



Essential Explanations to Clinical Examination

P T Thomas



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(EE to CE)**

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Universiti Malaysia Sarawak
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FOREWORD

Learning medicine, like other sciences, has always been described as a process of acquiring knowledge, psychomotor skills and professional attitudes. Such a process ensures that medical students will meet the essential competencies and possess the appropriate knowledge, attitudes, and skills to become a doctor.

Accurate elicitation of clinical signs is vital to diagnose and treat patients. Acquiring knowledge and skills towards this end is important to be a good doctor despite the technological advances in laboratory investigations and imaging which are expensive, invasive and sometimes harmful to patients.

There are many books on clinical examination but this little and concise book gives us essential explanations to clinical examination, which are mostly not elaborated in other books.

Prof Dr. PT Thomas with fourteen years' experience in teaching undergraduate medical students at UNIMAS has expounded on over 100 most useful yet least understood topics. I am sure his work will become an important reference text for all aspiring medical and nursing students as well as young lecturers in the field.

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November 18, 2012

PREFACE

The urge to write this book came from 14 years of experience teaching undergraduate clinical medicine course at Faculty of Medicine and Health Sciences, UNIMAS. It is sad but true that many UNIMAS undergraduate medical students are unable to come out with explanations as to why things are as they are. Doing things without understanding makes the job of a doctor boring and burdensome. Being able to explain, on the other hand, makes the job interesting and leads to more research.

This book is not intended to replace or disprove any of the well established clinical methods textbooks. Indeed, I have received ideas and inspiration from these excellent books. Nor does it seek to provide a comprehensive explanation of all the difficult areas in clinical examination. I have tried to include topics that most undergraduate medical students (particularly those at Faculty of Medicine and Health Sciences, UNIMAS) often find difficult to comprehend and explain.

I believe skills in clinical examination will remain important despite advances and widespread availability of expensive laboratory tests and imaging modalities. An understanding of the mechanisms of clinical signs will surely give undergraduate medical students an 'extra' edge to score high on end of posting as well as professional examinations of the Medical Faculty and examinations elsewhere.

I sincerely hope this book will enhance the understanding and knowledge of clinical examination. I am open to suggestions, opinions and criticism.

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Friday, November 16, 2012

ABBREVIATIONS

A2	Aortic second heart sound
ACA	Anterior cerebral artery
ACEI	Angiotensin converting enzyme inhibitor
ACTH	Adrenocorticotrophic hormone
AF	Atrial fibrillation
AP	Anteroposterior
AR	Aortic regurgitation
AS	Aortic stenosis
ASD	Atrial septal defect
AV	Atrioventricular
AP	Anteroposterior
APO	Acute pulmonary oedema
BP	Blood pressure
CABG	Coronary artery bypass graft
CC	Chief complaint
CHF	Congestive heart failure
COPD	Chronic obstructive pulmonary disease
CVS	Cardiovascular system
CRHD	Chronic rheumatic heart disease

DD	Differential diagnosis
DM	Diabetes mellitus
DVT	Deep vein thrombosis
EJV	External jugular vein
ESRD	End-stage renal disease
ESRF	End-stage renal failure
FMHS	Faculty of Medicine and Health Sciences
GH	Growth hormone
HPI	History of present illness
IJV	Internal jugular vein
IV	Intravenous
JV	Jugular vein
JVP	Jugular venous pressure / pulse
K/C	Known case
KF	Kayser-Fleischer ring
LA	Left atrium
LN	Lymph node
LMN	Lower motor neurone
LV	Left ventricle
LVH	Left ventricular hypertrophy
M1	Mitral first heart sound
MCA	Middle cerebral artery
MCL	Mid-clavicular line
MS	Mitral stenosis
NYHA	New York Heart Association

O&G	Obstetrics and Gynaecology
OGTT	Oral glucose tolerance test
OHA	Oral hypoglycaemic agent
P2	Pulmonary second heart sound
PH	Past history
PICA	Posterior inferior cerebellar artery
PND	Paroxysmal nocturnal dyspnoea
RA	Rheumatoid arthritis
RAPD	Relative afferent pupillary defect
RBC	Red blood cells
ROS	Review of systems
RS	Respiratory system
RV	Right ventricle
S1	First heart sound
S2	Second heart sound
SVC	Superior vena cava
T1	Tricuspid first heart sound
T1	Thoracic root 1
T7	Thoracic root 7
TR	Tricuspid regurgitation
TSH	Thyroid stimulating hormone
UMN	Upper motor neurone
VF	Vocal fremitus
VR	Vocal resonance

INTRODUCTION

History taking, the Achilles' tendon of even experienced clinicians, and a quick and comprehensive physical examination cannot be replaced by modern gadgets. They not only tell you about your patients' illness but also help to create a rapport with the patients and a compassionate attitude toward them, something that will pay you in the long run and ward off litigations. Taking shortcuts in physical examination will end up in blanket ordering of investigations and defensive medicine, the bane of medical practice in developed countries and spreading fast in the medical world.

History taking and physical examination remain fundamental for medical students, and there is no alternative or shortcut to mastering the skills for these. These skills will serve the students well as long as they practice medicine in future. This booklet will provide the medical students with a ready inventory of helpful explanations with regard to 'what to do', 'how to do' and 'what to look for' during clinical examination. It is not intended to replace prescribed textbooks of clinical methods, but to complement and supplement them as a pocket companion.

P T Thomas

ESSENTIAL EXPLANATIONS TO CLINICAL EXAMINATION

A. History taking

1. Chief Complaint (CC)

Do not be obsessed with this jargon. The CC does not necessarily lead to the main or complete diagnosis. For example:

CC 1: Nocturnal cough

Main problem: Hypertension

Diagnosis: A side effect of ACEI

CC 2: Seizures

Main problem: Type 2 DM on OHA

Diagnosis: Hypoglycaemia secondary to OHA.

CC 3: Epistaxis

Main problem: Atrial fibrillation.

Diagnosis: Excess dose of warfarin

Write down all the complaints, including chief complaint, in the order in which they happen (i.e. in the chronological order).

2. History of Present Illness (HPI)

This concentrates mainly on the CC. Therefore, if your attention is focused only on the CC, you may miss the main problems. You will reach a complete diagnosis if all the complaints are noted down and pursued systematically. The more the complaints you have, the more accurate your

diagnosis will be. In a long history, avoid mentioning dates. State the time period instead.

For example,

“The patient had been doing very well a month ago, six days prior to admission...”

“Day two of the onset of the chest pain...”

“10 minutes before the fits...”

Don't write “10 August 2010, 31 December 2011...”

The system or systems you explore in HPI should be done thoroughly. You don't have to come back to these systems in the Review of Systems (ROS). Maintain the chronological order in the description of the HPI. The story should begin with the complaints and reach the time of presentation, rather than the time of admission.

Do not keep important facts until the end to make the story thrilling. Reveal rather than conceal. Start the HPI with an introductory statement like:

“Mr. Jackson is a chronic smoker with no significant past medical history.”

“Mr. Jackson is a k/c of type-2 DM for the past 10 years on OHA with no known complications or other premorbid medical conditions.”

“Mr. Jackson has been hypertensive for the past 12 years and suffered a stroke last year.”

If the patient had several similar (or probably similar) episodes in the past, describe them briefly. A detailed mention

or lengthy explanation of these episodes in the HPI will divert your focus away from the present problem. Do not presume that the current episode is a recurrence of an old problem. For example, a COPD with several episodes of acute exacerbations may currently be presenting with a pneumothorax or a myocardial infarction.

3. Review of Systems (ROS)

This does not refer to the patient's past history. By inquiring about other systems (do not repeat the ones covered in HPI), you can explain how the present problem has involved other systems: Has the present illness caused complications in other systems? What is the underlying cause of the present problem in other system? For example:

“A patient presenting with APO may be in ESRD with fluid overload.”

“A patient presenting with a sore throat might be a case of Graves' disease on carbimazole who suffer from agranulocytosis.”

It is vital to know your patients thoroughly. For instance, a male patient may not volunteer information about his prostate problem and his CABG eight years ago. The same goes for a female patient presenting with a foot ulcer. She may not volunteer information about her mastectomy or biliary calculus. Therefore, you need to sort through all the systems.

4. Past History (PH)

This includes medical, surgical and O&G history. All significant health related events in the past (related or unrelated to the present problem) should be recorded. Start with the patient's childhood history and sift through events until the present complaints started. Give more details about the illnesses mentioned in the introductory statement. Many medical

students at FMHS often mix up HPI and the patient's past history. There is a wrong notion that past history mentions only, for instance, the absence of hypertension, diabetes, asthma and tuberculosis among chronic diseases. There is also a tendency among medical students at FMHS to give detailed stories of the patient's past problems in the HPI. This takes away the focus from the present problem. It is incorrect to assume that the present problem is a continuation of the previous problem. The present problem has to be analyzed on its own merit. Remember that HPI should focus on the present complaints and past history should give all the details of the patient's past health problems. Most of these conditions can exist with subtle symptoms, which may not drive the patient to the doctor!

The best way to bring out such subtle symptoms is to explore the **functional status** of the patient. This includes all the physical activities in which the patient engaged prior to the first presentation of the chief complaint. What was the NYHA functional status before the first manifestation of the present symptoms? It is not rare to hear students saying that there is no effort intolerance while the patient is dyspnoeic, even at rest. Patients usually restrict activities in order to avoid symptoms. The question is whether your patient is able to perform the activities that most healthy people of his/her age can do easily.

5. Drug history

This includes the drugs taken in the past and adverse reactions (if any) to current drugs, including traditional remedies and supplements.

6. Diagnosis

There is a lot of confusion over what diagnosis actually is. Some argue only one condition should be recorded in the diagnosis! Look at, for example, a patient with CRHD, MS, AF presenting

currently with a 2-week fever, which is found to be due to infective endocarditis. Will writing IE as diagnosis be sufficient?

It cannot be emphasized enough that a diagnosis should be comprehensive, covering all existing active problems. Constructing a problem list is very useful in making a complete diagnosis. The diagnosis is incomplete if many questions crop up while or after reading it.

7. Differential diagnosis (DD)

Offer a differential diagnosis if the diagnosis itself does not explain or take into account all aspects of the patient's condition. All possible causes of the symptoms and signs should be considered before a DD is suggested. However, only conditions where several of them are fitting in be mentioned as DD. Do not break up a comprehensive diagnosis and put some problems as DD. For example, in the case with CRHD, MS, AF and IE, the AF cannot be a DD.

B. Physical Examination

General

8. General inspection

Take a moment to look at the patient from a distance. Do not be in a hurry to hold his/her hands. Check the body build, nutritional status, hydration status, and circulatory sufficiency. It is important to mention in a write-up or presentation that the patient is of average build (the word build denotes the skeletal frame), abnormally tall or short, cachexic, emaciated, underweight, overweight or obese (nutritional status by eye-balling). The feel of the patient's skin (e.g. moist, dry, warm, cold) and the capillary refill time indicate their circulatory and hydration status.

9. Nutritional status

While presenting a case after name, age, sex, occupation and body build, it is important to mention the nutritional status of the patient such as, “underweight”, “normal”, “overweight”, “obese”, “morbidly obese”. These descriptions refer to the patient’s BMI and abdominal circumference. It is also important to measure the height, weight and waist circumference of patients who can move. Obesity and metabolic syndrome are on the rise globally. Remember, body build only refers to the patient’s skeletal size, and not the nutritional status.

10. Hydration status

The tongue and mouth can become dry due to mouth breathing. The best place to look for moisture is the axilla, which remains moist even when the patient is in an air conditioned room unless the patient is dehydrated. Skin turgor is best tested in the sternal area or forehead. Lack of skin turgor in the elderly is caused by collagen deficiency rather than loss of water. Daily weighing gives more accurate information of the patient’s hydration status, provided that it is done carefully. Rapid changes in the patient’s body weight indicate either loss or retention of water. For example, 2 kg decrease in body weight within 24 hours means two liters of water loss. The heart rate and blood pressure are good indicators of hydration. Tachycardia and postural hypotension in the presence of a suggestive history almost certainly confirm hypovolaemia and dehydration. An in-patient should have his/her urine output charted. In the absence of renal disease, urine output is a good indicator of the patient’s hydration status.

11. Oral hygiene

It is not only a good indicator of the general hygiene status of the patient, how well kept the bed ridden patient is, it has important impact on occurrence of infective endocarditis and

other diseases. Most medical students at FMHS do not carry out this part of the examination carefully. They just shine the torch into the oral cavity and do it casually. Expose and look at the teeth and gums of both the upper and lower jaws. The dentures (artificial teeth) are not infected and have no bearing on general health. The presence of dental caries, cavities, gingivitis and halitosis (bad breath) are indicators of poor oral hygiene. Do not miss the high arched palate of Marfan syndrome as it may point to AR or aortic dissection.

12. Eyes

To expose the sclerae, use your left hand brought from above with your thumb on right upper lid and index finger on the left upper lid. Holding the brows does not help. To expose the conjunctiva, use both your thumbs; the left one on the right lower lid and right one on the left lower lid. Jaundice can be missed if not examined in daylight. Look for KF ring, and corneal arcus routinely. Always examine both eyes to avoid missing unilateral signs occasionally.

13. Corneal arcus

Corneal arcus (deposition of lipids in the peripheral cornea) occurring in people below age 40 can be caused by elevated plasma lipids and is an indication for checking plasma lipids and looking for xanthomata.

Arcus senilis is corneal degeneration that often occurs among people aged 40 to 60, but most frequently among those aged 80 and above. This harmless condition is formed by the deposition of lipids in the periphery of the cornea due to excessive permeability of the peri-limbal vessels (those surrounding the cornea).