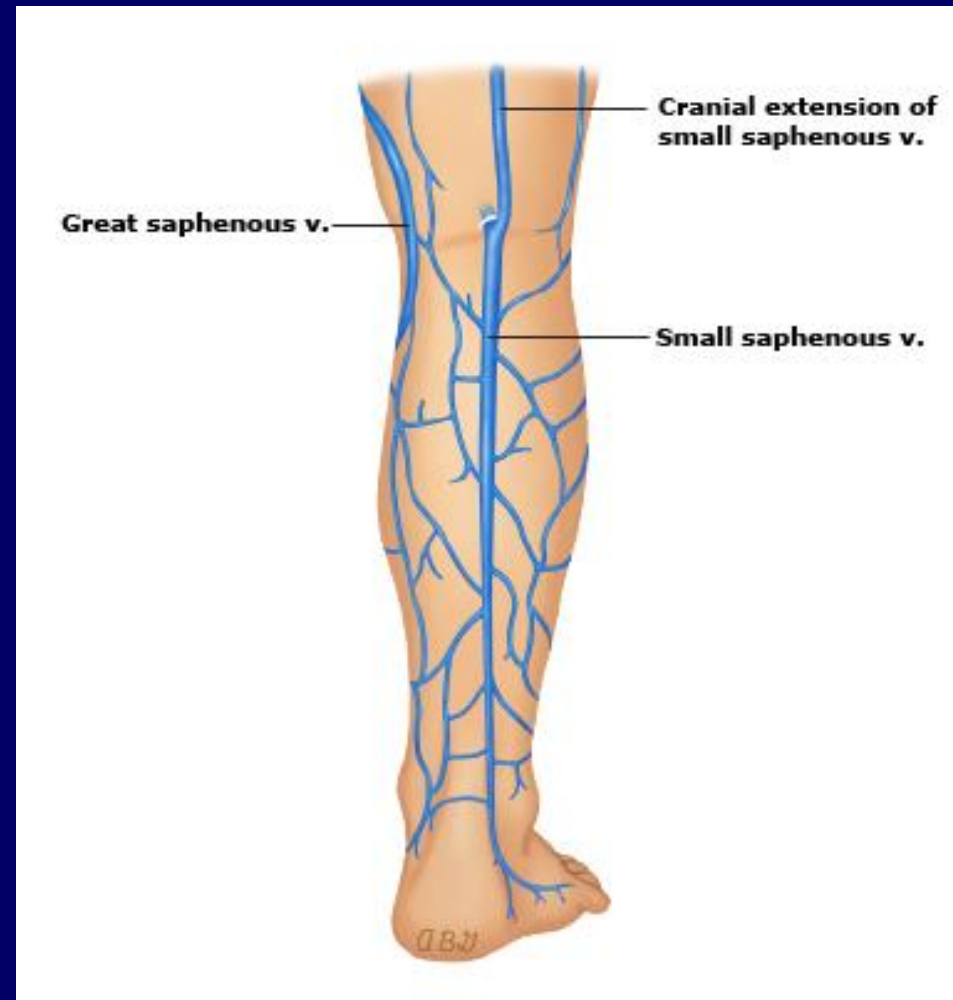
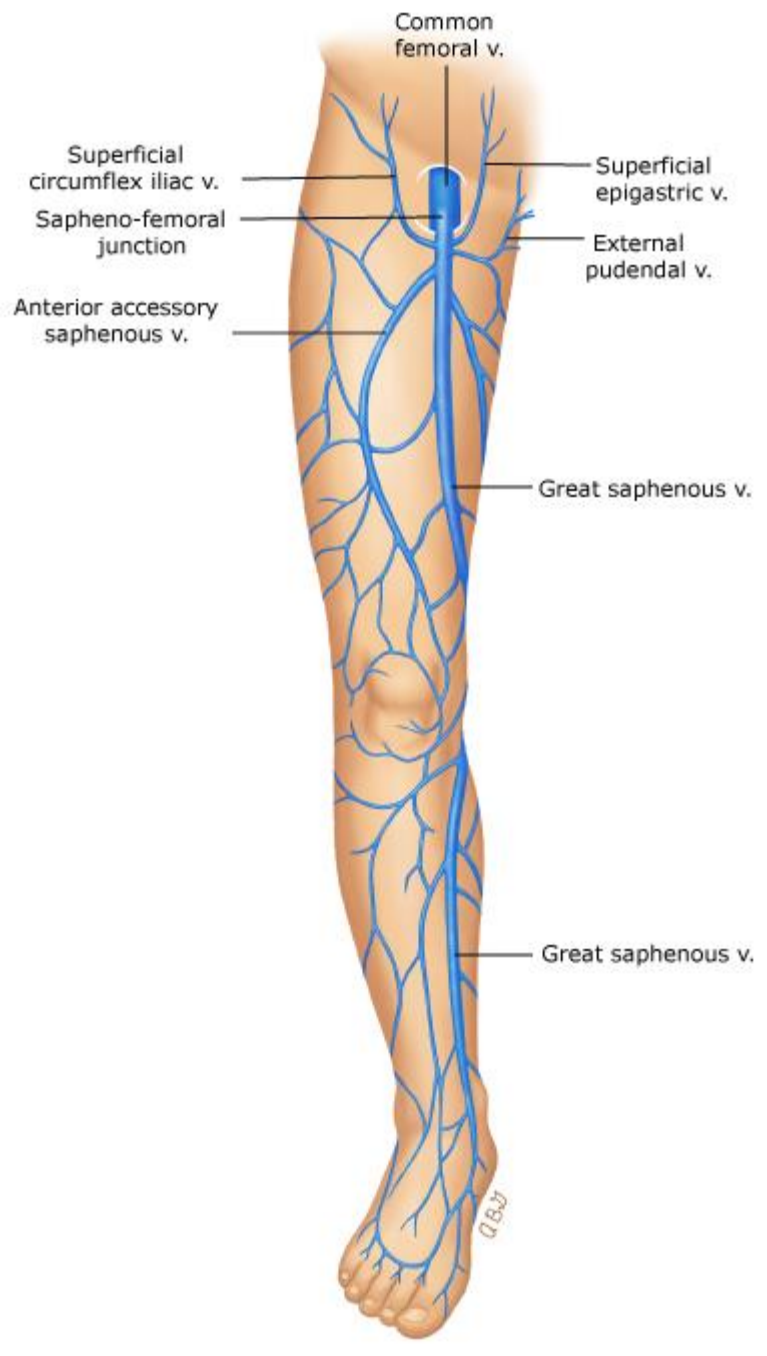
- DVT
- IVC FILTER
- PAD EMERGENCY

**WHEN YOU FIND OUT THE CARD  
GAME GOT MOVED TO ANOTHER UNIT**



# SUPERFICIAL THROMBOPHLEBITIS

# VENOUS ANATOMY SUPERFICIAL



# SUPERFICIAL THROMBOPHLEBITIS

- THROMBOSIS - CLOT WITHIN VEIN
- PHLEBITIS - INFLAMMATION WITHIN VEIN
- DVT – PRESENT IN ~ 30% (6 – 53)
- DUPLEX ULTRASOUND IMPORTANT
  - CONFIRM DX AND R/O DVT



# SUPERFICIAL THROMBOPHLEBITIS

- DIAGNOSIS IS CLINICAL
- PAIN, WARMTH, INDURATION, ERYTHEMA OVER THE VEIN
  - 4 Rs – DOLOR, CALOR, TUMOR, RUBOR
- GENERALLY BENIGN AND SELF LIMITED

# SUPERFICIAL THROMBOPHLEBITIS

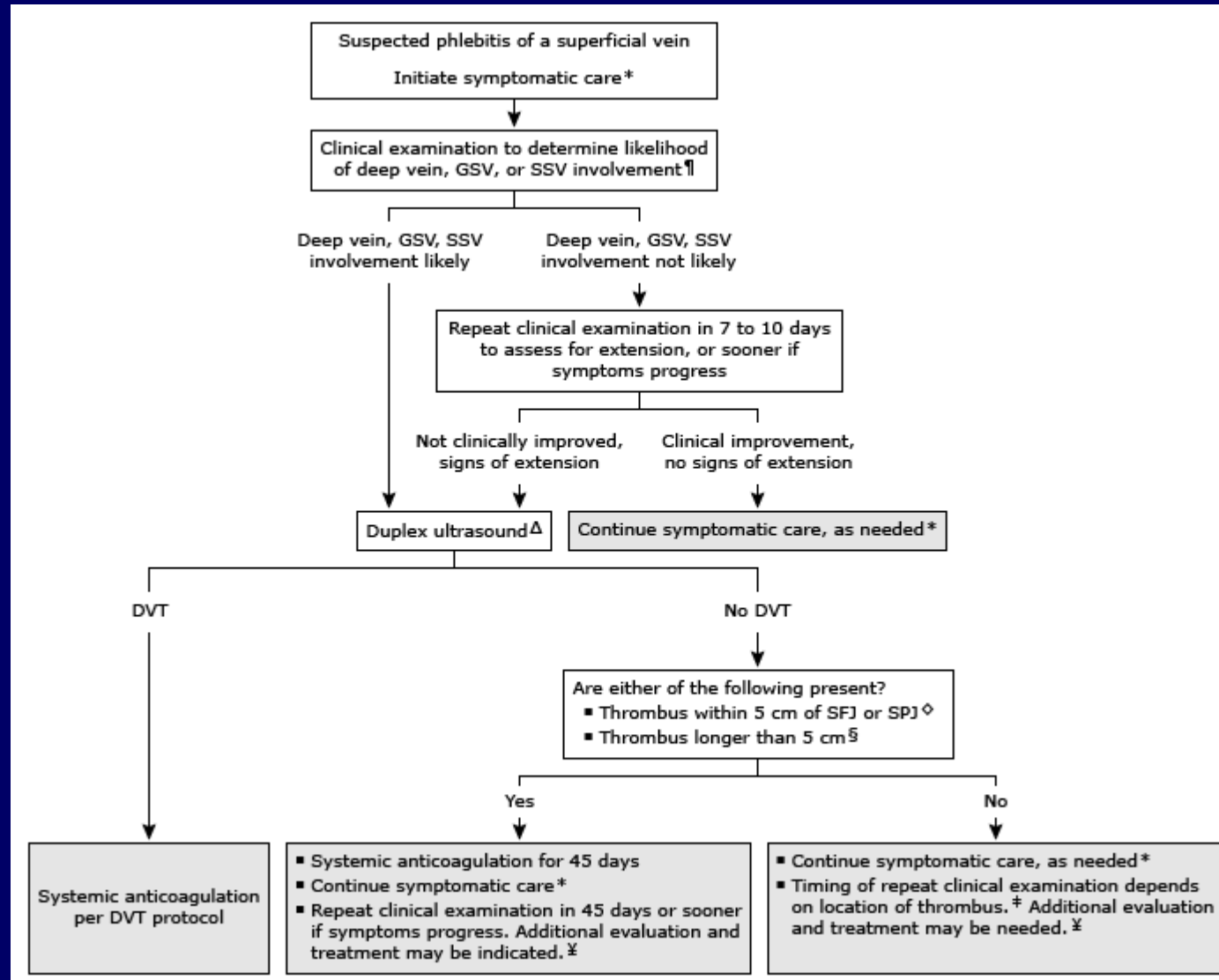
- 4 Rs

*DOLOR, CALOR,  
TUMOR, RUBOR*

- INFLAMMATION

- **Not** INFECTION

# SUPERFICIAL THROMBOPHLEBITIS - TREATMENT



# SUPERFICIAL THROMBOPHLEBITIS

- COMMON SENSE → HIGH RISK OR LOW RISK
- HIGH RISK FOR DVT
- EXTENSIVE THROMBOSIS
  - LENGTH > 5 CM
- PROXIMITY TO DEEP SYSTEM
  - WITHIN 5 CM OF FEMORAL OR POPLITEAL JUNCTION
- MEDICAL RISK FACTORS FOR DVT
  - PRIOR DVT, THROMBOPHILIA, MALIGNANCY, ESTROGEN THERAPY
- LOW RISK FOR DVT – **NOT** HIGH RISK

# SUPERFICIAL THROMBOPHLEBITIS

- LOW RISK FOR DVT
- SYMPTOMATIC TREATMENT
  - NSAID, ELEVATION, WARM COMPRESS (COLD), COMPRESSION STOCKING
  - FOLLOW UP 7 - 10 DAYS ASSESS FOR RESOLUTION / PROGRESSION
- HIGH RISK FOR DVT
- ANTICOAGULATION 6 WEEKS (*PROBABLY BETTER THAN 2 WEEKS*)
  - CHOICE OF AGENT OR DOSE UNCLEAR
  - LOW DOSE REASONABLE (*DO NOT HAVE DVT*)
    - LOVENOX 40 QD / XARELTO 10 QD / ELIQUIS 2.5 BID



**that's the killer move they**

**teach you in nursing school.**

gettyimages  
Dean Mitchell

95000070

Make a Meme+

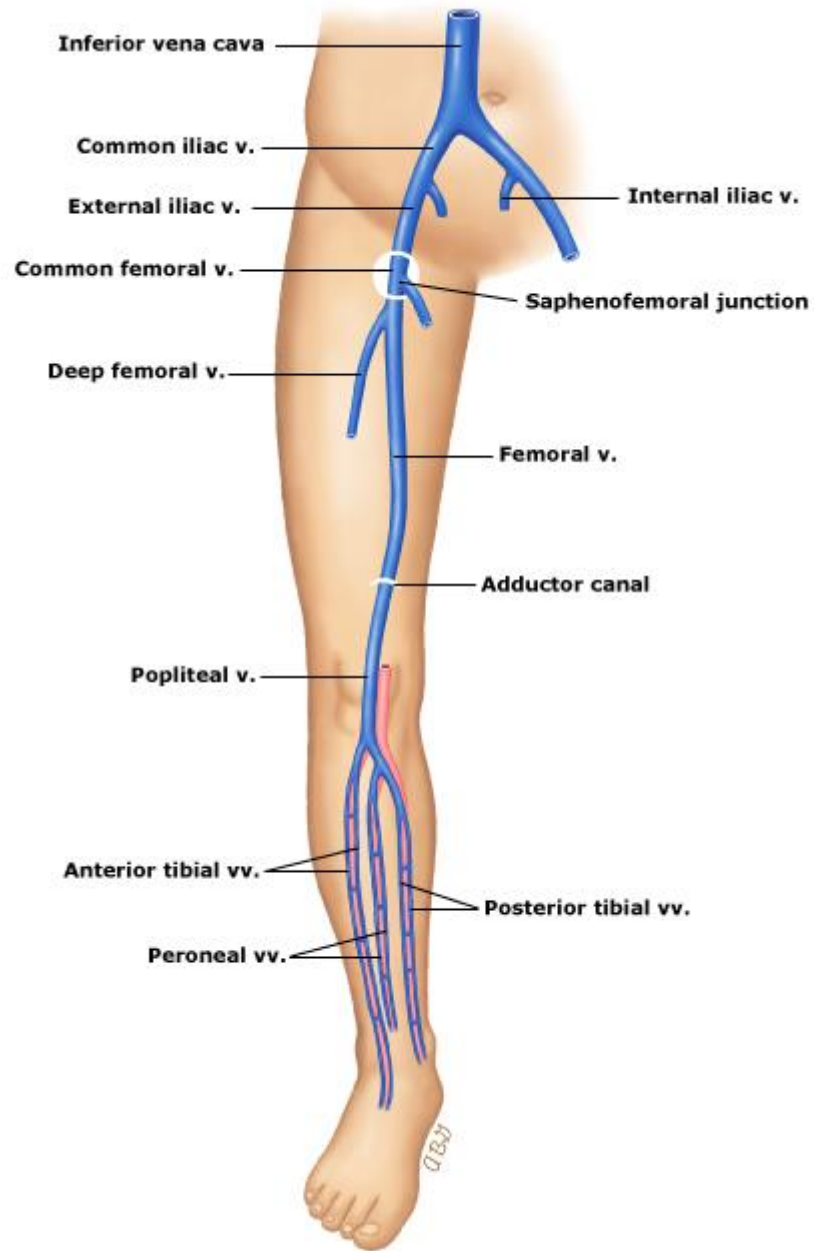
# DVT

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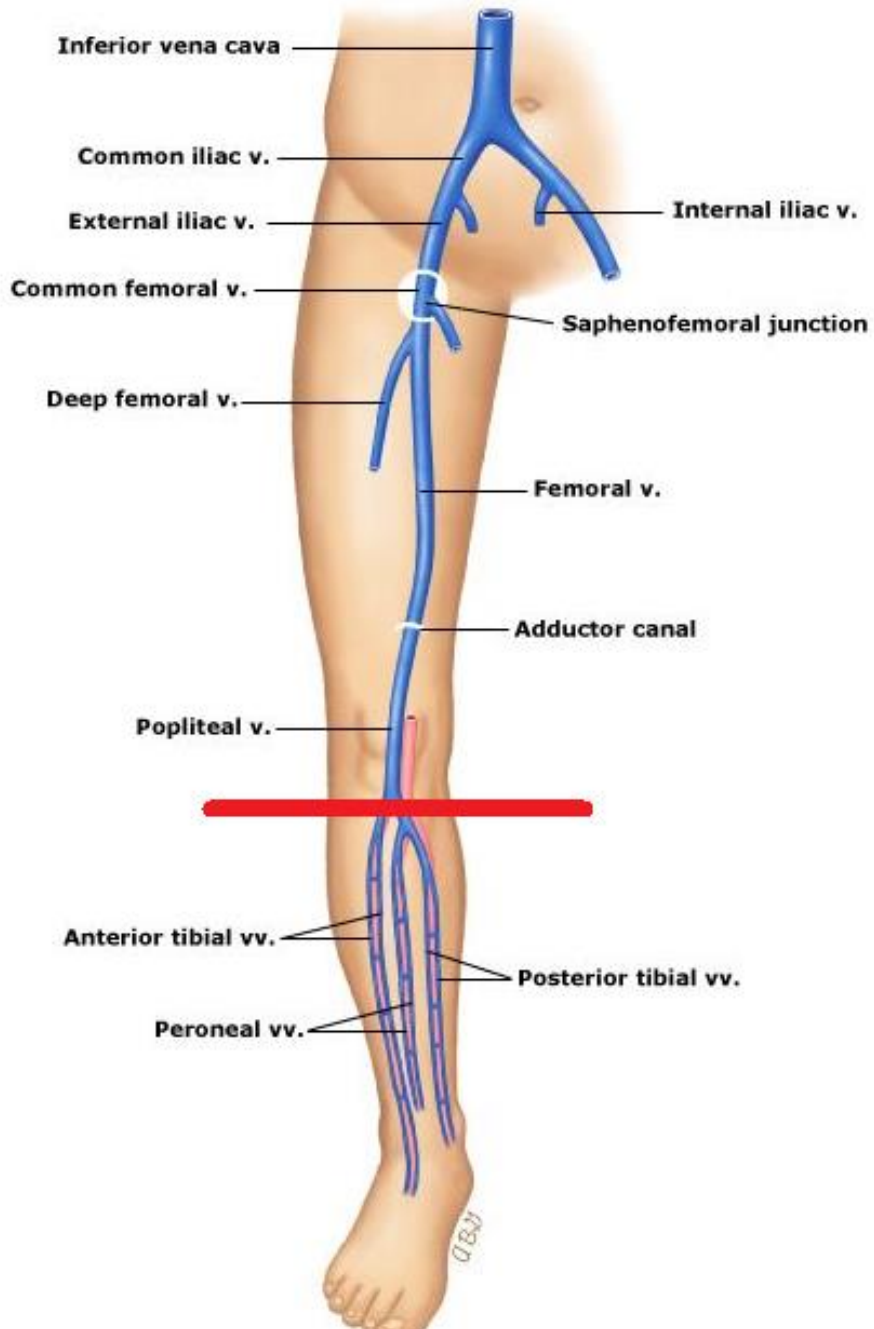
- CLASSIFICATION
- TREATMENT
- FOLLOW UP



# VENOUS ANATOMY DEEP



# PROXIMAL VS DISTAL



## ABOVE KNEE – REAL DVT

- EXTERNAL ILIAC
- COMMON FEMORAL \_\_\_\_\_ “ILIOFEMORAL”
- FEMORAL (SUPERFICIAL FEMORAL)
- POPLITEAL \_\_\_\_\_ “FEMOROPOPLITEAL”
- KNEE AND ABOVE

## BELOW KNEE – CALF VEIN DVT

“CALF”

- TIBIAL – ANTERIOR / POSTERIOR
- PERONEAL

## MUSCULAR CALF VEINS – ISOLATED MUSCULAR CALF VEIN DVT

- GASTROCNEMIUS
- SOLEUS

# REAL DVT

- REAL DVT
  - POPLITEAL VEIN AND ABOVE / PROXIMAL DVT
- REAL RISK
  - LOCAL (LEG)
  - SYSTEMIC (PE)
- REAL TREATMENT
  - FULL / THERAPEUTIC ANTICOAGULATION (3-6 MONTHS)
  - AGENT OF CHOICE      NOAC (DOAC) vs VKA

# OTHER DVT

- CALF VEIN DVT / ISOLATED MUSCULAR CALF VEIN DVT / DISTAL DVT
- META: 1513 CITATIONS → 31 ARTICLES → 25 SERIES + 6 RCT (1975-2010)
- REMAINS CONTROVERSIAL TOPIC
  - EVERYTHING OR NOTHING / NO RIGHT ANSWER / NO GUIDELINES
  - “FURTHER STUDIES ARE WARRANTED”
- LOW RISK OF PROPAGATION / PE / RECURRENCE
- NOT ESPECIALLY DANGEROUS BUT...
- MARKER OF PATIENT AT RISK OF VTE



*THE CONTROVERSY OF MANAGING CALF VEIN THROMBOSIS. MASUDA, ET AL. J VASC SURG. 2012 FEB 55(2):550-6*

# CALF VEIN DVT - TREATMENT

- WHO / WHEN TO TREAT
- SYMPTOMATIC VS ASYMPTOMATIC
  - PAIN / SWELLING
  - UNEXPECTED FINDING ON U/S DONE “JUST BECAUSE”
- HIGH RISK VS LOW RISK
  - POST OP / MALIGNANCY / IMMOBILE
  - AMBULATORY / RISK FACTOR GONE

# CALF VEIN DVT - TREATMENT

- FULL DOSE / THERAPEUTIC
- LOW DOSE/ PROPHYLACTIC
  
- 2 WEEKS
- 6 WEEKS
  
- LOVENOX → WARFARIN – IMPRACTICAL
- NOAC / DOAC
  - XARELTO: 15 MG BID (3 WEEKS) VS 15 MG DAILY VS 10 MG DAILY
  - ELIQUIS: 10 MG BID (1 WEEK) VS 5 MG BID VS 2.5 MG BID

*WHAT SAMPLES DO I HAVE...*

*HOW NERVOUS I AM...*

# CALF VEIN DVT TREATMENT



# CALF VEIN DVT

## SUMMARY

- AT RISK FOR MAJOR VTE
- SURVEILLANCE
  - ULTRASOUND 2 WEEKS
- TREATMENT
  - FULL DOSE OR LOW DOSE
  - 2 WEEKS OR 6 WEEKS
- DOING NOTHING IS **WRONG!!!**
- CLINICAL JUDGMENT / ART OF MEDICINE





# ED DISCHARGE FOR DVT

- IS PATIENT COMPROMISED?
  - SYSTEMIC – HEMODYNAMIC OR RESPIRATORY INSTABILITY
  - LOCAL – EXTREMITY VIABILITY
- YES → ADMISSION
- NO → DISCHARGE HOME WITH OUTPATIENT F/U

# VENOUS THROMBOLYSIS

- *SHOULD BE CONSIDERED IN SELECTED PATIENTS...*
- FIRST EPISODE OF ACUTE ILIOFEMORAL DVT
- SYMPTOMS LESS THAN 14 DAYS IN DURATION
- LOW RISK OF BLEEDING
- AMBULATORY WITH GOOD FUNCTIONAL CAPACITY
- ACCEPTABLE LIFE EXPECTANCY
- MUST BE ABLE TO TOLERATE SIX MONTHS OF ANTICOAGULATION
- LIMB THREATENING VENOUS ISCHEMIA
  - EXTENSIVE EDEMA, PAIN, SKIN COLOR CHANGES, PHLEGMASIA



# PHLEGMASIA

- ALBA DOLENS (WHITE – EDEMA)
- CERULEA DOLENS (BLUE – CYANOSIS)
- MASSIVE DVT (MULTI-LEVEL)
- PAIN, EDEMA, CYANOSIS, COMPARTMENT SYNDROME, VENOUS GANGRENE, ARTERIAL COMPROMISE
- SHOCK, CIRCULATORY COLLAPSE
- LOSS OF LIMB OR LIFE

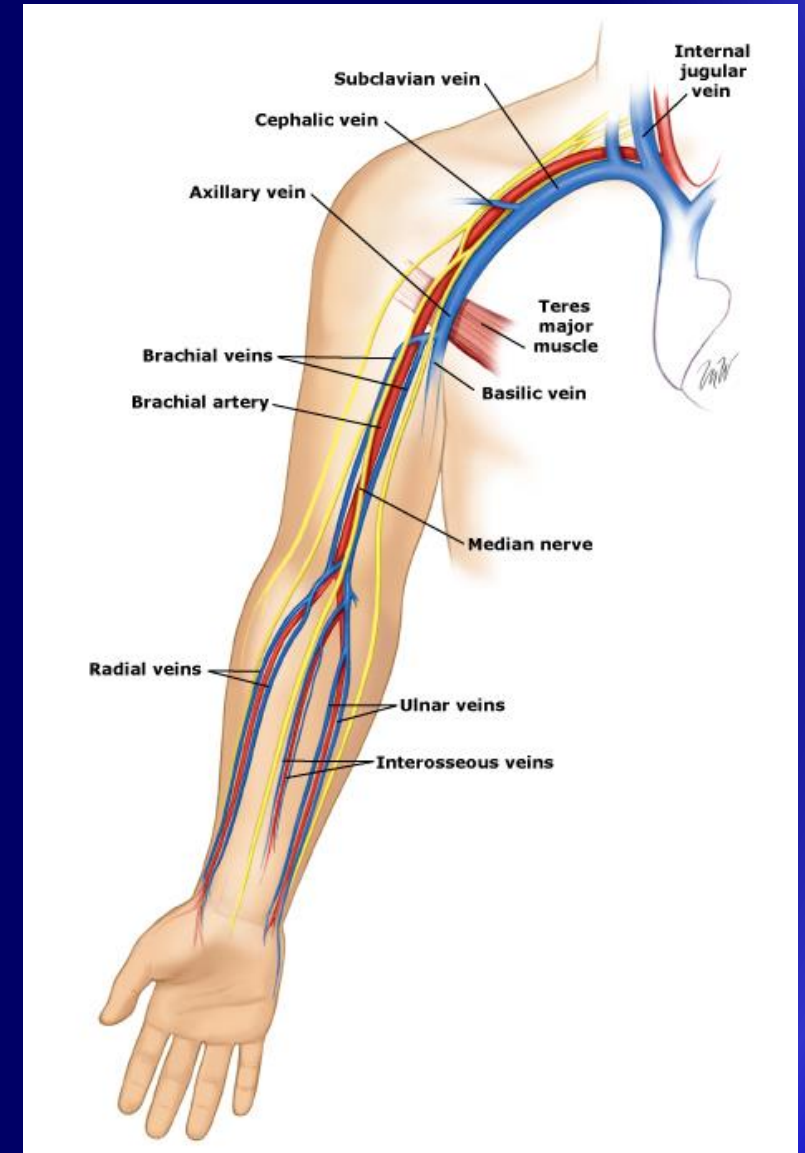
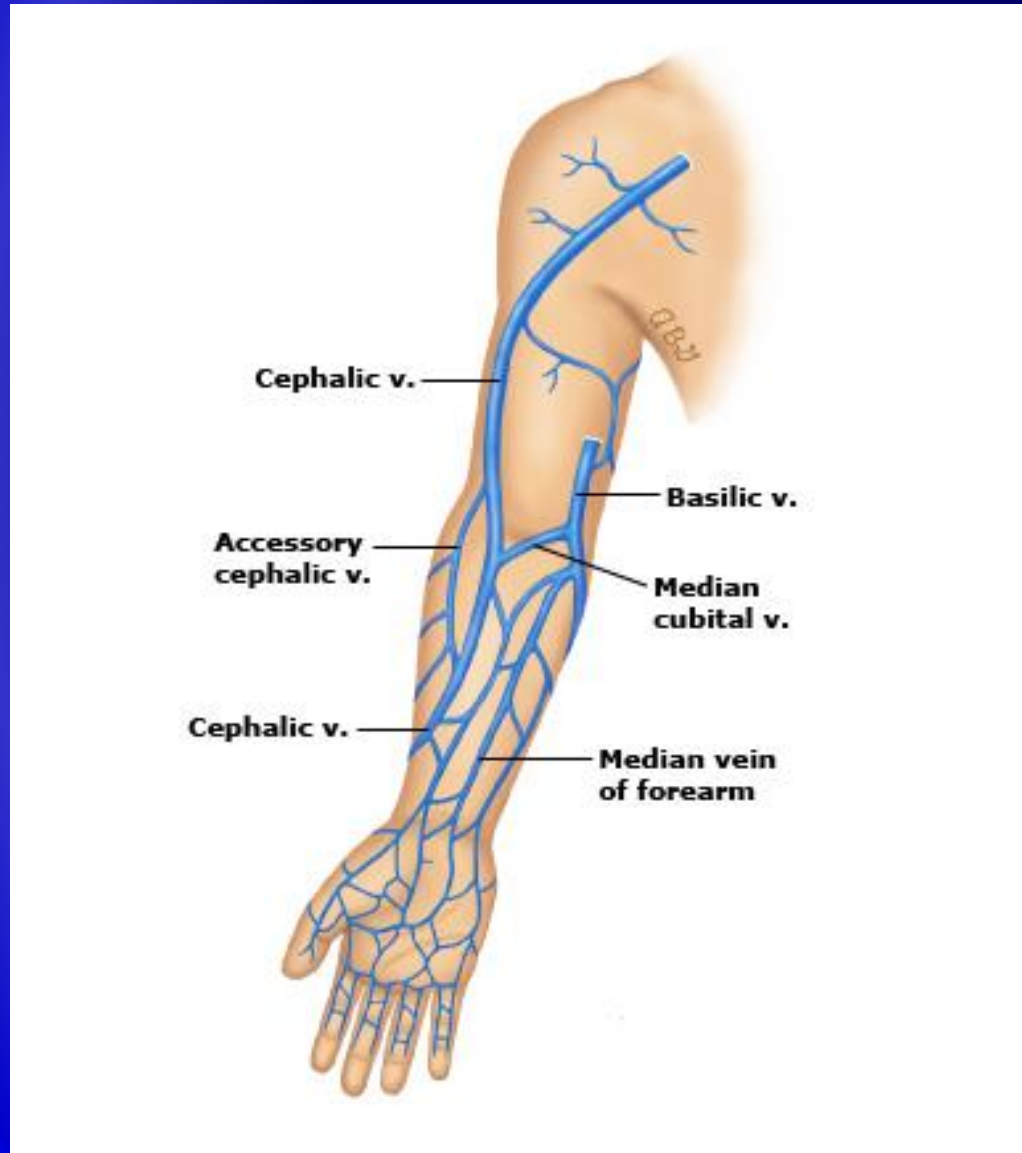
# CATHETER INDUCED UPPER EXTREMITY THROMBOSIS

- VESSEL TRAUMA / INFLAMMATION → THROMBOSIS
- PAIN, EDEMA, ERYTHEMA, CATHETER OBSTRUCTION / OCCLUSION
- DUPLEX ULTRASOUND IS DIAGNOSTIC

# VENOUS ANATOMY – UPPER EXTREMITY

SUPERFICIAL

DEEP



# CATHETER INDUCED UPPER EXTREMITY SUPERFICIAL THROMBOPHLEBITIS (PERIPHERAL IV)

## SYMPTOMATIC TREATMENT

D/C IV

NSAID

ELEVATION

WARM COMPRESS (COLD ON OCCASION)

# CATHETER INDUCED UPPER EXTREMITY DVT

- ANTICOAGULATION
- 3 MONTHS FOR UNCOMPLICATED CASE
- LONGER IF CATHETER REMAINS IN PLACE / MALIGNANCY
- LOWER RISK OF PE / SVC FILTER PROBLEMATIC
- SOMETIMES ONLY TREAT SYMPTOMATICALLY

*LEAVE CATHETER IN PLACE IF ACCESS STILL NEEDED !!!*

**DONT PUSH MAUREEN**



**WERE NOT DONE PLAYING  
CARDS YET**

makeameme.org



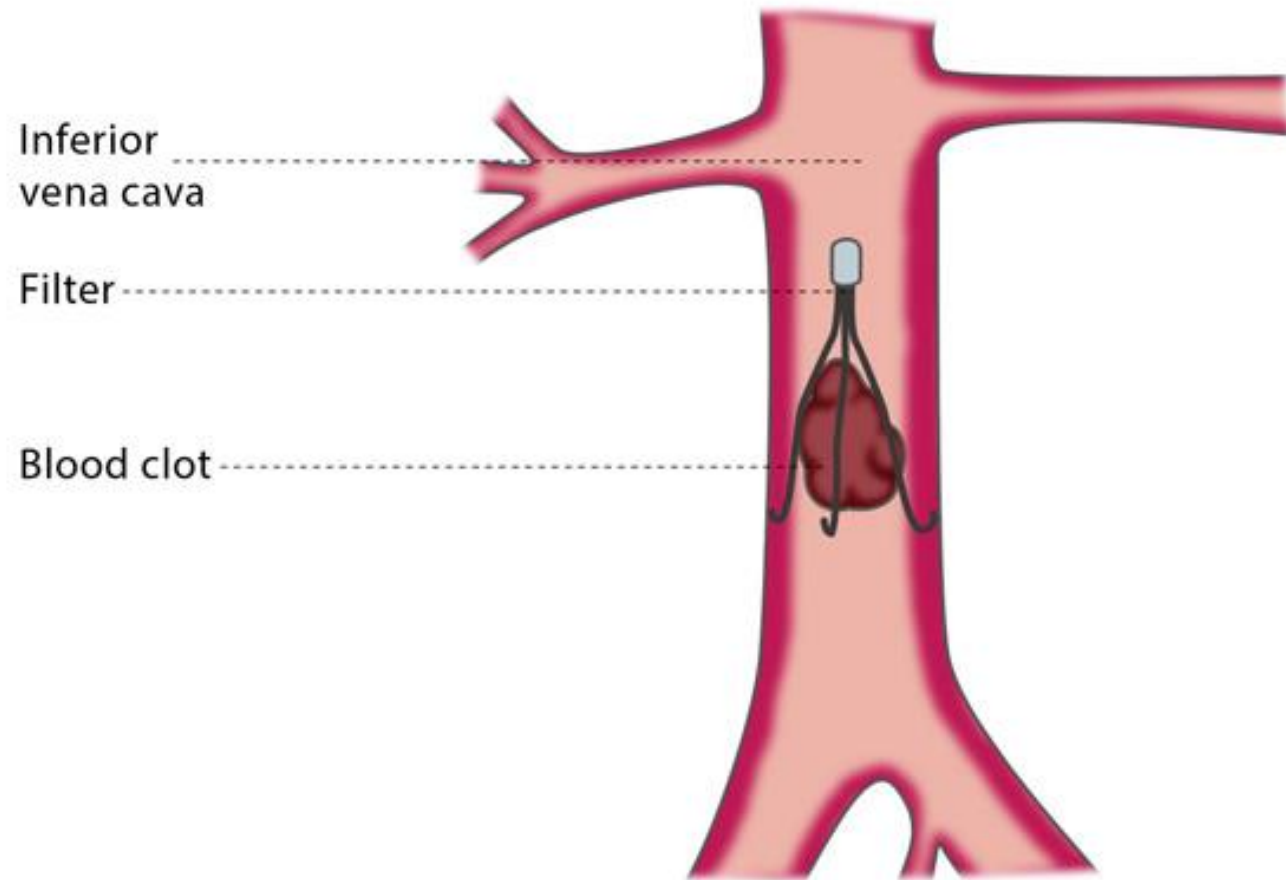
# IVC FILTER

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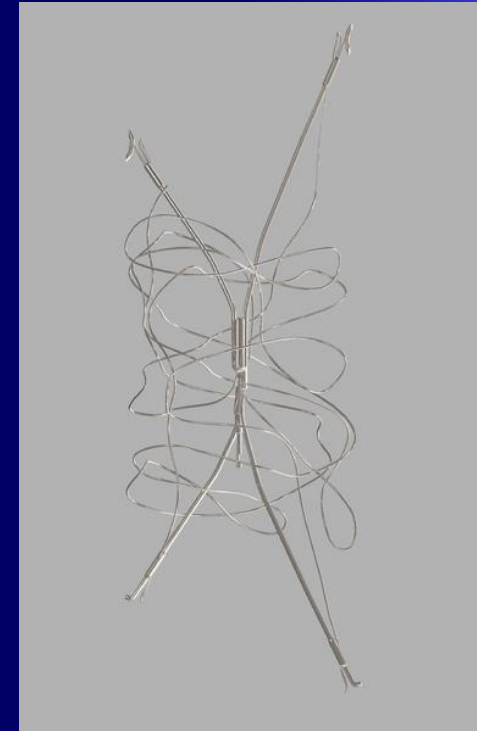
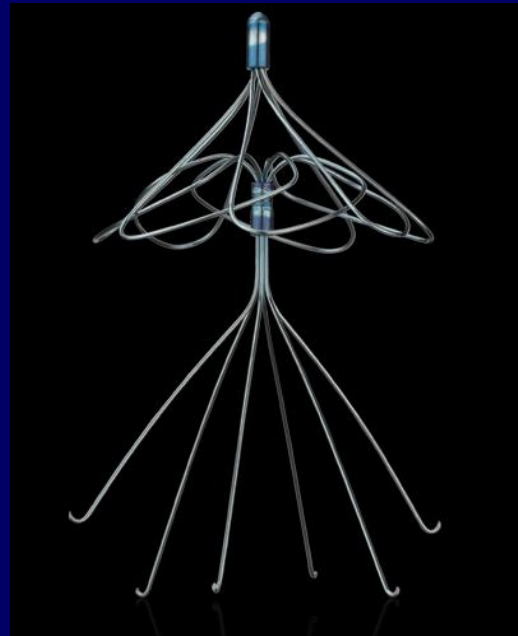
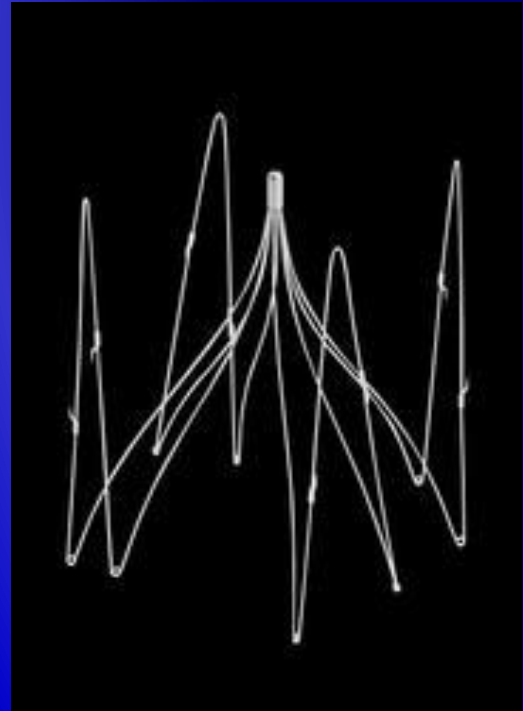
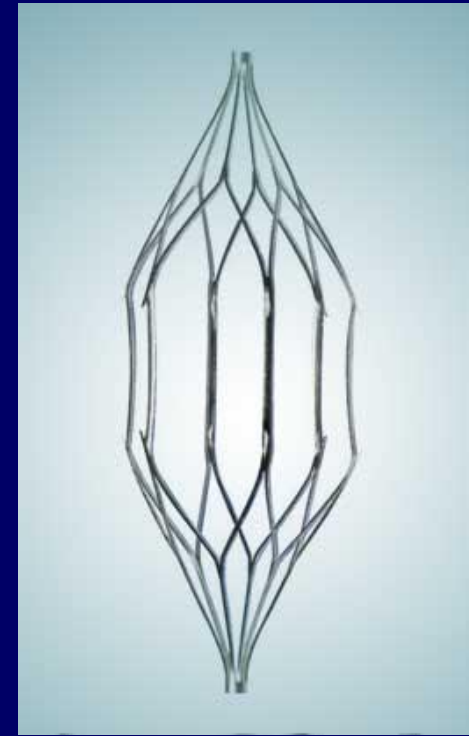
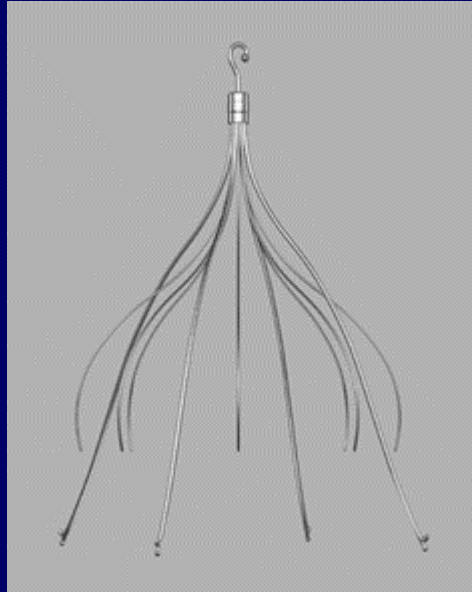
- APPROPRIATE ROLE
- DANGERS
- WHY WE SAY NO

# IVC FILTER

## Inferior vena cava (IVC) filter



# IVC FILTER



# IVC FILTER

- “PREVENT” PULMONARY EMBOLISM
  - DOES NOT TREAT DVT
- INDICATIONS
  - ABSOLUTE
    - INABILITY TO ANTICOAGULATE
      - ACTIVE HEMORRHAGE, RECENT MAJOR SURGERY, INTRACRANIAL BLEED
    - FAILURE OF ANTICOAGULATION
      - DESPITE ADEQUATE ANTICOAGULATION
  - RELATIVE
    - PERMISSIVE NOW RESTRICTIVE
      - LARGE PE, CV COMPROMISE, H/O HEMORRHAGE, PROPHYLAXIS, NERVES

# RETRIEVABLE IVC FILTER

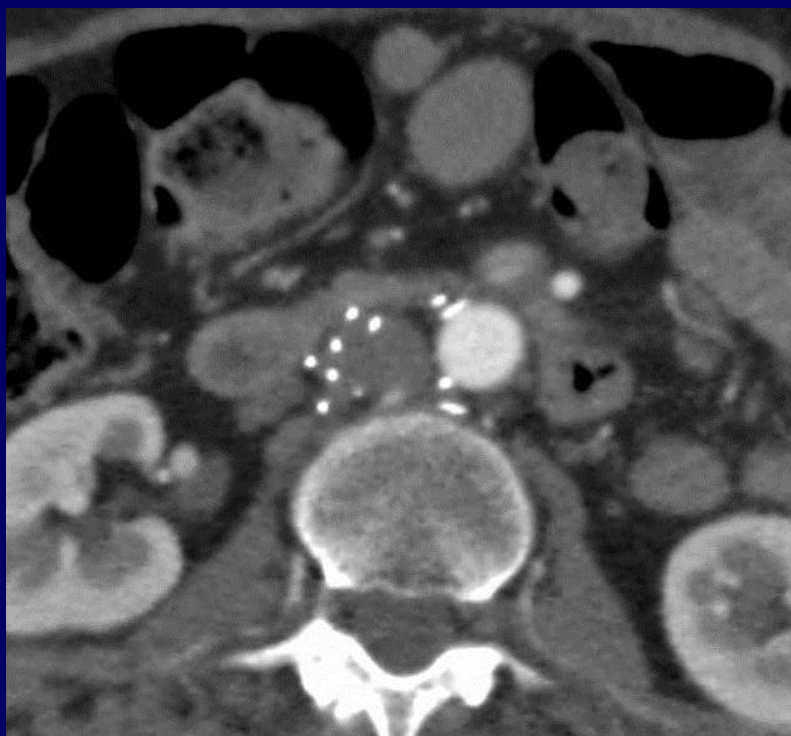
- MULTIPLE REPORTS
  - RETRIEVAL RATE 5 – 20% “PERMANENT” 80 – 95%
- MILITARY ADJUSTED PROTOCOL TO PRIORITIZE RETRIEVAL
  - 94% FOLLOW UP 63% RETRIEVAL RATE
- COST OF RETRIEVABLE VS PERMANENT
  - INCREASED ITEM COST
  - COST OF RETRIEVAL
  - RISKS OF RETRIEVAL
- JOURNAL OF VASCULAR SURGERY – JANUARY 2019 TZENGL ET AL
  - 11-YEAR PERIOD 131,791 IVC FILTERS 6.6% RETRIEVAL RATE
  - WIDESPREAD IMPROVEMENTS ON A NATIONAL SCALE ARE NEEDED TO:
    - IMPROVE APPROPRIATENESS OF FILTER PLACEMENT
    - ENHANCE FILTER RETRIEVAL RATES

# IVC FILTER COMPLICATIONS

- ACCESS SITE
- MALPOSITION
- MIGRATION
- THROMBOSIS – IVC THROMBOSIS UP TO 30%
- FRACTURE
- PERFORATION
- FILTER EMBOLUS
- PE DESPITE FILTER
- INFECTION
- POST THROMBOTIC SYNDROME – HIGHER THAN NON FILTER GROUP


*MORBIDITY AND MORTALITY*

# IVC FILTER COMPLICATIONS





# IVC FILTER COMPLICATIONS



**IVC FILTER INJURY LAWSUITS**

**WARNING**  
IVC FILTER COMPLICATIONS KNOWN TO CAUSE SERIOUS INJURY AND EVEN DEATH.

**LAW OFFICES OF**  
**RICHARD J. SERPE, PC**

Let Richard J. Serpe help you.

CALL NOW! **877.544.5323**  
[www.IVCFilterInjuryLawsuits.com](http://www.IVCFilterInjuryLawsuits.com)

## IVC Filter Lawsuit



Have you been **Injured** by the side effects of this device?

## IVC Filter Lawsuit



**IVC FILTER LAWSUIT ALERT**

Call Anytime - Free Case Review  
**(888) 857-3944**

# IVC FILTER - SUMMARY

- STICK WITH ABSOLUTE INDICATIONS
  - COMPLICATIONS
- RETRIEVABLE VS PERMANENT
  - STREET CRED BUT NO CONCLUSIVE EVIDENCE RETRIEVABLE SUPERIOR
- RESUME ANTICOAGULATION ASAP
  - TREAT DVT - ONGOING THROMBOTIC PROCESS
- NO BENEFIT AS ADJUNCTIVE THERAPY

# GUINNESS: NURSE DENIED WORLD RECORD FOR NOT RUNNING LONDON MARATHON IN A SKIRT...



SCRUBS DON'T COUNT

3:08:22



DRESS, APRON, TRADITIONAL CAP

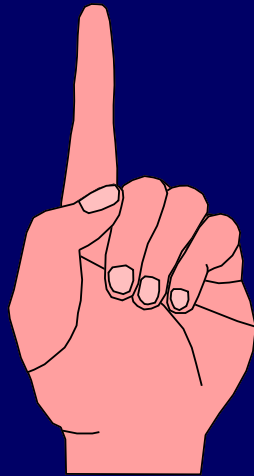
# PAD EMERGENCY

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- ACUTE VS CHRONIC
- OUTPATIENT FOLLOW UP
- EMERGENT MANAGEMENT

# VASCULAR EXAMINATION

MOST SENSITIVE TOOL FOR PULSE EXAM IS



WNL = WE NEVER LOOKED

ONLY CONTRAINDICATION TO PULSE EXAM IS ABSENCE OF A FINGER

WHEN ALL ELSE FAILS, EXAMINE THE PATIENT

# CLAUDICATION

- CLAUDICATIO - TO LIMP (*LATIN*)
- LOWER EXTREMITY MUSCLE PAIN INDUCED BY EXERCISE AND RELIEVED BY REST    *ANGINA OF THE LEG*
- CRAMPING, ACHING, SORENESS
- CONSISTENT AND REPRODUCIBLE
  - PRECIPITATED BY SAME DEGREE OF EXERCISE
  - COMPLETELY RELIEVED BY REST

OUTPATIENT F/U

# CLAUDICATION

- MORE CONCERNING TO PATIENT THAN PHYSICIAN
- LIFE STYLE IMPAIRMENT
- FEAR OF LIMB LOSS
- AMPUTATION RATE 12% AT 10 YEARS

OUTPATIENT F/U



# THE 6 PS OF ACUTE ISCHEMIA

- PULSELESSNESS
- PAIN
- PALLOR
- POIKILOThERMIA
- PARESTHESIA
- PARALYSIS

*KEY IS AN ACUTE CHANGE IN CONDITION*

*EMERGENCY*

# ACUTE ISCHEMIA

- NOT ALWAYS THE 6 Ps
- SUDDEN ONSET OF CLAUDICATION
- SUDDEN ONSET OF INCAPACITATING PAIN
- COOL OR COLD EXTREMITY
- SENSORY LOSS
- MOTOR LOSS

*KEY IS AN ACUTE CHANGE IN CONDITION*

*EMERGENCY*

# VASCULAR LAB – ABI

## ANKLE BRACHIAL INDEX

- ABI

1.0 - 0.7      NO SYMPTOMS

0.5 - 0.7      CLAUDICATION

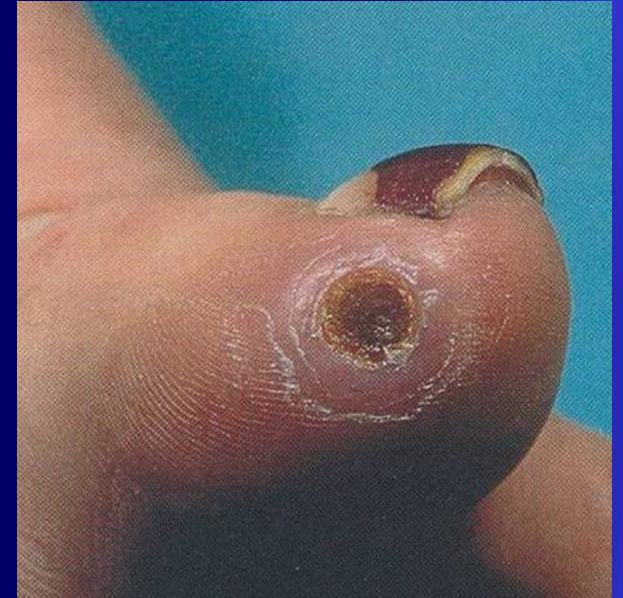
< 0.4      REST PAIN, ULCERATION, GANGRENE

ABI = 0.65 → 65% OF NORMAL BLOOD FLOW

*LOW ABI DOES NOT MEAN EMERGENCY*

*ACUTE VS CHRONIC*

# CHRONIC CONDITIONS



# REFERENCES / GUIDELINES

VASCULAR.ORG

VEINFORUM.ORG

UP TO DATE

SOCIETY FOR VASCULAR SURGERY

AMERICAN VENOUS FORUM

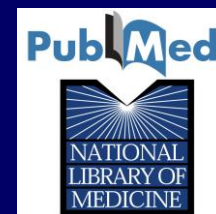
CHEST

AMERICAN COLLEGE OF CHEST PHYSICIANS

PUBMED



**American Venous Forum**  
Promoting venous and lymphatic health



# TAKE HOME MESSAGE

- DVT
  - REAL: TREAT 3-6 MONTHS
  - CALF: TREAT SHORT TERM OR RESCAN → JUDGMENT
  - ARM: REMOVE IV IF POSSIBLE
- IVC FILTER
  - BAD WORD
- ACUTE LIMB ISCHEMIA
  - 6 PS
  - URGENT VASCULAR EVALUATION



BEFORE CARD GAME



AFTER CARD GAME



QUIZ TIME



1) WHICH OF THE FOLLOWING STATEMENTS ABOUT CALF VEIN DVT IS FALSE:

A - IT IS A MARKER FOR INCREASED RISK OF DVT AND/OR PE

B - PATIENTS CAN BE DIVIDED INTO HIGH RISK AND LOW RISK GROUPS

C - IT REQUIRES MANDATORY ANTICOAGULATION FOR 3-6 MONTHS

D - CALF VEIN DVT IS ALSO KNOWN AS DISTAL DVT

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2) WHICH OF THE FOLLOWING STATEMENTS ABOUT IVC FILTERS IS TRUE:

A - MOST PATIENTS WITH DVT SHOULD HAVE AN IVC FILTER PLACED

B - IVC FILTERS PROTECT AGAINST DVT

C - IVC FILTERS CAN PERFORATE THE VENA CAVA

D - LARGE PE / CLOT BURDEN IS AN ABSOLUTE INDICATION FOR AN IVC FILTER

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3) WHICH OF THE FOLLOWING REQUIRES URGENT VASCULAR SURGERY EVALUATION:

A - LEG CRAMPS WHEN WALKING

B - DRY GANGRENE ON THE TIP OF THE TOE

C - SUDDEN PAIN AND PALLOR OF THE LEG

D - CELLULITIS OF THE FOOT

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# MY FINAL CARD TRICK





KEEP  
CALM  
IT'S  
NURSES  
WEEK

[www.nightingale.edu](http://www.nightingale.edu)

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Nurses are consistently named one of the most trusted professionals. And we certainly know why. Day in and day out, our nurses are at the core of our exceptional care. During National Nurses Week, we'd like to thank them for the amazing work they do.



KEEP  
CALM  
AND  
GET A  
~~DOCTOR~~  
NURSE