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Author:
Mohit Kumar
Bachelor of Science (BSc) (UWA) – 2016. Doctor of Medicine (MD) (UWA)
4 years, currently 4th Year
University of Western Australia
Student

I am final year MD student and have completed an undergraduate degree double majoring in Medical Sciences and Philosophy from the University of Western Australia. I have a passion for the physical exam, and my interest is Cardiology, specifically Heart Failure and role of the bedside exam in patient assessment.

Corresponding author details:
Mohit Kumar
Postal address: 88/6 Hampton St, Burswood, 6100, WA.
Email: antinomy1997@outlook.com
Phone: 0438668747

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Summary:
A reflection of my experiences of the physical examination This is an excerpt from an essay that won the 2020 UWA Quality and Safety Essay prize.

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The utility of the physical exam: a reflection

We are taught early on in medical school the importance of the physical exam. Equipped with our rudimentary knowledge of signs such as Osler's nodes and Duputryen's contractures to diagnose infective endocarditis or chronic alcoholism, we are sent forth into the wards only to discover that in the technologically advancing world of medicine, the physical exam is at times neglected by our seniors and fellow medical students. As medical students on the ward, we observed that many doctors seem to have a conception that the physical exam is becoming an outdated remnant of olden day medicine and cannot compare to the "superior" investigating modalities of this decade.

This decline of the physical exam was noted in a review by Jauhar, who found that the attitude of medical professionals towards the physical exam was becoming increasingly cynical [1]. In the last thirty years alone, there has been a general deterioration in physical examination skills amongst medical trainees [1,2]. The cause appears to be multi-factorial such as doctors spending more time around computers at the expense of bedside interaction with the patient, resulting in less time to practice the physical exam. The time pressures of modern-day medicine also mean that physical examinations are often rushed or cannot be performed in their entirety [3]. There is also a prominent perception that certain clinical skills are not valuable due to alternative diagnostic modalities. Some argue that the primary reason for this is that doctors are becoming more uncomfortable with uncertainty. Whilst a physical examination manoeuvre might allow one to diagnose a condition with a probability of 80 percent, there is a strong urge to get additional tests to be 100 percent certain. This urge stems from a fear of legal repercussions and a loss of trust in subjective observation [1,2,4].

My experience in this regard occurred in the cardiology department. Our team had admitted a new patient who was noted to have an unknown heart murmur. The consultant listened to the patient's chest for approximately five seconds and moved on. When I asked him what he thought of the murmur, he replied "We don't really do that anymore because everyone on this ward will receive an echo anyway". His response struck a chord with me. I always thought cardiology was one of the most physical exam-heavy specialities, and a consultant of all people would at least try to identify the murmur. I also noticed throughout my placement that other doctors shared this mentality where instead of attempting to identify an auscultatory finding, many doctors would order an echocardiogram or x-ray. I wonder; in these days of easily accessible imaging, are doctors losing the ability to auscultate?

Evidence shows however that cardiac auscultation is still a useful tool to diagnose or exclude a variety of cardiac pathologies. When compared with echocardiography, auscultation can differentiate, with a reasonable degree of accuracy, a systolic murmur that is functional from one that has a pathological cause [5]. Furthermore, a systematic review found that auscultation by cardiologists was accurate when compared to gold standard echocardiography for detecting various causes of pathological systolic murmurs, particularly aortic stenosis (positive likelihood ratio (+LR) 8-101) [6]. A similar systematic review found this also to be the case for diastolic murmurs, especially aortic regurgitation (+LR 8.8-32) [7]. I have heard legends of skilled physicians who were able to quantify the severity of an aortic lesion just by listening to the portion of systole when the murmur occupied. I have often dreamed of becoming that type of doctor. Yet today, is the stethoscope we wear around our neck slowly becoming nothing more than a fashion accessory?

Studies that evaluate the diagnostic accuracy of cardiology physical exam manoeuvres are difficult to interpret because the physical examination is highly skill dependent. A study investigating the accuracy of bedside jugular venous pressure (JVP) assessment among

cardiologists, internal medicine residents, and medical students found that sensitivities improved with increasing clinical experience [8]. Another Australian-based study of basic physician trainees showed that an intensive clinical training period, consisting of bedside teaching and repeated JVP assessments, was associated with an improvement in JVP accuracy, particularly in its specificity and diagnostic odds ratio [9]. Repeated use of physical exam manoeuvres seems to be associated with an improved physical exam accuracy and this is noticed even among medical students [10]. It seems to be the case that regular, repeated practice of physical exam manoeuvres plays a key role in increasing the skill and therefore, the diagnostic accuracy of the physical exam.

During medical school, I have also had experiences that have reaffirmed the value of physical exams. During one of my surgical terms, a more experienced surgical consultant would make time to take students to an interesting patient and teach us individually the techniques within the surgical abdominal exam. He would stand, with a discerning eye, at the bedside whilst we performed various physical examination manoeuvres. We learnt pearls like how percussion is a less painful and more sensitive way to test for rebound tenderness or that having the patient's bed raised was crucial to obtain the necessary leverage for good palpation [11]. He told us there is no substitute for a surgeon's hand in the diagnosis of acute appendicitis. I found that learning experiences with him were some of the best in medical school.

A common, and widely regarded critique of the physical exam is that it has a low diagnostic accuracy when compared to medical imaging and labs. Whilst this criticism may hold true to many exam manoeuvres, it is certainly not universal. Take the above example of appendicitis for instance. The likelihood ratios of clinical signs like right lower quadrant pain and tenderness (+LR: 7.3-8.5, negative likelihood ratio (-LR): 0-0.28) or rigidity (+LR 3.0-4.8, -LR: 0.79-0.85) are comparable to modalities like ultrasound (+LR 3.03-6.68, -LR 0.17-0.42) or gold standard CT ((+LR 6.86-12.6, -LR 0.06-0.17) [11-13]. The problem lies not with the accuracy of the physical exam, but rather the lack of an evidence-driven approach to choosing suitable physical exam manoeuvres [2,11]. Furthermore, overreliance on excessive diagnostic tests, where the diagnosis could have been made by physical diagnosis, introduces a diagnosis-time delay, exposes patients to side effects, creates additional healthcare-associated costs, and often reveals incidental findings which may lead to unnecessary workup [14].

Lastly, physical diagnosis falls into the art of medicine. Simply touching the patient or taking a few minutes to listen to their heart, even though you will likely hear nothing, goes a long way in building a patient's trust in their physician. It is in and of itself a therapeutic intervention that builds rapport and increases patient satisfaction [15,16].

Like any skill, the physical examination must be perfected through practice. It should also be scrutinized through the lens of evidence-based medicine. Only then, does it become a valuable tool in a physician's arsenal. In the words of Sir William Osler: "Learn to see, learn to hear, learn to feel, learn to smell, and know that by practice alone you can become expert. Medicine is learned by the bedside and not in the classroom." (Figure 1) [17]

Figure names:

Figure 1: Sir William Osler, performing an exam at the bedside [17]

Conflicts of Interest

None

Author Contribution

Written by Mohit Kumar

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