# Commentary: Clinical reasoning

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Many *BMJ* readers have participated in the web discussion of this evolving case presentation and have been intrigued by the complexities of diagnosis. Initially, there was consensus around the broad diagnosis of heart failure, but responding to the twists and turns of the evolving clinical story, many medical readers showed traits of the amateur detective and the crossword puzzle enthusiast. It was this that led me to comment favourably on the learning to be had from doctors interacting with one another's clinical reasoning processes. I hope that the trend away from just submitting answers in a right or wrong format towards exposing the workings of our medical minds will continue.

What is clinical reasoning? The process by which doctors funnel their thinking towards probable diagnosis is classically thought of as a mixture of pattern recognition and "hypothetico-deductive" reasoning.[1 2] The reasoning process depends on medical knowledge in areas such as disease prevalence and pathophysiological mechanisms. Teaching on the process of reasoning, as diagnostic tests provide new information, has included modifications of Bayes's theorem in an attempt to get clinicians to think constructively about pre-test and post-test possibilities.[1]

Looking at the web discussions, we can see more everyday clinical reasoning processes at work. The maxim that "common things occur commonly" is obviously tried and trusted by many. We also see a good example of biases affecting the cognitive process, when wily clinicians are aware that cases published in the *BMJ* are likely to have uncommon aspects. An aspect of clinical reasoning that is perhaps under-represented in these discussions is intuition.[3]

Learning from experts is a traditional foundation of medical learning. But, experts[4] are not always the best people to teach—because they have become unconscious of the processes that novices and those with intermediate levels of proficiency need to learn.[5] This is the value of learning from each other.

A word of caution. Just as in bedside teaching doctors and students need to be aware of the sensitivities of the patient from whom we are learning, so in these interactive case discussions we need to avoid getting so absorbed in the trail of diagnostic clues that we forget the patient. All patients have consented, and they are well cared for throughout the publication process by the case contributors, but it behoves us to check that this novel form of learning (where potentially serious diagnoses are bandied around) does not cause harm. I am pleased to see doctors still debating energetically the patient communication issues.

Competing interests: None declared.

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# Commentary: An evolving picture

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It is pleasing to see such a flurry of responses on bmj.com espousing the importance of incremental problem solving and of clinical acumen. This interactive case was never likely to be "typical." As Abdullah Mohammmed comments, "the initial clinical findings seem contradictory."[1] This is so often the case with medicine, and observing symptoms and signs over time remains an essential diagnostic tool, especially in primary care. Most correspondents were quickly on track over the red herring of heart failure. Bruce Lennox says, "cardiac failure was never likely" because of the absence of risk factors for coronary heart disease, and others point to the normal electrocardiographic results. However, only unequivocal electrocardiograms read by specialists can rule out heart failure and, as in this case, specialists often disagree.[2]

Considering heart failure was entirely reasonable on the initial presentation, despite the lack of risk factors. Typical presentations of coronary heart disease are likely with low ejection systolic heart failure but less so with normal ejection fraction heart failure, as several respondents pointed out. I agree with Muntasir Abo Al Hayja that it would have been nice to measure B-type natriuretic peptide, since this assay seems to be a promising test for exclusion of heart failure.[3]

Most respondents were, however, soon on the right diagnosis from the normal echocardiography result and the presence of pleural effusions. I agreed with most correspondents who listed cancer as their main differential diagnosis and therefore wanted computed tomography. I liked Lennox's advice not to be "reluctant to change the provisional diagnosis" and his conclusion "let's be optimistic."

So this common presentation took a few diagnostic steps to determine causation. My final comment? Better access to a wider range of diagnostic tests is needed in the NHS. Although structured clinical decision making should still limit our expectation of needing tests, when that need is determined, access to tests should be comprehensive and rapid.

Competing interests: RH is a clinical scientist and has received intermittent biotechnology industry research funding and fees for speaking at scientific meetings relating to heart failure, including diagnostic tests and therapies.

1 Rapid responses. *BMJ* 2004. http://bmj.bmjjournals.com/cgi/eletters/328/7442/758#54682 (accessed 2 Apr 2004).
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