

Case study: Delayed presentation and Pulmonary Embolism

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A 65-year-old dentist presented in surgery complaining of increasing breathlessness and tiredness. Until recently he had been very fit and active, keen on hillwalking and swimming. He had retired from active practice in Inverness 3 months previously and enjoyed a long anticipated holiday on a Caribbean island. A non-smoker, he had no history of pulmonary or cardiac disease and was frustrated at his increasing inability to maintain physical exercise. Over the last few nights he had become so breathless that he could only breathe comfortably in a sitting position. He thought he had a chest infection as he had developed a cough and dismissed the possibility that he had suffered an adverse event while abroad. He had returned home three weeks previously by air and the symptoms had only appeared over the last 3 or 4 days. He admitted to no pain anywhere and peremptorily dismissed my comment when I mentioned his swollen ankles. *"They were a bit tight after the flight,"* he said, *"I mentioned them to the nurse when I was getting a repeat prescription. She said it was postural and would go away."*

"I am 6 feet five inches tall and am cramped in aeroplane seats. We always travel Club class so that I can stretch out and move around when we are in flight. I keep exercising my legs when in the seat" he added, *"to avoid leg clots and I was ok after the last flight."*

After this time interval my initial thoughts were on an infective source for his dyspnoea, but I quizzed him further on details of the flight.

"It was very turbulent, and the seat belt signs were on most of the way, so I was stuck in my seat most of the journey."

"How long was the flight?" I asked.

"8 hours he replied," then added, *"the connector was 35 minutes and we were delayed 3 hours before the UK flight. We missed the Scottish connection as well."* With time for airport travel, the long haul sector, connecting flights and time sitting in transit, it now appeared that he had been sitting immobile for 17 or 18 hours, while travelling home. Checking his notes, I saw he had suffered from polymyalgia rheumatica and although relatively symptom free had been maintained on a low corticosteroid dose. The possibility of DVT and pulmonary embolism now loomed large.

Examination

Both ankles were oedematous and the left leg was swollen to the knee. He was tender over the dorsum

of the left leg with palpable deep veins. On the right, he had a positive Homan's sign which has a sensitivity of 10-54% and a specificity of 39-89%,¹ and has dubious diagnostic value. On chest examination he had shallow rapid respirations. On percussion, there were dull areas in both lungs, with crackling and poor air entry. He had a Well's score of four (see below). A diagnosis of pulmonary embolism was made² and urgent blood examination and D-dimer titration gave a positive result. Admitted urgently to A and E, he had Doppler ultrasound investigation of both legs and CT scan of chest. The latter showed multiple pulmonary emboli in both lungs.

He was given an interim 24-hour dose of a parenteral anticoagulant then an intensive regimen of anticoagulant therapy with the latter to be continued over at least three months. He made a good recovery but advised not to fly over that period and when he did resume flying again, to be prescribed Low molecular weight heparin.

• In retrospect the patient was fortunate to survive. The opportunity for early diagnosis and treatments was missed by the clinic nurse when he had attended shortly after the holiday was over.

• Risk factors that temporarily raise the likelihood of DVT include: Immobility following a stroke, operation, plaster cast, hospitalisation, or during long-distance travel^{3,4}

Well's Test Score

For patient with suspected DVT, use the two-level DVT Wells score to assess the probability of a DVT.

o Score one point for each of the following:

- Active cancer (treatment ongoing, within the last 6 months, or palliative).
- Paralysis, paresis, or recent plaster immobilization of the legs.
- Recently bedridden for 3 days or more, or major surgery within the last 12 weeks requiring general or local anaesthetics.
- Localized tenderness along the distribution of the deep venous system (such as the back of the calf).
- Entire leg is swollen.
- Calf swelling by more than 3 cm compared with the asymptomatic leg (measured 10 cm below the tibial tuberosity).
- Pitting oedema (greater than on the asymptomatic leg).
- Collateral superficial veins (non-varicose).
- Previously documented DVT.

Delayed presentation and Pulmonary Embolism *continued*

- o Subtract two points if an alternative cause is considered more likely than DVT.
- o The risk of DVT is likely if the score is two points or more, and unlikely if the score is one point or less.

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References:

1. Urbano, F L. (2001). "Review of Clinical Signs: Homans' Sign in the Diagnosis of Deep Venous Thrombosis" *Hospital Physician* (March 22): 22–24
2. Baker, W.F. (1998). "Diagnosis of deep venous thrombosis and pulmonary embolism". *Med. Clin. North Am.* 82 (3, May): 459–476
3. *Oxford Handbook of Clinical Surgery*. Oxford, UK: Oxford University Press. 2013. 668. ISBN 9780199699476
4. NICE guidelines for DVT <https://cks.nice.org.uk/deep-vein-thrombosis#!backgroundsub:2>