Working with e-panoramas

Discovering diagnostic landscapes!

A method to guide in situation of difficult diagnostic challenges in a structured, rational and conceivable way

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INTRODUCTION

One of the most important duties of a practicing clinician is to make an immediate distinction between patients who are seriously ill and those who are not, between those who need urgent medical care and those who do not. 'Missing' a severe case is a dreadful prospect for any doctor. This fear can easily lead to medical overconsumption of diagnostic tests and/or empirical treatments. We want to propose clinical guidance for this diagnostic challenge in a structured, rational and conceivable way. This is especially important in limited-income settings, where diagnostic facilities are lacking and overconsumption is not quite an option.

The strategy we will follow is somewhat related to the one used in 'mind mapping,' in which complex ideas are visually represented by orderly clustering them around a central theme. We want our diagnostic landscape to include the following information about a specific clinical presentation: possible diagnoses, whether they are 'important and treatable,' how we can confirm or exclude them with clinical features and basic investigations, and which diagnoses have similar presentations.

STEP BY STEP

1. The central symptom of finding

After listening carefully and respectfully to the patient, we must define our panorama's 'key' or central finding. This is not necessarily the presenting complaint! Since we will focus on severe and treatable diseases first, we look for a complaint that points to one or more of these diseases. We place this key symptom as "central finding" in our panorama.

2. Construst the inner circle of diseases

As mentioned before, not all diseases are equally 'important.' Two crucial criteria should guide clinicians in prioritizing diseases not to be missed: seriousness and the possibility to treat the disease, especially in low-resource settings. Only serious diseases that we can treat in the setting in which we are active are important to keep in immediate consideration. We place these diseases on a circle around the presenting symptom or central finding.

3. Create segments and arcs with shared findings

Inside the circle with diagnoses, we construct an arc that connects diseases through a finding that several of our possible diseases have in common, or we create a segment with diagnoses with shared findings. We arrange our circle, putting these diseases with shared findings together. In this way, diseases that 'look alike' are visually represented close to each other. This will help quickly orient towards or away from some diseases.

4. Fill in other findings with each diagnosis

We can now put additional confirming findings around each diagnosis on the first circle. We can say that clinical, radiological or laboratory values are discriminative if they have a strong or very strong confirming or excluding power.

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The presence of a confirmer will guide toward a particular diagnosis, and the absence of an excluder will lead toward rejecting a diagnosis. For example, petechiae are rare in case of meningitis, but if they are present, they have a strong confirming power. The absence of petechiae will not lead us to reject the possibility of meningitis. The presence of fever will not have a strong confirming power when we think of enteric fever since many diseases present with fever; on the other hand, its absence will make enteric fever very unlikely.

When we have several diagnostic possibilities in competition, the disease-specific confirmers will also guide in which symptoms or signs we must look for or which radiological or laboratory examinations we need to order.

5. Construct the outer circle

The diseases that are possible explanations for the presenting complaint but are not important in a specific setting are put in the outer circle. These should all be diseases that are either not serious or not treatable. This outer circle should only be considered when we take a 'second look' at a case, never in the primary assessment. In some settings, for example, when the workload is very high, we can forget about the second circle.

CONCLUSION

Panoramas are a way to visualize a differential diagnosis in a clinically relevant snapshot, taking into account medical priorities. Panoramas guide clinicians to focus on inner circle diseases and help clinicians not to overlook important diagnoses, before considering secondary diagnoses. A good panorama visually clusters diseases with strong shared confirmers and suggest further testing with wisely chosen additional disease-specific features. The exercises of drawing a panorama can serve as a pedagogical method.

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ITM panoramas are made to support clinicians in making decisions in the field. They need to be adapted to a specific clinical setting. The panoramas are a work in progress and will evolve as new diagnostic possibilities and treatments become available.

Suggestions to improve the panoramas are more than welcome.

Panoramas serve as a diagnostic aid and a pedagogical tool. ITM cannot be held responsible for any damage incurred using panoramas.

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