

Chapter 1

The art of approaching a clinical problem

Learning objectives

- ◆ To recollect the clinical pathway to arrive at a diagnosis of common surgical presentations.

The transfer of textbook knowledge to a specific situation is a challenging task in clinical surgery. This process requires retention of information, the organisation and recall of facts, and the precise application to a given patient. Based on this recall, the clinician arrives at a clinical judgement on which he formulates a management plan.

The first step of this process is the gathering of information. This includes taking the patient's history, performing a physical examination, and obtaining laboratory results and results from other special examinations such as endoscopy. Of all, obtaining a good history is the most important and the most useful.

During the initial interview with the patient, it is good practice to allow and encourage the patient to explain the problem without interruptions. Some patients are excellent historians. However, some will have their own perceptions of the problem and at times this may mislead students and young doctors. Experienced clinicians use relevant or leading questions when the patient goes off at a tangent and also to fill the voids left in the patient's description. Selecting the relevant questions for a given clinical situation may pose a challenge to students and young doctors at an early stage of their training.

Presenting complaint

Recognition of the presenting complaint is an essential prerequisite to begin the process. A time tested technique is to begin by asking the main reason for seeking medical advice.

Duration of the presenting complaint

The duration of the presenting complaint is equally important because it may have a direct impact on the diagnosis. For example, abdominal pain which lasts for a few hours may be a biliary or renal colic, whereas chronic and periodic abdominal pain may be more suggestive of peptic ulceration.

History of the presenting complaint

The history of the presenting complaint helps the clinician to understand the background of the illness and to formulate a series of leading questions which will support or will help to exclude certain diagnoses. It is again good practice to enquire as to the precise time period commencing from a day or from a month when the patient was in normal health, and then to build a detailed history of the events or symptoms

which the patient could recall 'from normal to abnormal'. Of course the case is expected to be built only upon the information obtained from the patient and the components cannot be added or ignored. The information obtained may not fit perfectly with the most likely diagnosis; this is not uncommon. The ability to recognise the most relevant information and to gather it accurately takes time and much practice.

The selection of leading questions pertinent to the case

At an early stage of training in surgery, students and young doctors are often incapable of recalling the relevant questions from their knowledge base when tested. This may be due to insufficient knowledge but, mostly, it is the inability to recognise the necessary information for a given clinical situation. Another tested technique for the early trainee in general surgery is, first to interview the patient, formulate the thought process on the evidence obtained and then to discuss the clinical scenario with one of the senior clinicians in the team managing the patient. This simple technique, if practised often, will help students and young doctors to recognise the deficient areas in their knowledge base. It will also help them to understand the reasons for not recognising the correct pathway to arrive at the most likely diagnosis and management plan. It is the technique and approach that students and young doctors must be eager to learn rather than simply attempting to memorise the factual knowledge of a clinical condition. The best way to master this art is by repeated practice and this is achieved by spending more time with patients on the surgical wards.

Organ/system diagnosis or recognition of the organ system

It is good practice to identify what is described as the organ/system diagnosis at the initial stage of history taking and then to think of a differential diagnosis. After a series of relevant or leading questions, the most likely diagnosis or the working diagnosis is reached. An experienced clinician may recognise the clinical problem with ease, which is a skill that is acquired with years of experience.

How the organ/system diagnosis, the most likely diagnosis and the working diagnosis are related in guiding clinical judgement is outlined below.

Organ diagnosis

Organ diagnosis will help to identify a series of relevant or leading questions related to the diseases or conditions which are specific to that organ system. The answers to these questions are the building blocks on which the case will be built.

A patient presenting with episodic loose stools, left-sided abdominal pain and a sense of incomplete evacuation of faeces is likely to have a disease in his colon or rectum.

Taking a patient with dysphagia as an example, the oesophagus will be the most likely organ and an obstructive lesion will be the most likely cause. But it is also possible that the stomach could be the likely organ and not the oesophagus. This is possible if the inlet of the stomach becomes obstructed due to gastric pathology.

Thinking of the possible causes of obstruction will bring further relevant questions to the mind. If the duration of dysphagia is long, for example, over 2 years, this information makes cancer less likely as the cause of the obstruction. Cancers can often progress rapidly and may not fit the overall appearance of the patient who may seem reasonably well. This will draw a list of further relevant questions for and against other benign disorders such as benign oesophageal strictures due to gastro-oesophageal reflux disease (GORD), corrosive strictures and achalasia of the cardia which can present with dysphagia. Has this patient had heartburn and acid regurgitation for a considerable length of time before the onset of dysphagia? If so, a benign oesophageal stricture due to longstanding reflux of hydrochloric acid should be considered because repeated reflux causes chronic oesophagitis which leads to fibrosis and stricture formation. Has he swallowed any corrosive substances in the past? If the answer is yes, then corrosive stricture as the cause of dysphagia is most likely, in which case the time of ingestion of the corrosive substance and the time of onset of the

dysphagia become relevant to build the case further. Dysphagia for liquids and solids of longer duration will bring achalasia of the cardia into the picture. Considering the mechanism of achalasia, questions must be asked regarding the symptoms of nocturnal cough, that wake the patient when fluid refluxes into the larynx from the dilated oesophagus. Dilatation of the oesophagus in achalasia takes months or years to develop. Furthermore, if the patient admits passing fluid not only through the mouth but also through the nose during these nocturnal bouts of coughing, this is strong evidence of achalasia as the most likely cause of oesophageal obstruction. In the supine position when fluid in the dilated oesophagus fills the larynx, the patient will cough violently to avoid the acidic gastric juice from entering the trachea. Air pressure will then push the fluid from all possible openings including the nasal passages.

Cancer must also be considered as the most likely cause, especially if the dysphagia is of a short duration and is progressive. If the dysphagia is associated with a significant loss of appetite, carcinoma of the fundus of the stomach obstructing the gastric inlet should be considered because loss of appetite is one of the early symptoms seen in gastric cancer rather than in oesophageal cancer.

Some patients may volunteer additional information that at first glance may not appear relevant to the presenting problem. This type of information must be carefully scrutinised before being discarded.

The recognition of the involved organ system will facilitate the process of clinical decision making.

Most likely diagnosis

Working on a clinical case, it is not always possible at the end of history taking to make a definitive diagnosis. A list of differential diagnoses is considered, prioritised and the most likely diagnosis is first on the list. A comprehensive clinical examination including a digital examination of the natural orifices should then be performed. It is mandatory to have a chaperone present during clinical examination of female patients by a male doctor.

Investigations will help to set aside or support the most likely diagnosis. A management plan is then formulated.

Working diagnosis

A good example to understand how the working diagnosis applies to this process is to consider a clinical scenario of a middle-aged female with a palpable breast lump. This lump has no specific features that support any of the differential diagnoses such as cancer, fibroadenosis, a breast cyst or fibroadenoma. Therefore, after taking a history and conducting an examination, the surgeon may consider carcinoma of the breast as his working diagnosis until proven otherwise by histology. A working diagnosis is considered as an interim measure, particularly where missing a diagnosis such as cancer will have detrimental consequences for the patient.

Past medical and surgical history

Certain associated conditions may have an effect on the disease process or on the proposed treatment including surgery, and therefore need to be analysed carefully. For example, the control of diabetes becomes difficult in the presence of intra-abdominal suppuration until the pus is drained (continuing sepsis stimulates a stress reaction and the release of diabetogenic hormones). Also, some of the symptoms and signs may be due to comorbid conditions rather than the disease process itself. A patient with abdominal pain due to gallstones may also have bilateral ankle oedema due to congestive cardiac failure.

The past surgical history is important. A patient who has had abdominal surgery for cancer of the caecum in the past, presenting with the alteration of bowel habits may have developed another cancer in the colon; a metachronous cancer. A student or young doctor who has identified in a patient, who is awaiting surgery for gallstones, a past history of delayed recovery following surgery for an inguinal hernia under general anaesthesia due to suxamethonium apnoea (sux apnoea), will undoubtedly impress the surgical examiner!

A tendency towards depression and anxiety should be noted, as this may have an effect on the outcome of surgery.

Drug history and allergies

Many elderly patients are on multiple medications. Some drugs will have an effect on the symptoms and signs or may have a detrimental effect on the proposed surgery. Others may have to be discontinued prior to surgery. The doses may need to be altered to regulate the blood levels or they may have to be replaced with a substitute. For example, a patient who has intra-abdominal bleeding will not have tachycardia if he is on beta-blockers. Operating on a patient without recognising the fact that the patient is on warfarin is disastrous. A patient who is on long-term steroids undergoing surgery will need to be given a high dose of intravenous steroids to prevent an adrenal crisis.

It is important to enquire into the use of alternative medicines, especially from patients in the Asian subcontinent. Rarely some of these medications may contain significant quantities of alcohol and may be responsible for raised liver enzymes.

Allergies have to be asked about carefully in every surgical patient, as drugs may have to be given once the patient is anaesthetised and by then this cannot be verified from the patient. Latex allergy is becoming increasingly common in the modern world. Latex-free sets are available and in some institutions latex-free operating theatres are in use. Allergies to metals such as nickel have to be identified prior to laparoscopic surgery.

Social history

A detailed history of the quantity and duration of alcohol consumption, smoking and the possible use of illicit drugs should be obtained. Occupation, family background, family support that could be expected after surgery, and hobbies, may shed light on certain issues that may be relevant to the overall management of the patient.

Family history

A history of genetically transmitted disorders, a family history of cancer and the age of onset of such cancers should be noted. A family history of adverse reactions to anaesthetic medications, such as malignant hyperthermia, is significant because the condition has an autosomal dominant inheritance.

Systems review

A systems review should be performed with special emphasis on common diseases. In the elderly, symptoms suggestive of cardiac disease such as shortness of breath, chest pain or palpitations should be elicited. These findings will also be useful as a baseline for comparison during the postoperative period.

Physical examination

The golden rule of physical examination, inspection, palpation, percussion and auscultation cannot be over-emphasised. Summarised below is a general plan to be remembered:

- ◆ General appearance:
 - well nourished or cachetic;
 - calm or anxious.
- ◆ Vital signs:
 - pulse rate, heart rate, blood pressure, respiratory rate.
- ◆ Head and neck examination:
 - oral cavity, colour of the mucosa, lesions on the tongue and buccal mucosa;
 - lymph nodes;
 - other masses such as goitres;
 - oedema.
- ◆ Examination of breasts:
 - inspection. Symmetry, nipple and skin retraction (inspect with the patient's hands on their hips to contract the pectoralis muscle and then with the arms raised);
 - palpation. Masses, assessment of the nipples for discharges and palpation of the axillary, supraclavicular and abdominal lymph nodes and the liver.