



### CLINICAL INFORMATION

An 85-year-old male was brought into the ER by his son complaining of pain and swelling in his right arm. He had a history of dementia and was not able to provide any details of how this occurred, his past medical history, or list any medications he may have been taking.

On examination his arm was bruised, swollen and tender. Ultrasound of the arm showed a large hematoma.

Initial blood work showed a normal CBC, electrolytes, and creatinine.

Coagulation screening tests showed:

<u>Test</u>	<u>Result</u>	<u>Reference Interval</u>
PT/INR	4.1	0.8 - 1.2
APTT:	50 seconds	23 – 35 seconds

The coagulation laboratory was asked by the ER physician to try and determine the cause of the coagulopathy in the absence of any history.

### Questions:

- Given that the PT/INR and APTT are both elevated which coagulation factors are likely involved?
  - Only intrinsic pathway factors – VIII, IX, XI, XII
  - Common pathway factors – Fibrinogen, II (prothrombin), V, X
  - Only extrinsic pathway factors – VII
  - Multiple factors in both intrinsic and extrinsic pathways
- What investigations could be undertaken in the laboratory to help sort out the reason for the elevated PT/INR and APTT?
  - a. 50:50 mix for PT
  - b. 50:50 mix for APTT
  - c. Thrombin time
  - d. Fibrinogen
  - e. All of the above



3. A complete factor assay profile was done on this patient and showed the following results:

Factor	Result (U/mL)
	RI for all factors: 0.50 – 1.50 U/mL
FII	0.10
FV	1.45
FVII	0.16
FIX	0.20
FX	0.06
FXI	1.60
FXII	1.18
FVIII	5.47
VWF Ag	2.96
VWF RCo	3.66

What is the likeliest diagnosis associated with this factor deficiency profile?

- a. Liver disease
- b. DIC
- c. Vitamin K deficiency
- d. Von Willebrand's disease