

Will he be all right, doctor?

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Emergencies can spring up at any time and in many incarnations. Are you adequately equipped to deal with them? Each month we present a case study in emergency medicine based on real cases and events. Would you have been able to help this patient?



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Figure. P-A chest x-ray showing multiple pulmonary metastases of variable size. No pleural effusion or lymphadenopathy evident.

You're doing another evening shift in the emergency department, routinely working through the waiting patients. It is a reasonable night – you even manage to eat your takeaway Thai food dinner while it is still hottish.

You receive a phone call from another local GP, who is a close friend of yours, and actually your own GP. He tells you he needs to send in the father of a mutual friend from uni.

A story unfolds

You hear how, about two months ago, your GP friend had met the patient and his wife out on a walk. The active (still working) 77-year-old man had retained the trademark dourness well-remembered from many years ago. However, at this chance meeting, the elderly gentleman had not looked at all well. Your friend's observation at the time had been reinforced by the patient's wife, who detailed a marked deterioration; however, she'd said she felt powerless to change things.

The patient asked your GP friend to take over his care. A few days later, the GP began to pull together the disparate pieces of a puzzle.

The patient was known to have cardiovascular disease, insulin-requiring diabetes and asthma. A chest x-ray was done, showing no specific abnormality yet looking not quite right to the GP. Blood tests were done, looking to identify a cause for the patient's deterioration.

To you it seemed as though the advantage of knowing the patient well had given your GP friend the resolve to look harder for a pathophysiological cause for his physical deterioration. Your GP friend had not been inclined to accept that the patient's stern nature or the clichéd 'old age, doing too much' explanation were responsible for his appearance.

So, a CT scan of the chest was performed, and it showed metastases. Subsequent needle biopsy of a pulmonary lesion revealed adenocarcinoma of unknown source. A prostatic biopsy revealed prostate cancer, but this condition was not considered the source of the pulmonary metastases.

Supportive care was commenced and only last week, the patient had required aspiration of a malignant pleural effusion.

But the metastatic malignancy is not the problem tonight. Your GP friend thinks the patient has a recurrence of cardiac failure with marked breathlessness.

The patient arrives

You notify the 'system' of the impending arrival while musing how it is relatively common that bad health events seem to cluster in an individual. This patient had really had an awful two

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months. You visualise the couple's fear of death and separation after more than 50 years of marriage; together they had survived the Holocaust. It does not feel good.

A little later, your GP friend pokes his head around the door of the doctors' office and takes you to the patient and his wife seated at triage. You are reintroduced as you only met them once, decades ago. The patient smiles as he belittles his problems; his wife is quiet.

This is obviously not the time to catch up with your friend so you escort the trio to an 'acute' cubicle so that you and the team can start treating the patient immediately. Thankfully, although breathless, the patient is not *in extremis*. You say goodbye to your GP friend and promise to ring him at home about the patient as soon as you are on top of things.

The team at work

As you take a history from the patient, you simultaneously insert an intravenous line and take bloods to check:

- haemoglobin – anaemia secondary to malignancy may be causing the cardiac failure
- electrolytes – the patient is on indapamide, a diuretic
- creatinine – vital to gauge diuretic therapy; also often insidiously raised as part of poor perfusion from cardiac failure
- blood sugar – in view of the history of diabetes
- cardiac enzymes – to rule out a silent infarct in a patient with diabetes.

Apart from breathlessness and a two-day history of yellow-green sputum, the patient denies any other symptoms, including chest pain.

Examination reveals widespread bilateral crepitations and wheezes; the provisional diagnosis of pulmonary oedema is confirmed.

The initial pulse oximetry is low at 87% (see Table). This responds quickly to use of a simple oxygen face mask (8 L per minute), rising to 93% with obvious

Table. Pulse oximetry guidelines*

Oxygen saturation (%)	Patient condition
98-100	Good
95-97	Normal in a smoker
90-93	Some desaturation or respiratory failure – look for pathology
85-90	Serious problem; marked respiratory failure – resuscitate
<80	Severe respiratory failure; critically ill

*Adapted from Fulde GWO. Emergency Rapid Reference [Table 7]. In: Fulde GWO, Ed. Emergency Medicine. 3rd Ed. Sydney: MacLennan & Petty, 1998: 455.

symptomatic improvement. The couple are at once grateful and somewhat relieved.

The patient is tachycardic (110 beats per minute, sinus rhythm). His blood pressure is quite raised at 210/125 mmHg, which you are happy to see as it gives you a good safety margin in treating the suspected pulmonary oedema. All the agents used to treat this condition – diuretics, nitrates, morphine and continuous positive airway pressure (CPAP) – produce hypotension.

The nurses take an ECG. You are able to quickly rule out an arrhythmia such as atrial fibrillation as the cause of failure. You look closely for any signs of acute ischaemia and ask the patient again about any chest tightness or discomfort. There is no evidence of ischaemia.

Salbutamol is delivered via the face mask to treat the bronchoconstriction associated with pulmonary oedema.

A mobile chest x-ray arrives as you inject 40 mg frusemide intravenously. It confirms your clinical diagnosis. The x-ray shows classic pulmonary oedema on a sinister background of pulmonary metastases but there is no pleural effusion (see Figure).

You explain what is happening as you go and the couple seem increasingly relieved as the patient's condition improves (you blame the oxygen!). Your decision not to use a nitrate infusion or morphine to manage the pulmonary

oedema in this patient has worked out well.

You continue to keep a close eye on the patient between sending off the bloods, writing it all up, and chasing results. You ring up the patient's admitting consultant to inform him of, and to discuss, the case. He suggests adding some oral amoxicillin to cover the yellow-green sputum coughed up by the patient over the last two days.

Unfortunately, there are no ward beds available but the couple are very understanding and do not mind staying in the emergency department overnight before the patient is transferred to the wards.

The results of the blood tests come back; they are unremarkable. You ring up your GP friend to tell him all that has happened. He thanks you and says he will drop by in the morning.

A few days later

Your GP friend rings you a few days later telling you all is relatively well with the patient. He also tells you that you had inadvertently frightened the couple when, initially, you had kept talking about 'fluid in the lung'. They had assumed that the malignant effusion had recurred only one week after drainage. They had settled down when you had showed and explained the x-ray to them later in the evening.

Yet another lesson learned from a fairly routine case.

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