HUNT AND MARSHALL’S

CLINICAL PROBLEMS
IN SURGERY

3e
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JULIAN A SMITH  JANE G FOX  ALAN C SAUNDER  MING KON YII

ELSEVIER
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Hunt and Marshall's *Clinical Problems in General Surgery* was published in 1991. At that time teaching of the clinical sciences occurred during the later years of the medical courses and was largely based in discipline-oriented surgical departments. Problem-based learning (PBL), at that time, was the province of the educationally bold. Now the majority of medical courses present an integrated clinical curriculum, and problem- or case-based learning has a significant place. The delivery of adult healthcare still depends on specialist and subspecialist units, although there is a greater recognition of the benefits of multidisciplinary care in optimising outcomes for patients.

Where, then, does this contemporary text fit?

It has not been primarily designed to support a PBL process, although it may serve as a very useful reference, but rather as an adjunct to developing the skill of clinical reasoning. Well-developed reasoning is an essential clinical skill that distinguishes the ‘expert’ from the ‘beginner’. It is recognised that learning clinical reasoning is a step-wise process. A novice medical student accumulates data from a clinical history and examination and then attempts to make sense of it. An expert will direct the history and examination in such a way that each step is informed by the last. For all of us there will be times when a diagnosis and clinical management plan are not immediately obvious, and to use a problem-oriented clinical approach will allow us to progress our understanding and the patient’s care.

Accurately defining a clinical problem requires knowledge and discipline. It is different from the PBL process where the problem is used to stimulate curiosity and increase the learner’s knowledge base. It is a sophisticated, integrated process and needs to be practised. Importantly, there is strong integration of the basic and clinical sciences.

The problem-oriented clinical record is a way of demonstrating and clearly recording that process, such that we have a broad-based assessment of our patients (using a biopsychosocial model), as well as plans to progress their care.

Clinical science in adults, within an integrated curriculum, often has an emphasis on internal medicine, with surgery as a possible management option. While this has a parallel in practice, for example, in assessing and managing ischaemic heart disease or inflammatory bowel disease, we feel that other areas where surgical care is the principal management option may receive insufficient emphasis as clinical entities, which may lead to significant and potentially life-threatening delays in treatment. Examples include the acute abdomen, acute limb ischaemia, abscess formation and trauma.

Clinical examination texts are often written as aids to exam candidates and these do not always provide sufficient support to students who should be encouraged to think about the symptoms and signs rather than simply develop a fluent examination performance. That is, they need to develop robust skills in clinical reasoning.

The problem-oriented clinical approach also facilitates a critical learning strategy – the art of clinical conversation. Students and practitioners often have an investment in being correct before saying anything and this can be a barrier to developing clinical reasoning and to solving a clinical conundrum. If, as a medical student, you are able to define a patient’s problem, you will then be able to discuss it with a peer, a supervisor or another member of the surgical team. This is an excellent method of optimising the learning opportunities in a complex and sometimes stressed clinical environment, where short inpatient stays are desirable and experience in ambulatory settings may be limited by access or the available time for patient contact.

The third edition of Hunt and Marshall’s *Clinical Problems in Surgery* includes an extensive revision of each chapter, with the inclusion of additional figures and images. Particular attention has been paid to Chapter 7 and a new chapter addressing common ophthalmological problems has also been added in this edition.

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INTRODUCTION

Patients present with clinical problems, not with defined diseases. This book discusses common clinical problems encountered in surgical practice, how to solve these problems and how to devise a plan to manage them expeditiously and safely. Experienced clinicians approach diagnosis and management in sequential steps. They first try to define the patient’s major clinical problem. This may be expressed as a symptom (back pain, intermittent exertional leg pain, difficulty swallowing), a physical sign (goitre, hepatomegaly, swollen leg) or a grouping of symptoms and signs comprising a definable syndrome (renal injury, anaemia, acute abdomen, hyperthyroidism). The problem may seem focal or regional (a lump or an ulcer, nipple discharge, hernia); this often has operative surgical implications but may indicate merely a focal manifestation of a systemic problem.

After defining the main problem, its common causes are considered. If the clinical pattern matches the usual pattern of one of these common causes, a provisional diagnosis is rapidly made on the basis of the clinician’s previous experience and knowledge. If all aspects do not fit the usual pattern of a common cause, it will be necessary to consider other and less common causes or the possibility of more than one disease process. Remember, it is more common to see an unusual presentation of a common disease than a rare disease.

A differential diagnosis should also be considered, especially if a single diagnosis is not immediately apparent. Furthermore, with the current ageing population often having numerous pre-existing conditions, it is possible that a given patient may indeed have more than one diagnosis. Therefore, assessment often requires the application of biochemical, imaging and other tests to clinch the diagnosis. Identifying one or more major problems comprises the basis of clinical diagnosis.

A systematic history is taken as a secondary exercise. This aims to detect the presence of concurrent diseases that might need treatment or may influence surgical decision making and subsequent management, thereby factoring for possible complications and predispositions (secondary problems) of the disease causing the main problem. The mature clinical approach is therefore quite different from the systematic ‘questionnaire’ often used by students. It is empirical, eclectic and sharply focused. It is continually audited and refined as one’s clinical experience grows, new knowledge is assimilated and clinical judgement improves. It seeks to discard as rapidly as possible unhelpful clinical ‘noise’ while maintaining sympathetic communication with the patient.

As clinicians seek a recognisable pattern during the clinical history, examination and subsequent investigations, they often build a composite diagnostic picture in a step-wise fashion, using if–then hypotheses (if the lump is in the thyroid then it should move on swallowing) and yes–no answers. Treatment plans often proceed in the same manner in an integrative sequence (if shock is solely hypovolaemic then it will respond to identifying and stopping the volume loss and refilling the vascular tree). In emergency situations, treating the major problem (e.g. cardiac arrest) must precede specific diagnosis of the cause. These processes can be represented by a decision tree or algorithm; the algorithm pathway leads the clinician along correct pathways of management. This method is particularly valuable in formalising clinical practice among doctors working together in a group and often provides protocols to guide medical staff about short segments of management. In practice, the method has limitations when applied to clinical students, who need to develop the skill of clinical reasoning and to understand the genesis of the algorithm. Each step or branch in the diagnostic and treatment pathway requires weighing of alternatives (which, if any, investigations are required for this patient with acute abdominal pain?).

Weighting is influenced by: knowledge of the prevalence, natural history, common presentations and prognosis of various diseases; the patient’s age and the presence of associated diseases or complications; the sensitivity, specificity, predictive value, cost and availability of investigative tests or procedures; and the experience and skill of the clinician. To acquire such clinical prowess to facilitate effective weighting takes time and effort.

Doctors also vary considerably in their sense of comfort and confidence in reaching a diagnosis on the evidence...
available from the history, physical examination and investigations. Ultra-cautious individuals, and those lacking in experience and judgement, tend to continue to accumulate clinical and investigative data in support of a definitive diagnosis even though each additional test will not significantly alter the treatment plan. Medical students need to develop an appreciation of the natural history and prognosis of individual problems and their causative diseases and an ability to accurately define the patient’s problem while maintaining a holistic approach to the unique requirements of the patient. This is best achieved by taking every opportunity to see as many patients as possible and by being involved with the treating team. These aspects usually require an in-depth consideration of the various causes of common problems. The learning curve from this exercise progressively improves the student's ability to derive and shape diagnostic and treatment plans. This book aims to help medical students answer the questions raised at each branch of the decision tree and to construct an appropriate pathway of management for each clinical problem.

Identifying the main problem can be quite difficult. Defining major problems and eliminating distracting elements demands accurate knowledge of the probable significance of various symptoms and signs – which are important and which are not. Therefore, dysphagia is always likely to be a significant major problem, backache much less commonly so. Difficulties in obtaining a coherent picture may be due to the questioner’s inexperience, to language problems or to the patient’s lack of insight. Symptoms such as pain can often be best categorised by using the site of the pain and the mode of onset to define the problem (e.g. acute right iliac fossa pain). A major problem in one clinical circumstance can be a secondary complication in another situation. Two examples follow.

1. Iron deficiency anaemia, discovered in a patient who is otherwise asymptomatic or suffers from vague deterioration in health, is a very significant clinical problem. Anaemia found in a patient presenting with increasing constipation is secondary to the main problem of altered bowel habit. Anaemia in this instance suggests that the main problem is caused by a colonic cancer (Fig 1) and that preoperative preparation needs to include correcting the anaemia to enhance the safety of surgery.

2. Weight loss is relatively uncommon as a sole clinical problem. In community practice, weight loss may be a presentation of endogenous depression but may be an early sign of organic disease. In hospital practice weight loss is commonly associated with major clinical problems and again has important diagnostic and therapeutic connotations. Unexplained weight loss requires a thorough clinical search for the underlying cause, which may not always require a surgical solution. Marked weight loss associated with jaundice suggests a malignant cause. Under these circumstances it may either be an indication for preoperative nutritional supplementation in preparation for surgery or a sign of advanced disease and potentially a contraindication to surgery. Many intercurrent clinical problems may increase the risk of surgical procedures and will need assessment using a careful systems review and the appropriate investigations.

Broadly similar problems often have strikingly different causes. A patient bleeding from the gastrointestinal tract per annum may either: present with symptoms of anaemia (occult bleeding); have passed a large tarry stool (melaena); have had several bowel actions consisting almost entirely of copious fresh blood (acute colonic haemorrhage); or have noted blood on the paper or pan, with or without pain, during a bowel motion (defaecatory bleeding). The common causes (and treatments) of these various presentations are quite different. Once gastrointestinal bleeding via the anus is recognised to comprise at least four different syndromes (problems),
CHAPTER 1
INTEGUMENT PROBLEMS

JANE FOX AND DAVID SPEAKMAN

1.1 INTRODUCTION
Many lesions of skin or subcutaneous tissue are easily recognised and a diagnosis can be made virtually on inspection alone. Lipomas, ‘sebaceous’ cysts and ganglia are very common and usually have classic diagnostic features. Subcutaneous swellings are therefore commonly benign – malignancies are rare but important to recognise. Many focal surface lesions are also benign and easily diagnosed; however, skin cancers are also common and any hint of malignancy requires biopsy for a certain diagnosis.

Dermatological conditions are more extensive secondary skin reactions representing a more general abnormality of the skin and subcutaneous tissues. There are many causes of dermatitis and most are not considered here except for a brief outline of common dermatological terms. Skin lesions are often associated with a secondary skin reaction.

An ability to accurately describe skin changes facilitates clinical communication and record keeping.

**Focal skin lesions** are divided morphologically into four main types: macules; papules or nodules; vesicles; or pustules and wheals (Fig 1.1).

A macule is a localised surface change in skin colour without bulk or substance. It is important to note whether the colour change is permanent or blanches on compression. A lightly pigmented brown or tan macule is called a lentigo or freckle. A papule is a small solid projection above the skin surface; a larger papule is called a nodule. A flattened nodule is described as a plaque. Vesicles are elevated fluid-containing lesions: When they are large they are called bullae or blisters and when they contain pus, pustules. Acne (Greek – a facial eruption) comprises multiple small pustules, which if embedded are described as comedoform. Milia are tiny embedded cutaneous plaques due to keratinous retention foci; they are most common on the facial skin. Wheals are white, raised lesions of localised dermal oedema without blistering. Widespread wheals are often called urticaria, an atopic (allergic) reaction. If the skin is broken the lesion is an ulcer. Distinct morphological types of ulcer are also described (Fig 1.2).

Secondary skin reactions result from scratching or from the effects of the primary lesion itself. In a dry lesion the flaky or powdery shedding of the stratum corneum, the horny layer of the skin, is known as a desquamative or psoriatic reaction. In many superficial ulcers, vesicles, pustules or bullae, desquamated epidermal cells form a scab: a crust of dried exudate. An eschar is a patch of necrotic skin, typically caused by a deep burn; slough is the dead or devitalised tissue in the base of an ulcer. Lichenification is leathery thickening of the skin around a lesion, usually due to chronic
FIGURE 1.2 Types of epithelial ulceration

1. squamous cell carcinoma; 2. basal cell carcinoma; 3. venous ulcer; 4. neuropathic ulcer; 5. peptic ulcer; 6. anal fissure; 7. keratoacanthoma

and dermal debris and carbon. It is important to differentiate from this heterogeneous group the most dangerous skin malignancy of all – malignant melanoma. Rapid growth, irritation, contact bleeding and ulceration should always be presumed due to malignancy until proven otherwise by histology.

Diagnostic and therapeutic plans
All pigmented naevi in children are benign, although their growth pattern may not suggest this. Many spontaneously remit. Excision is indicated only on cosmetic grounds or for future prophylaxis.

Many adult lesions will be longstanding and also clearly benign. Different types of benign pigmented moles are summarised in Table 1.4.

Indications for excision of pigmented skin lesions are outlined in Box 1.6. Ultimate diagnosis rests on histological examination of the excised specimen. Biopsy is usually best done by total excision rather than incision. About 50% of malignant melanomas arise in a pre-existing dysplastic naevus.

1.3 SUBCUTANEOUS LUMPS
A subcutaneous lump is a very common clinical problem. Most are longstanding and the vast majority are benign lesions.

Common causes
1. Lipoma
2. ‘Sebaceous’ cyst
3. Ganglion
4. Bursa
5. ‘Dermoid’ cysts
6. Neurofibromas

Clinical features and treatment plan
Distinction on clinical grounds alone can almost always be made between the four most common lesions: lipomas, cysts, ganglia and bursae. Most are painless. In many instances simple reassurance is all that is required. Such reassurance can be given with confidence and without any additional investigations if clinical assessment has been thorough and orderly.

1. Lipoma
The most common of all subcutaneous lumps is a benign tumour of adipocytes: lipoma. Lipomas are usually found on the limbs and trunk but can occur anywhere there is fat. Lipomas in less common sites (e.g. breast, parotid gland, subfascial or intramuscular) can cause diagnostic difficulty with other common lumps at these sites (breast cancer, salivary mixed tumour, muscle sarcoma) and the classic physical signs of lipoma can be distorted by the overlying gland capsule or deep fascia. Subfascial lipomas, for example, have their mobility decreased or might even disappear on contraction of the muscle. Lipomas in subcutaneous

<table>
<thead>
<tr>
<th>TABLE 1.4 Types of benign pigmented moles</th>
</tr>
</thead>
<tbody>
<tr>
<td>MACROSCOPIC TYPE</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Juvenile naevus</td>
</tr>
<tr>
<td>(‘juvenile melanoma’)</td>
</tr>
<tr>
<td>Melanotic freckle</td>
</tr>
<tr>
<td>Blue naevus</td>
</tr>
<tr>
<td>Hairy naevus</td>
</tr>
<tr>
<td>Non-hairy naevus</td>
</tr>
</tbody>
</table>

**BOX 1.6** Pigmented skin lesions – indications for excision

- Suspicion of malignant melanoma
- Prophylactic excision of premalignant lesions
  - melanocytic freckle
  - ‘dysplastic’ naevus: particularly large junctional and compound naevi and those on certain sites (palms, genitals, soles)
- Repeated trauma to benign lesions (intradermal naevus in beard area)
- Cosmetic
- Other suspicious pigmented lesions
  - pigmented BCC
  - dermatofibroma
  - seborrhoeic keratosis
  - Kaposi’s haemangiosarcoma in high-risk individuals (AIDS organ transplant)
2.1 INTRODUCTION

The specialty of ear, nose and throat – head and neck (ENT – head and neck) surgery is broad and complex. Each component of the title is a subspecialty in itself. The way to approach any problems relating to the head and neck is to think about the components of the specialty – ear, nose, throat, head, neck – and this will allow you to systematically approach the patient’s problem. As in any aspect of clinical medicine, the initial diagnosis is made by taking a thorough history prior to a complete physical examination supplemented by special investigations.

History

When a patient presents with an ear, nose and throat problem there are many possible presenting symptoms (Table 2.1). They can present by themselves or in combination with other symptoms.

When a patient presents with any of these symptoms it is important to characterise the symptoms in terms of site, severity, radiation, frequency, duration, exacerbating and relieving factors, associated features, the progression of symptoms and how it affects the patient’s activities of daily living. When taking a history the past history needs to be noted, including previous surgery to the relative parts of the ear, nose, throat, head and neck and any associated conditions. A patient’s medication and adverse reactions to medication should be known. Take also a social history including their smoking and alcohol consumption as well as their environmental exposures (noise, dust and any other potential allergens). The family history should be known and it is also wise to know about any family tendencies regarding bleeding disorders and deafness.

Examination of the head and neck

A systematic approach to examining the head involves including all elements of the specialty along with the cranial nerves. It is also important to be aware of referred pain (Table 2.2). The ear is supplied by multiple nerves, and ear pain can present as referred pain from intraoral, oropharyngeal, laryngeal or skull base pathology. Look for signs of redness, swelling, tenderness, increased warmth and loss of function.

Ear

See section 2.2.

Nose

Nose and sinuses

When examining the nose, assess for symmetry, nasal bones, upper lateral cartilages, lower lateral cartilages, the base and the lateral profile from the right and left
FIGURE 2.6 Tuning fork tests

Normal bilateral hearing or bilateral sensorinueral hearing loss

Rinne: positive bilaterally (AC>BC)
Weber: central

Right-sided conductive hearing loss and normal left ear

Rinne: positive bilaterally (AC>BC)
Weber: lateralises to ear with conductive loss

Right-sided sensorinueral hearing loss and normal left ear

Rinne: positive bilaterally (AC>BC)
Weber: lateralises to ear with greater cochlea function

Right-sided severe sensorineural hearing loss or dead ear

Rinne: negative (BC>AC) (a false negative as the BC is heard in the normal left cochlea by skull crossover)
Weber: lateralises to the ear with function

AC: hearing via ear canal and middle ear
BC: direct transmission to the inner ear via mastoid process
+ subjective loudness

Weber test Rinne test

From Dhillon & East 2006
b. Type II Branchial cleft cyst
Myers 2009

- second branchial cysts (most common) – often related to the tonsils enlarging during an episode of tonsillitis (they present as lumps from the level of the tonsil and run across the carotid sheath into the neck)
- third and fourth branchial cleft cysts and sinuses, which are uncommon.

Vascular malformations
These are classified as:
- haemangiomas
- vascular malformations – low flow (venous) and high flow (arteriovenous)
- lymphatic.

Depending on their size and site they may be of either cosmetic or clinical significance. Some may affect the airway; others may affect vision, while some may be associated with intracerebral vascular malformations such as Sturge-Weber syndrome.

Nasolabial cyst, dermoids, cleft lip and cleft palate
Facial cysts form along lines of fusion of the face. The facial bones and skull form from processes – frontal, maxillary and mandibular. Sometimes cysts form at these sites. Examples of these are nasolabial cysts and dermoids. Intranasal lesions seen to be arising from the roof of the nose should not be biopsied without adequate imaging as there may actually be an associated menigogoele or encephalocoele.

Failure of fusion of these facial processes results in conditions such as cleft lip and cleft palate.

2.11 FOREIGN BODIES
Foreign bodies of the ear, nose and throat often have a history preceding the presentation. In young children, prevention is the most important aspect and vigilance the key. Having access to the correct equipment to diagnose a foreign body and remove it is a vital aspect in the successful treatment of the patient. In young children it is often better to allow an experienced clinician to remove the foreign body as often in the emergency department setting, a child will permit one attempt prior to losing all confidence in the medical staff.

The paradigm of history, examination, investigation and treatment should be followed.

Ear
History
A variety of foreign bodies can be found including insects, beads and cotton bud tips.

Examination
Examination of the ear for foreign bodies is by direct inspection and tuning fork tests.

Investigation
If available, an audiogram is useful for detecting foreign bodies or their associated complications such as a perforation of the tympanic membrane.

Treatment
Removal of obstructing foreign bodies should be performed as soon as practical, especially in young children who continue to complain that it is hurting. Soft foreign bodies such as cotton bud tips can be removed electively.
TABLE 2.24 Staging undifferentiated – anaplastic carcinoma

<table>
<thead>
<tr>
<th>Stage</th>
<th>T</th>
<th>N</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV</td>
<td>Any</td>
<td>Any</td>
<td>Any</td>
</tr>
</tbody>
</table>

All cases are stage IV

TABLE 2.25 Thyroid carcinoma outcome statistics

<table>
<thead>
<tr>
<th>STAGE</th>
<th>LOCAL RECURRENCE</th>
<th>DISTANT RECURRENCE</th>
<th>MORTALITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>5.5%</td>
<td>2.8%</td>
<td>1.8%</td>
</tr>
<tr>
<td>II</td>
<td>7%</td>
<td>7%</td>
<td>11.6%</td>
</tr>
<tr>
<td>III</td>
<td>27%</td>
<td>13.5%</td>
<td>37.8%</td>
</tr>
<tr>
<td>IV</td>
<td>10%</td>
<td>100%</td>
<td>90%</td>
</tr>
</tbody>
</table>

TABLE 2.26 The Mayo Clinic carcinoma classification system

<table>
<thead>
<tr>
<th>MAICS score</th>
<th>20-year survival</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 6.0</td>
<td>99%</td>
</tr>
<tr>
<td>6.0–6.99</td>
<td>89%</td>
</tr>
<tr>
<td>7.0–7.99</td>
<td>56%</td>
</tr>
<tr>
<td>&gt; 8.0</td>
<td>24%</td>
</tr>
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</table>

TABLE 2.27 The Lahey Clinic’s AMES classification

<table>
<thead>
<tr>
<th>LOW RISK</th>
<th>HIGH RISK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>&lt; 41 male, &lt; 51 female</td>
<td>&gt; 41 male, &gt; 51 female</td>
</tr>
<tr>
<td>Metastases</td>
<td>Yes No</td>
</tr>
<tr>
<td>Extent</td>
<td>Intrapapillary thyroid, follicular with minor capsular invasion</td>
</tr>
<tr>
<td>Size</td>
<td>&lt; 5 cm</td>
</tr>
</tbody>
</table>

Lymph node involvement varies dependent on how it is investigated in DTC, with on average a 5–10% detection rate on clinical examination, a 30% detection rate on ultrasound, 20–50% on routine histology and up to 90% on polymerase chain reaction (PCR).

Well-differentiated PTC has an overall 5-year survival rate of over 97%. Incidental microcarcinomas (defined as tumours under 1 cm) have a 10-year survival rate of 99%. Well-differentiated FTC has a 5-year survival rate of 85–95%. Poorly differentiated thyroid cancer (defined as maintaining some morphological features present and expressing thyroglobulin) has a 70% 5-year survival. Anaplastic thyroid cancer has a 0% 5-year survival.

Staging and prognosis for differentiated thyroid cancer is made in terms of 20-year survival versus 5-year survival rates for head and neck SCC, so having a differentiated thyroid cancer is of relatively good prognosis. From the 20-year perspective, it means that thyroid cancer should continue to be under surveillance once diagnosed. Prognostic scoring systems do not account for local lymph node metastases as these relate to recurrence rather than impact on long-term survival.

The US-based Mayo clinic classifies thyroid carcinoma according to the acronym MAICS (Table 2.26):

Diagnosis

In most instances the true nature of the thyroid disorder can be obtained by careful history and examination, leading to a clinical diagnosis. Investigations serve merely to confirm the diagnosis. In an important minority of patients, clinical methods leave the diagnosis unresolved. This is particularly so when a patient presents with:

- a discrete lump in an otherwise normal gland or
- milder states of hyperthyroidism resembling an anxiety state and
- occult hypothyroidism.

Laboratory investigations of thyroid disease fall into two main categories:

- thyroid function tests (TFTs) and thyroid antibodies
- tests to determine more precisely the pathology of thyroid enlargements.

Imaging studies help define altered morphology and function; cytological techniques help define pathology, particularly the presence of cancer.

**Thyroid function tests**

A battery of tests exist, but four hormone assays in particular will give a clear picture of thyroid function. These measure plasma concentrations of total thyroxine (T4), total triiodothyronine (T3), thyroid binding globulin (TBG) and thyroid-stimulating hormone (TSH). Serum T4 usually gives an accurate reflection of thyroid function.