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Case Report

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The Dilemma of the Physician, Going Back to The Clinician, Back to Basics

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Annotation

Background: *Technology has allowed the scientific side of medicine to evolve more rapidly causing the "modern" physicians to greatly rely on laboratory values and imaging studies thereby leading to the loss of clinician abilities and skills.*

Case: *A 52-year-old female with multiple cardiovascular co-morbidities including ischemic heart disease, presented to the emergency department in the morning with diffuse body pain associated with malaise, numbness and paresthesias of the right upper and lower extremity. This was followed by an "out of body" sensation. She then experienced transient sharp left-sided chest discomfort described as moderate to severe in intensity with a duration of approximately 2 minutes slowly subsiding on its own. Subsequently, she reported difficulty lifting the right hand and leg as well as slurred speech. The strength in her limbs returned within the hour but numbness and paresthesias persisted and continued to bother her. At the time of presentation, she was hypertensive but no other abnormalities were found on the physical examination. An elevated troponin level was noted but acute coronary syndrome (ACS) was unsuspected in the 12-lead electrocardiogram (ECG). A noncontrast computed tomography (CT) of the head was unremarkable. A subsequent 12-lead ECG revealed new T wave inversions in the lateral leads. This provoked a repeat neurological exam in greater detail, and there was objective weakness of the distal muscle groups of the right upper and lower limbs. The NIH score was now 6 (prior was 0). Brain magnetic resonance imaging (MRI) the following day showed an acute infarct of the left internal capsule. Approximately 72 hours after the initial presentation, the patient remarkably improved and was planned for discharge by the 5th admission day.*

Conclusion: *Clinical skills are crucial in the technological era; it could definitely prevent mistakes or time matter diagnosis. Hence, a reason why in times of dilemma, a return to the basics promoting these skills will always be helpful.*

Introduction

Centuries of human creativity and dedication have opened new windows for a better understanding of the human body, helped with the new advances brought by technology the medicine has evolved as an art as and as a science. At the beginning of history, the doctors were known and measured as a clinician, basing their capacity in their abilities to assess and treat their patients founded in their clinical skills, but the years, we maybe could say the past two decades, in particular, the scientific side of medicine evolved more rapidly bringing as results "Modern" physicians that greatly rely on laboratory values and imaging studies [1].

The promotion of clinical abilities has been long life promoted in our medical schools for generations, but as soon as we start advancing in our training, the clinical based practice starts changing to technology-supported practice, which leads to the loss of the clinician abilities and the confidence of the doctors in themselves [2].

There is a clear debate of the superiority of science over skills that has been slowly simmering. Many foresee a future where ultrasound and even smartphones will replace auscultatory techniques along with the humble stethoscope but the complete reliance on either aspect rather than both often misleads clinicians, reason why We present the case of a middle-aged female whose values on the laboratory results swayed the clinicians away from the true diagnosis [3-5].

Case

A 52-year-old female presented to the emergency department in the morning with diffuse body pain associated with malaise, numbness, and paresthesias of the right arm and leg. This was followed by an "out of the body" sensation. She went on to develop sharp left-sided chest pain. It was moderate to severe in intensity with a duration of approximately 2 minutes slowly subsiding on its own.

Subsequently, she reported difficulty lifting the right hand and leg as well as slurred speech. The strength in her limbs returned within the hour but the numbness and paresthesias persisted and continued to bother her. Her past medical history included diabetes mellitus type 2, hypertension, ischemic heart disease with significant coronary atherosclerosis for which she had undergone prior aortocoronary artery bypass graft surgery, sleep-disordered breathing, and depression.

At the time of presentation, she was afebrile with a temperature of 97.5 °F, pulse rate of 71 bpm, regular, blood pressure of 209/105 mmHg in the right upper extremity, and oxygen saturation on room air of 100%. The patient was awake, alert, and completely oriented to time, place, person, and situation. Her speech was articulate and fluent. The pupils were equally reactive to light. The examination of the neck did not reveal any enlarged lymph nodes or thyromegaly. The jugular venous pulsations were not elevated. The lungs were clear to auscultation. The heart sounds were normal and there were no murmurs. A well-healed sternotomy incision was present. The abdomen was non-distended, soft, non-tender, and without organomegaly. There was no peripheral edema. The testing of cranial nerves (II-XII) did not show any abnormality. Motor functions were grossly normal. Sensations were not tested. Based on this, NIH score was 0.

A preliminary set of laboratory values included a normal complete blood count and comprehensive metabolic panel. The cardiac troponin was elevated at 0.036 ng/mL. The urine toxicology screen was positive for cannabis. The 12-lead electrocardiogram showed normal sinus rhythm with no suggestion of ST-segment or T wave abnormalities. Chest roentgenography demonstrated a normal cardio mediastinal silhouette with post-surgical changes of cardiothoracic surgery. There was no evidence of pleural disease and pulmonary airspace was normal. Finally, a brain computed tomography scan showed no acute changes.

The patient's history of coronary artery disease, complaint of chest pain, however ephemeral and elevated cardiac troponin brought the diagnosis of the acute coronary syndrome to the forefront. She was administered anticoagulation and antiplatelet agents along with antihypertensive therapy to lower blood pressure. She was then transferred to the telemetry floor.

During the telemetry floor stay, the patient did not endorse further chest pain. She continued to have paresthesias in her right upper and lower limbs. The blood pressure was 171/101 mmHg. Her home medications including the antihypertensive regimen were resumed. A repeat troponin level showed a decrease in troponins level to 0.015 nanograms per milliliter. A subsequent 12-lead electrocardiogram revealed new T wave inversions in the lateral leads. This provoked a repeat neurological exam in greater detail, there was an objective weakness of the distal muscle groups of the right upper and lower limbs. The NIH score was now 6. At midnight, blood pressure was 143/96 mmHg and T wave inversions on 12-lead electrocardiography were deeper, symmetric, and far more prominent. Therefore, she was transferred to the intensive care unit, and the neurology service was involved for further management. Brain magnetic resonance imaging the following day showed an acute infarct of the left internal capsule. Vascular ultrasonography of the carotid and vertebral circulation, as well as 2D-echocardiography, were normal. After a 24-hour stay in the intensive care unit, she was transferred back to the telemetry floor. Approximately 72 hours after the initial presentation, the patient remarkably improved and was planned for discharge by the 5th admission day.

Discussion

During medical school, the students are invariably taught the virtues of the clinical skills which include cautious history-taking and an extensive physical examination to elicit clinical symptoms or signs, then observe the laboratory values and then the imaging [6, 7]. When the time comes to apply these skills in the real world, physicians rely less and less on the clinical skills, especially when articles published endorse the need to perform tests to confirm a diagnosis [8, 9].

Studies done on trainee medical students and residents have demonstrated waning clinical examination skills, however, other studies have exposed a reduction in medical errors and the improvement of the outcomes with an appropriate physical examination [12]. This has been a topic of active debate over the last few decades, experts have published perspectives on the art of clinical skills and only a few support the use of clinical skills [13]. It is unfortunate to say that the clinical examination including an extensive history is archaic and could be replaced by imaging and laboratory studies [14-17].

If only the mystique of the human body were as simple as linear mathematics, then the number of factors known and unknown that affect the outcome would be out of proportion for machines to comprehend and to arrive at a conclusion, the reason why chasing numbers often leads us to the wrong goals [18]. Multiple data have established that unnecessary investigations worsen clinical outcomes and there is where a strong foundation in clinical skills ensures the best patient outcomes [19, 20].

The challenges of practicing medicine in this era is pressuring us to depend more and more on objective evidence. The fear of possible litigation and the discomfort with uncertainty is what pushes us to get that imaging study "Just to be sure" or to "Confirm" the diagnosis that would be more than clearly evident in our initial clinical assessment [21]. No practitioner wants to be wrong in the competitive world of medicine today; that is when we could doubt our clinical skills and would prefer to have someone else with technological resources that could find out later that we were incorrect [22, 23]. Never mind that the "Correct diagnosis" hardly made a difference in the patient's life. It is also a fact that physicians now spend less and less time examining the patient and more time reviewing the imaging and laboratory studies reason why the teaching is shifting from bedside to the conference room promoting the poor acquisition of clinical skills by the physicians-in-training [24-26].

The clinical examination is vital to establish rapport with our patients [27, 28]. This is why even after we have unlocked the mystery of every single patient's condition. One of the pitfalls is that the clinical examination is extremely subjective, but a way to obviate this thought process is using the standardized methods and

have more than one clinician performing a cautious examination [29]. Most of the electronic medical records provide a good guide on the clinical examination description, however, the auto-filling of details tends to make the clinical examination a "Mechanical" part of the interview, we do not have any doubt in the time we can save with it, but it does not accommodate the nuances of the findings or saving time we could miss important ones [30, 31]. We need to strike a balance where we make appropriate use of imaging and laboratory studies to help aid in our management as we learned when we were in school; in the same way with our patient, we were unable to diagnose the cerebrovascular accident in a timely fashion until multiple people examined her at different times and their discordant findings led to the diagnosis, exposing the imperant importance of the serial physical examination based assessment over the laboratory values and imaging-based practice reason why we would need more clinician and fewer physicians.

Conclusion

Besides our patient had an extensive cardiac history, initially presented with accelerated hypertension was causing demand ischemia leading to demand ischemia troponinemia and having non-specific associated symptoms, the management was focused on blood pressure control; also on the admission to the floor, the emergency department physician's diagnosis was affirmed as the patient had no gross focal neurological deficits. Antihypertensive medications were continued on the floor. Hence, the aggressive blood pressure control likely rendered the patient to have the progression of neurological symptoms and the transient ischemic attack evolved into an actual ischemic cerebrovascular accident.

Retrospectively, this might have been prevented if the issue of paresthesias were taken as seriously as the chest pain. The appearance of laboratory results to support a possible cause of chest pain drove the physicians away from the ongoing neurological event. She was not evaluated for sensation on presentation. The occurrence of T wave inversions in an asymptomatic patient prompted a re-evaluation of the patient. This third clinical evaluation involved a thorough review of presenting symptoms and an astute clinical examination. This was when a cerebrovascular accident became a leading diagnosis.

Clinical examination skills are crucial even in the era of artificial intelligence, helping the physician bring semblance to the chaos of numbers in the laboratory. It is to promote and reinforce the clinician abilities at every level of training, that is the reason why in times of dilemma, going back to the basics will always be helpful.

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