pulmonary embolism

interpretation of VQ scan results

High probability

≥2 large (>75% of a segment) segmental perfusion defects without corresponding ventilation or chest X-ray abnormalities or substantially larger segmental perfusion defects than either matching ventilation or chest X-ray abnormalities

≥2 moderate segmental (25–75% of a segment) perfusion defects without matching ventilation or chest X-ray abnormalities and one large mismatched segmental defect

≥4 moderate segmental perfusion defects without ventilation or chest X-ray abnormalities

Intermediate probability

Not falling into normal, very low, low or high probability categories

Borderline high or borderline low

Difficult to categorize as high or low

Low probability

Non-segmental perfusion defects

Single moderate mismatched segmental perfusion defect with normal chest X-ray

Any perfusion defect with a substantially larger chest X-ray abnormality

Large or moderate segmental perfusion defects involving no more than four segments in one lung and no more than three segments in one lung region with matching ventilation defects either equal to or larger in size and chest X-ray either normal or with abnormalities substantially smaller than perfusion defects

≥3 small segmental perfusion defects (<25% of a segment) with a normal chest X-ray

Very low probability

≤3 small segmental perfusion defects with a normal chest X-ray

Normal

No perfusion defects

risk factors

Environmental
Long-haul air travel
Obesity
Cigarette smoking
Hypertension
Immobility

Natural
Increasing age

Women's health
Oral contraceptives, including progesterone-only and especially third-generation pills
Pregnancy
Hormone replacement therapy

Medical illness
Previous PE or DVT
Cancer
Congestive heart failure
Chronic obstructive pulmonary disease
Diabetes mellitus
Inflammatory bowel disease
Antipsychotic drug use
Chronic in-dwelling central venous catheter
Permanent pacemaker
Internal cardiac defibrillator
Stroke with limb paresis
Nursing-home confinement or current or repeated hospital admission
Varicose veins

Surgical
Trauma
Orthopaedic surgery, especially total hip replacement, total knee replacement, hip fracture surgery, knee arthroscopy
General surgery, especially for cancer
Gynaecological and urological surgery, especially for cancer
Neurosurgery, especially craniotomy for brain tumour

Thrombophilia
Factor V Leiden mutation
Prothrombin gene mutation
Hyperhomocysteinaemia (including mutation in methylenetetrahydrofolate reductase)
Antiphospholipid antibody syndrome
Deficiency of antithrombin III, protein C, or protein S
High concentrations of factor VIII or XI
Increased lipoprotein (a)

Non-thrombotic
Air
Foreign particles (eg, hair, talc, as a consequence of intravenous drug misuse)
Amniotic fluid
Bone fragments, bone marrow
Fat
Cement

- 25% of patients hospitalised with exacerbation of COPD without obvious precipitant had PE in one study

diagnosis

Table 1. The Geneva Score and the Modified Geneva Score*

Variable	Score
Age	
60–79 y	1
>79 y	2
Previous PE or deep venous thrombosis	2
Recent surgery (replaced by malignant disease in the modified Geneva score)	3
Pulse rate >100 beats/min	1
$Paco_2$	
<36 mm Hg	2
36–39 mm Hg	1
Pao_2	
<50 mm Hg	4
50–60 mm Hg	3
61–72 mm Hg	2
73–83 mm Hg	1
Findings on chest radiography	
Platelike atelectasis	1
Elevation of hemidiaphragm	1

* The original Geneva score is discussed in reference 1. A score of 0 to 4 indicates low risk for PE, a score of 5 to 8 indicates intermediate risk, and a score of 9 to 16 indicates high risk. PE = pulmonary embolism.