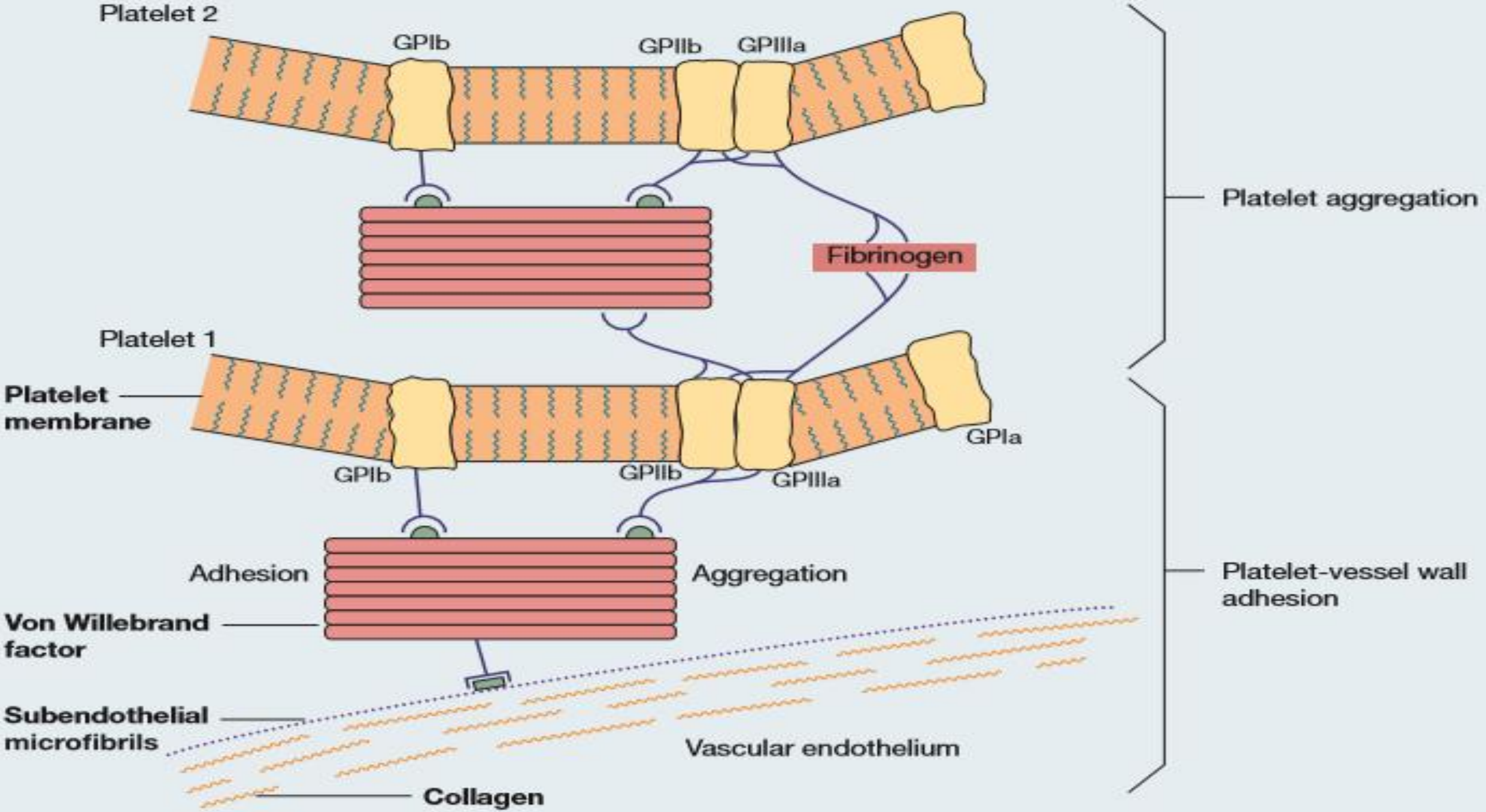
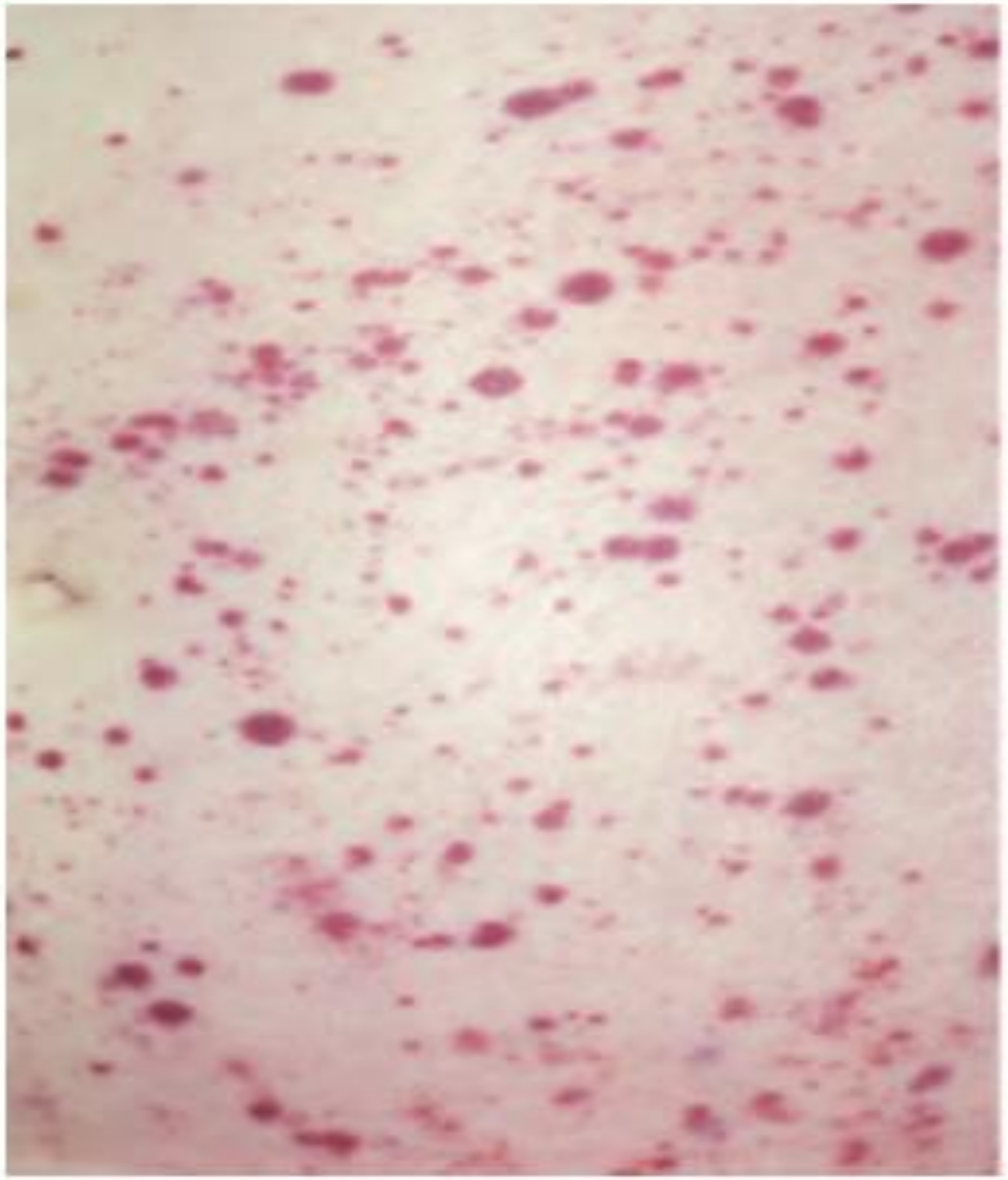
Platelets disorders

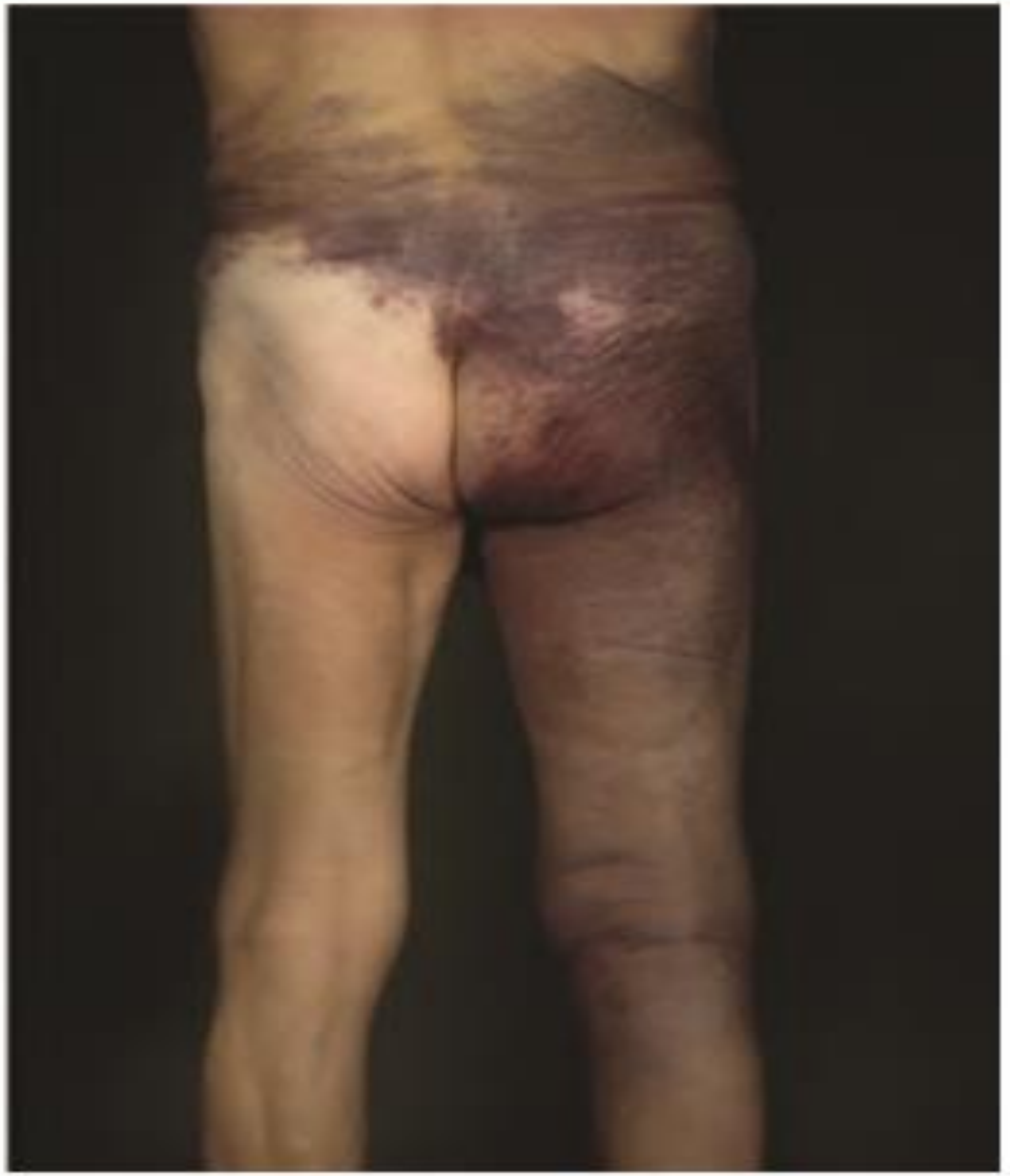
Qualitative platelets abnormalities:

- Von Willibrand disease.
- Bernard-Soulier disease.
- Glanzmann thromboasthenias.

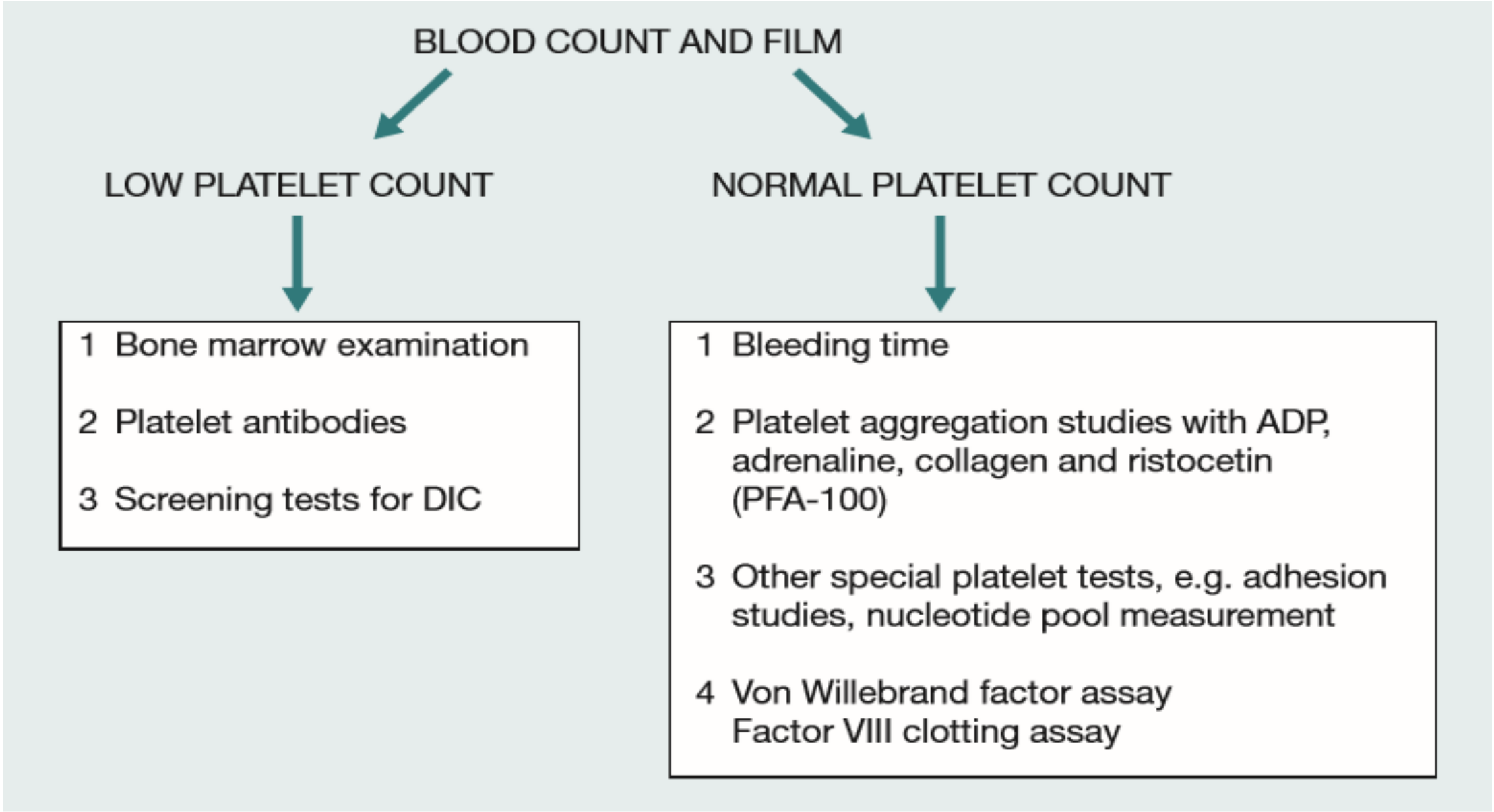

Platelet 2
GPIb
GPIIb
GPIIIa
Fibrinogen
Platelet 1
Platelet membrane
GPIa
GPIb
GPIIb
GPIIIa
Adhesion
Aggregation
Von Willebrand factor
Subendothelial microfibrils
Vascular endothelium
Collagen
Platelet aggregation
Platelet-vessel wall adhesion



(a)



(b)


BLOOD COUNT AND FILM
LOW PLATELET COUNT
NORMAL PLATELET COUNT
1 Bone marrow examination
2 Platelet antibodies
3 Screening tests for DIC
1 Bleeding time
2 Platelet aggregation studies with ADP, adrenaline, collagen and ristocetin (PFA-100)
3 Other special platelet tests, e.g. adhesion studies, nucleotide pool measurement
4 Von Willebrand factor assay
Factor VIII clotting assay

Other platelet disorders

- TTP. (ADAMTS 13) Defficeincy.
- HIT.
- Drug induced thorombocytopenias .(quinine)
- HELLP syndrome .
- DIC. (fulminant infection signs, pregnant, M3 AML , cancer) always icrease PT, PTT.
- Hemolytic uremic syndrome…Jaundice, elevated idirect & T. bilirubin, uremia, thrombosis, history of diarrhea (E. coli O157:H7) + shiga toxin

Disorder	Bleeding time	PT	PTT	Platelets
Von Willebrand disease	Elevated	Normal	Elevated	Normal
Bernard-Soulier syndrome	Elevated	Normal	Normal	Low
Glanzmann thromboasthenia	Elevated	Normal	Normal	Normal
ITP	Elevated	Normal	Normal	Low

SUMMERY

■ Vascular bleeding disorders may be congenital, including hereditary haemorrhagic telangiectasia and the Ehlers–Danlos syndrome.

■ Acquired vascular disorders include fragile capillaries in healthy women, senile purpura, purpura associated with infections, Henoch–Schönlein syndrome, scurvy and steroid therapy.

■ Thrombocytopenia, if severe, also causes skin and mucous membrane bleeding. It has a wide range of causes including: (i) failure of platelet production from a congenital cause, drugs or viral infection or a general bone marrow failure; (ii) increased consumption of platelets. This may be acute or chronic autoimmune, drug-induced, caused by disseminated intravascular coagulation or thrombotic thrombocytopenic purpura.

■ Chronic autoimmune thrombocytopenia is treated by immunosuppression with corticosteroids, rituximab, azathioprine, ciclosporin or by splenectomy.

■ The platelet count may be raised by platelet transfusion or by the thrombomimetic drugs eltrombopag or romiplostim.

■ Disorders of platelet function may be hereditary, as in von Willebrand disease, Glanzmann's thrombasthenia and Bernard–Soulier syndrome, or acquired, most frequently caused by drugs (e.g. aspirin, clopidogrel and dipyridamole) but also non-steroidal antiinflammatory drugs.

■ Platelet function analysis (PFA-100), platelet aggregation studies and VWF assays may be needed to diagnose platelet functional defects