The Cardiovascular System & The Blood

**Level of difficulty:** Easy

**Overview:** This case requires the nurse to recognize the symptoms of a deep vein thrombosis (DVT), understand the diagnostic tests used to confirm this diagnosis, and discuss the rationale for a treatment plan. Nursing diagnoses to include in the client’s plan of care are prioritized.

**Mr. Luke**

**Gender:** Male

**Age:** 58

**Setting:** Outpatient rehabilitation unit

**Ethnicity:** Asian American

**Preexisting Condition:**
- Left total knee replacement (TKR) five days ago.

**Coexisting Condition:**

**Communication:**

**Disability:**

**Socioeconomic:**
- Smokes one pack of cigarettes per day.

**Spiritual/Religious:**

**Pharmacologic:**
- Enoxaparin (Lovenox); dalteparin sodium (Fragmin); warfarin sodium (Coumadin); nicotine transdermal system (Nicoderm CQ); acetylsalicylic acid (aspirin; ASA); dextran (Macrodex, Gentran)

**Legal:**

**Ethical:**

**Alternative Therapy:**

**Prioritization:**
- Prevention of pulmonary embolism (PE).

**Delegation:**

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**Client Profile**

**Mr. Luke** is a 58-year-old man who is currently a client on an outpatient rehabilitation unit following a left TKR five days ago. This afternoon during physical therapy he complained that his left leg was very painful when walking. His left leg was noted to be swollen so he was sent to the emergency department to be examined.

**Case Study**

Mr. Luke’s vital signs are temperature 98.1°F (36.7°C), blood pressure 110/50, pulse 65, and respiratory rate of 19. His oxygen saturation is 98% on room air. The result of a serum D-dimer is 7 μg/mL. Physical exam reveals that his left calf circumference measurement is ¾ of an inch larger than his right leg calf circumference. Mr. Luke’s left calf is warmer to the touch than his right. He will have a noninvasive compression/doppler flow study (doppler ultrasound) to rule out a DVT in his left leg.

**Questions**

1. The health care provider in the emergency department chooses not to assess Mr. Luke for a positive Homan’s sign. What is a Homan’s sign and why did the health care provider defer this assessment?

2. Discuss the diagnostic cues gathered during Mr. Luke’s examination in the emergency department that indicate a possible DVT.

3. Discuss Virchow’s triad and the physiological development of a DVT.

4. The nurse who cared for Mr. Luke immediately following his knee surgery included appropriate interventions to help prevent venous thromboembolism when writing the postoperative plan of care. Discuss five nonpharmacological interventions the nurse included in the plan.

5. Discuss the common pharmacologic therapy options for postsurgical clients to help reduce the risk of a DVT.

6. Mr. Luke’s noninvasive compression/doppler flow study (doppler ultrasound) shows a small thrombus located below the popliteal vein of his left leg. While a positive DVT is always of concern, why is the health care provider relieved that the thrombus is located there and not in the popliteal vein?

7. The preferred diagnostic test for assessing a DVT is a contrast venography. Discuss this test and its risks and benefits.

8. Mr. Luke was admitted to the hospital for observation overnight. He is being discharged back to the rehabilitation unit with the following prescribed discharge instructions:

   - (a) bed rest with bathroom privileges (BRP) with elevation of left leg for 72 hours;
   - (b) thromboembolic devices (TEDs);
   - (c) continue with enoxaparin 75 mg subcutaneously (SQ) every 12 hours;
   - (d) warfarin sodium 5 mg by mouth (PO) per day starting tomorrow;
   - (e) nicotine transdermal system 21 mg per day for 6 weeks, then 14 mg per day for 2 weeks, and then 7 mg per day for 2 weeks;
   - (f) acetylsalicylic acid 325 mg PO once daily;
   - (g) prothrombin time (PT) and international normalized ratio (INR) daily;
   - (h) occult blood (OB) test of stools;
   - (i) have vitamin K available; and
   - (j) vital signs every four hours.

   Provide a rationale for each of the prescribed discharge instructions.

9. Prioritize five nursing diagnoses to include in Mr. Luke’s plan of care when he returns to the rehabilitation unit.

10. What is an inferior vena cava (IVC) filter and for which clients is this filter indicated?

11. Discuss the symptoms the nurse at the rehabilitation center should watch for that could indicate that Mr. Luke has developed a PE.

12. Because of the DVT, Mr. Luke is at risk for post-phlebitic syndrome (also called post-thrombotic syndrome or PTS). Discuss the incidence, cause, symptoms, and prevention of this potential long-term complication.