Key facts

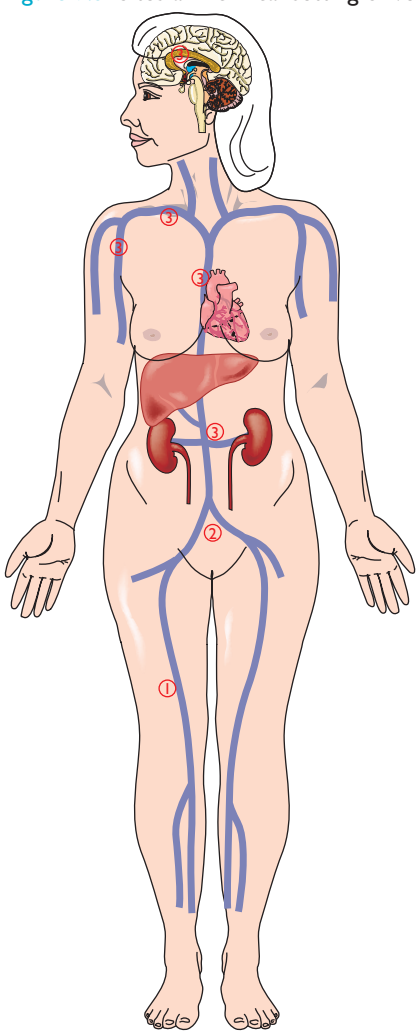
Key factors influencing thrombus formation

Virchow's triad
- Altered blood
  - ↑ cells
  - ↑ platelets
  - ↑ protein
  - ↓ fluid
- Altered wall
  - endothelial loss (atheroma)
  - endothelial damage (smoking)
- Altered flow
  - stasis
  - turbulence

Venous thrombosis

Thrombus formation, related to stasis of blood, is more common in the venous circulation and particularly occurs in the legs or pelvic veins of immobile individuals (Fig. 7.5). Why is stasis common in the leg vessels when the patient is immobilized? If you remember the physiology of venous return from the legs, you will recall that it is contraction of skeletal muscles which pushes blood along the veins and it is the presence of valves which ensures the direction of flow. Understanding this has influenced patient management. Patients are encouraged to move their legs regularly when confined to bed, leg muscles are stimulated to contract during long operations and it is no longer common to have patients bed-bound for weeks.

Figure 7.5 Sites and clinical setting of venous thrombosis



In order of frequency:	Clinical setting
① Leg veins	Immobility, post-surgery and hypercoagulability states
② Pelvic veins	Post-childbirth, puerperal sepsis, pelvic surgery and tumours
③ **Others:**	
Inferior vena cava	Extrinsic compression by tumour, extension from leg or iliac veins
Renal vein	Tumour extension from kidney
Portal/hepatic veins	Local sepsis, tumour compression
Cavernous sinus	Facial sepsis
Superior vena cava	Extrinsic compression by mediastinal tumour
Axillary vein	Trauma from rucksack, local surgery

Patients with malignant tumours, especially carcinoma of ovary, brain and pancreas
Inflammatory disorders due to down-regulation of protein C, e.g. inflammatory bowel disease, TB, SLE
Blood disorders, e.g. polycythaemia, sickle cell, PNH
High-dose oestrogen therapy in contraceptive pills and HRT
Anti-phospholipid syndrome