

# Current Surgical Practice

1

Edited by John Hadfield  
and Michael Hobsley

# Current Surgical Practice Volume 1

Edited on behalf of the Royal College of Surgeons of England by

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## Foreword

A not unreasonable ambition for a young would-be surgeon is to become a Fellow of the Royal College of Surgeons of England and a not unreasonable ambition for the College is to help him to do it.

Rightly concentrating upon the training rather than the examination, the College appointed, some 15 years ago, a Penrose May Surgical Tutor and, as part of the training programme which evolved, a regular course of lectures became established which made no attempt to cover the whole of surgery but tried instead to highlight those areas in which some important advance or change in philosophy had occurred during the preceding year or two. These lectures rapidly became popular and it soon became obvious that their content contained much that was of value not only to those embarking upon a surgical career but also to any surgeon, whatever his age or seniority, who wished to keep fully in touch with the growing edge of surgery.

So much is easily understood. What is difficult to understand is why the relatively simple step of publishing the lectures together in book form has not, up till now, been taken. The number of those who can personally attend a course at Lincoln's Inn Fields is limited. The number of those who could benefit from the lectures is almost unlimited.

What a waste!

Mr John Hadfield and Professor Michael Hobsley are to be congratulated on their industry in compiling a volume which to surgeons cannot fail to be of an absorbing interest, for the topics which are selected for the lecture courses are always those which particularly attract discussion and argument. The salesman's cliché 'no one can afford to be without this book' is very nearly right! Certainly any surgeon who does not take steps to read it is missing something which is both absorbing and highly instructive.

## Preface

For the last fifteen years, since our Fellowship class was started by the first Penrose May Tutor, Sir Rodney Smith, the evening lectures have been a popular feature. The subjects of these lectures were chosen for their interest and educational value and reflected changing views and accents on the topics of surgical interest and sometimes controversy at that time. Our lectures are picked from a nationwide field of contributors. Many were reviews of knowledge by a surgeon with a special interest in the subject, and for that reason obviously contained his own views as well.

On many occasions in the past, regret was expressed that there was no way of recording a larger number of these lectures than could be accommodated in existing journals. The present book, a selection of lectures given recently at the College, is an attempt to remedy this deficiency. The Council of the College asked us to prepare this as the first volume of a possible series.

In presenting this, the Editors have tried to produce a book which will interest surgeons of all grades and bring this aspect of the work and life of the College nearer to those who are not able to attend the lectures. The emphasis is on current practice: each author describes his own present approach to the practical solution of the particular problem.

As this is a book of lectures on totally different subjects and each one is self-sufficient, editing has been minimal. The author's personal style has therefore been maintained and each chapter becomes an entity within itself.

It is not the purpose of this book to compete with journals. Its role is quite different and complementary rather than competitive. In this context Professor Harding Rains has been generous with his advice and help to the editors. Two of the contributions, those of Hobsley and Cameron, were originally published in the *Annals of the Royal College of Surgeons of England*, but Cameron's is presented here in a modified and expanded form. We are grateful to the Editors of the *Annals* for their use.

Throughout the preparation of the book our publishers have given a combination of hard work, understanding and enthusiasm; for this we are most grateful.

We are grateful to our contributors whose co-operation has made this venture possible. The President, members of Council, the Board of Surgical Training in the College and the Regional Advisers and Tutors have all in various ways contributed to the course and hence to this book. To them all, we offer our thanks.

A great deal of organization is needed to bring any book to presentation. Final and special thanks are due to Mr R. S. Johnson-Gilbert for his invaluable advice on administrative matters and to Miss Diana Readhead at the Royal College of Surgeons who has helped with much of this secretarial work.

*London*  
*1976*

John Hadfield  
Michael Hobsley



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# 1

## **The Aims of Postgraduate Surgical Education: a Personal View\***

M. Hobsley, TD, PhD, MChir, FRCS

The Penrose May Tutor is responsible for organizing the College course for candidates for the Final Fellowship examination. Since I have assumed this office, the present seems a good moment to define my attitude to the task. I must emphasize that the opinions I shall detail are entirely my own; they are set out here to encourage discussion and argument and as a basis for modification—not as immutable dogma.

The Diploma of Fellowship signifies not that a practitioner is a fully qualified surgeon, but that he is ready to proceed to the final stages of training. The factors that are involved in making this decision obviously include intelligence and a knowledge of the basic sciences and of clinical surgery, but the natural selection of earlier examinations, including the Primary, should have eliminated most candidates who are unsuitable from the first two points of view by the time that the Final examination occurs. In that case, why do some candidates have difficulty in passing the Final examination, often having to make several attempts?

I believe that only rarely is the cause a lack of knowledge. The examination should be seen as a crisis of confidence. The candidate has to impress the examiners that he deserves to be trusted with the immediate responsibility for patients. The phrase 'immediate care' implies not necessarily that he can handle all surgical situations himself, but that he can deal with the commoner emergency and routine problems and can be trusted to summon aid should he find himself out of his depth. The ideal way for the examiners to establish that the candidate merits their confidence would be to assess his work as their registrar for a period of several weeks, but such an arrangement would hardly be practicable. Nevertheless, the essence of the examination is practical; the question the examiners are asking all the time is, Can this candidate be trusted to handle surgical problems *in practice*?

How can an examination consisting of written papers and the artificially contrived situations of clinical and viva voce tests achieve an assessment of the candidate's practical ability? The answer to this question lies in the analysis of how a surgeon (or indeed any doctor) tackles the problems presented by a patient. There are three aspects to be considered, and it is worth emphasizing that all

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three aspects have featured in the undergraduate curriculum but must be further developed at postgraduate level.

## **Data-collection**

First, data must be collected from the patient. The skills of data-collection—history-taking, clinical examination, and special investigations—occupy a large and fundamental part of undergraduate medical education. At a higher level of expertise and accuracy, and with a concentration of experience in those areas of medicine particularly important to the surgeon, data-collection remains the simplest yardstick by which the postgraduate surgical aspirant must be judged. Clearly, this is the aspect of surgical ability mainly tested by the clinical part of the examination. No wealth of experience or mass of reading can possibly compensate for a poor performance in collecting data.

Having collected his information, the surgeon's next concern is to establish a working diagnosis. I suspect that many experienced clinicians, to whom making a diagnosis in most of the situations they meet is simply a matter of attaching a well worn label to a familiar problem, have stopped thinking consciously about the processes involved. The making of a working diagnosis is, however, the crux of the clinician's problem, and perhaps one can best approach the factors involved by considering the part played in the process by knowledge.

## **Data-storage**

The acquisition of knowledge by the student is the second great concern of undergraduate medical education. In the modern jargon, this process might be called data-storage and data-retrieval. Again, in those areas of concern to the surgeon, the Fellowship candidate must build on the foundations he has established in his undergraduate period, so that he acquires a solid body of factual knowledge about disease (and treatment). Clearly, in all parts of the examination the size, accuracy and depth of the knowledge possessed by the candidate are being assessed. However, there are certain features about this 'solid body of factual knowledge' which render it less than perfect as a test of whether a candidate should be permitted to become a surgeon. For example, while most authorities would agree about a few facts that a candidate must know in order to pass the examination, most facts cannot be classified simply as essential or non-essential knowledge. In any case, examiners are well aware that today's 'fact' may turn out to be tomorrow's discarded hypothesis or exploded theory.

Quite apart from these considerations, no surgeon can possibly carry in his head all the knowledge that he might need to deal with problems in his clinical practice. An important part of his postgraduate education, therefore, might well be training in how to look up facts in the medical literature. However, as far as I am aware, no one has as yet been asked in the Final Examination how he would search for articles on a specific subject through the *Index Medicus*!

## **Problem-solving**

Data-collection and data-storage are not in themselves sufficient for making a

working diagnosis. In some way the clinician must marry up the picture he has constructed of the patient's situation with the picture in his data-store that corresponds most closely to it. This aspect of clinical science—problem-solving—is the one that the inexperienced doctor finds most difficult. As an undergraduate he gets plenty of teaching on ward rounds and in outpatient clinics designed to strengthen his data-collecting skills, and help from lectures and textbooks in the task of absorbing a systematic knowledge of disease. However, by comparison the emphasis his teachers lay on problem-solving is relatively small. Then he qualifies and is pitchforked into clinical work, where the patient presents as a problem in terms of complaints and physical signs and the disease causing this picture may not be immediately apparent. The young doctor may feel overwhelmed with the difficulties of making a diagnosis. To reduce his problem to absurdity, must he, in order to achieve a diagnosis, thumb through every page of the textbook constituted by his data-store till he finds one that perfectly describes the situation of his patient?

We are all aware that clinical practice is not conducted along these lines; such a procedure would be laughably exhausting and time-consuming. Processes that permit a logical progression towards the diagnosis in a reasonably short time must be developed. To continue the analogy of the textbook, at the very outset one can usually decide that the clinical situation must be due to a disease in one out of relatively few chapters; discriminatory tests are then applied which yield results that lead one towards one or other subgroup of these possible chapters. Further handling of the patient's problem, whether through more tests or actual treatment, will depend on the answers to the first tests, and at each stage the patient's diagnosis has been defined more accurately until a final solution of his problems has been achieved or some or all are found to be insoluble. The working diagnosis has altered at each stage and is indeed often not expressed in pathological terms until a late stage. Perhaps the important point to stress is that one should not think about 'the diagnosis' of a patient's troubles so much as about the 'working diagnosis'—that is, a diagnosis sufficient to determine the clinician's next step in management.

If the argument of the preceding paragraph seems obscure, the following example may help. A woman presents in the outpatient clinic complaining of an otherwise symptomless lump in the breast. The process of data-collection by history-taking and physical examination is undertaken, the presence of the lump is confirmed, and the surgeon then considers the question of diagnosis. The inexperienced student tends to think along the lines—What pathological lesions may produce a lump in the breast? Certainly it is possible to construct a list of differential diagnoses ranging from fat necrosis to Hodgkin's disease that *could* be present. The experienced surgeon, however, does not try to answer the impossibly difficult question, what is the pathology of this lump? He simply asks, into which of the following categories does the patient fall?

1. The lump is clinically benign.
2. The lump is not definitely benign.

Placement in one of these two categories constitutes a working diagnosis because it decides the surgeon's next step. If he is confident that the lump is benign, this is probably because he has diagnosed it as a cyst or a fibroadenoma.

He then recommends the appropriate management—usually needle-aspiration for a cyst and excision-biopsy for a fibroadenoma. If the surgeon cannot be certain that the lump is benign, he assumes that it is malignant and advises (in the first instance) urgent excision-biopsy. This is a slightly over-simplified, but not altogether inaccurate, analysis of the situation.

## **The Final examination**

How is the candidate in Finals to be tested for his ability to analyse a surgical situation in terms like these? Certainly the examiners have a chance to lead him into suitable discussion in the oral part of the examination, but the written papers are the great opportunity, both for the examiners to test the candidate and for the candidate to impress his examiners.

Only rarely are the questions set in the written papers primarily aimed at testing the store of knowledge possessed by the candidate. Not often will there be a question couched in terms such as 'Describe the symptoms, signs, and treatment ...' of a disease; such a question can of course be easily answered by quoting the appropriate pages of any good textbook. Usually the questions will be phrased 'Discuss the management of ...' a certain clinical presentation.

Reverting to our previous example, the question may read 'Discuss the management of a woman presenting with an otherwise symptomless lump in her breast'. The inexperienced candidate describes the clinical features of a carcinoma and outlines his scheme of treatment for carcinoma of the breast. Then he describes the characteristic features of fat necrosis and it may occur to him as an uncomfortable thought that there may be no way of distinguishing the one lump from the other. None the less, his plan for answering the question forces him to continue with the characteristic signs of all the possible breast lumps and the treatment of each. Yet he and his examiners know both that all the signs may be misleading and that the initial treatment for nearly all lumps in the breast is excision-biopsy. This way of describing the management of a patient with a lump in the breast is time-consuming and repetitive; and even if the candidate writes it all down correctly, the examiner may say to himself, 'Yes, he knows all the textbook stuff; but can he really be trusted to handle the clinical problem as it presents in the outpatient clinic?'

The best way to handle questions like these is to forget about the textbook descriptions of individual diseases and to try to think oneself into the situation as one meets it in clinical practice. This is surely the simplest way to persuade the examiners that in practice one could cope with the situation. The method requires a reorientation of thinking about examination questions, and of course practice in the writing of answers along these lines.

Two useful rules can be laid down to help with this approach. The first is analogous to the scheme that many generations have used to aid their memory and ensure that no important pathological cause of a clinical state has been left out. If one thinks in terms of pathology, one goes through the classification of congenital or acquired, traumatic, inflammatory, degenerative, metabolic or neoplastic. In terms of the approach by situation, the analogous aide mémoire is the list of possible geographical sites at which a surgeon may meet a situation—for example, in the field (that is, at the site of an accident), the outpatient clinic,

the wards, the operating theatre, etc. It should thus be possible to avoid such embarrassing errors as answering a question about retention of urine without mentioning post-operative retention, or one on the management of blood loss without mentioning bleeding during elective surgical operations!

The second rule that may give useful guidance in planning the answer to a question is this: always deal first with the emergency aspects of any situation. Clearly an ability to deal with the urgent problem, when there is no time to summon aid, is the most important of the surgical skills that the examiner is seeking in the candidate, so the latter should make sure that he gives plenty of time to the emergency aspects rather than sketching them in hastily at the end of a long answer.

## **The College course**

The preceding discussion may be summarized as follows: the Final Fellowship examination aims to test a candidate's practical ability in handling surgical situations. The three components of such ability are data-collection (tested by the clinical part), data-storage (tested by all parts, but particularly the oral interviews in surgery and pathology), and problem-solving (again tested throughout, but particularly in the written papers). The written answers are usually better constructed as analyses of how to deal with a clinical presentation rather than as textbook descriptions of diseases.

The course organized by the College for candidates for the Final Fellowship has always strongly emphasized the importance of data-collection. Participants each visit 16 hospitals, where the instruction is mainly concentrated upon data-collection by history-taking and clinical examination. The candidates' data-store should benefit from the evening lectures on surgical subjects of topical interest, from the Saturday morning tutorials, and from clinical presentations that occupy some of the time at the hospital sessions. Finally, problem-solving, with special reference to writing answers, is the concern of the tutors, who take small groups of students for several hours on the four Wednesdays of the course and correct their written answers to model questions. Problem-solving is an aspect which many young surgeons may feel has not been adequately emphasized in their earlier education; and it is hoped that further aid to thinking in terms of situations rather than in terms of diseases may be afforded by the evening speakers if they cast their lectures in this mould.

Finally, I would greatly value comments on and criticisms of this chapter.

## **A Review of Cardiac Surgery for the General Surgeon**

Sir Thomas Holmes Sellors, DM, MCh, FRCP, FRCS

### **Introduction**

The general surgeon who has had limited experience of heart surgery can well be at a loss when faced with a patient who has had a heart operation, and has now to face an operation elsewhere. On many occasions the records and documentation are sufficient for the surgeon and anaesthetist to weigh up the operative and post-operative problems, but in an emergency there may be genuine difficulties.

Patients who have undergone major open-heart operations, such as valve replacement or coronary artery bypass, have a regime which may include anticoagulants, beta-blockers, diuretics, and so on. The effect of these and other agents on the circulation and other body systems may well influence the decision that has to be taken. There are additional hazards and potential complications that arise from the presence, say, of an indwelling pacemaker if there is any question of electrical equipment being used in the operating theatre. On the other hand, there are a number of heart operations which, if successful, involve a minimal risk: atrial and ventricular septal defects, persistent ductus arteriosus and congenital valve stenosis can be instanced in this connection. Obviously, if there has been a prior gross overload of either ventricle the state of the myocardium has to be taken into account, and in such lesions as coarctation a permanently high blood pressure is not unexpected and should be handled accordingly.

Cardiac surgery is one of the newer and dramatic developments in medicine, and whereas many of its procedures have become standardized and are regarded as routine, there is still considerable flexibility and its future is unpredictable. By the circumstances of evolution, heart operations are generally undertaken in units where an expert team of physicians, surgeons and people from other branches can be concentrated to deal with the complex technology required for investigation, the actual operation and its sequel. This inevitably accounts for a certain degree of isolation or separation from the general stream of surgery.

The original cardiovascular procedures were mainly concerned with the great vessels—occluding a persistent ductus or resecting a coarctation. The next phase was 'closed' or 'blind' approaches to stenosed valves and, since open-heart surgery became practical and sufficiently safe, most operations on valves have become replacements with prostheses or grafts. Finally and currently, myocardial ischaemia due to atherosclerosis of the coronary system is being treated by provid-



ing a bypass from the aorta or internal mammary arteries into a distal patent coronary vessel.

The complications and difficulties in providing satisfactory apparatus for open-heart surgery have been largely overcome, and comparatively simple heart-lung machines with a low priming volume can maintain an extracorporeal circulation while the heart is 'out of circuit'. Inevitably there are differences in points of technique, but the principle of maintaining adequate perfusion of the vital organs during and after operation is inviolable.

Whereas extracorporeal circulation is by a long way the most favoured method used in open-heart work, the advantages of hypothermia should not be ignored. So-called conventional 30°C hypothermia induced by surface cooling allows the heart to be excluded from the circulation for 10–12 minutes before there is any risk of brain damage. This enables a simple pulmonary valvotomy or closure of a secundum atrial septal defect to be undertaken without the complexities of heparinization and multiple cannulation. For example, the writer closed 300 septal defects with a 4 per cent mortality, and in selected or 'good' cases with a death rate of 0.5 per cent.

Deep hypothermia, introduced by Drew et al. (1959), lowered the temperature with the use of cannulae and heat exchangers to a much lower extent—20°C and even as low as 15°C, producing heart arrest and allowing the surgeon anything from half to 1 hour with an open heart before rewarming was introduced to restart the circulation.

Until or if a reversible agent which can arrest the body's metabolism is discovered, open-heart surgery looks like being dependent on the pump oxygenator in whatever form is found most efficient. The question as to whether cooling should or should not be used as a protective supplement is one for individual choice. Protection of the myocardium during aortic valve surgery can be effected by additional perfusion of the coronary arteries with cooled blood. In open-heart operations on the very young, surface-induced hypothermia plus perfusion is held to produce good results.

Assessment of a patient who may require operation usually involves detailed investigations. Some lesions can be studied by two-plane cardioangiography and/or catheter pressure or gas estimations comparatively simply, but volumetric estimations of regurgitation through valves may require cine-cardioangiography and a number of highly technical investigations such as ballistocardiography. In the study of coronary artery disease, coronary angiography has to be carried out. In all these important advanced investigations there is an element, even though small, of risk. Assessment is, therefore, quite a formidable though necessary undertaking before any decision to operate is made, and in major open-heart procedures the post-operative handling is no less exacting. Carefully monitoring with ECG and estimations of arterial and venous pressures, blood gases and chemistry, and urine output, are added to the more usual observations on respiration, blood and fluid loss, and so on. As a measure of comparison of what it means from the patient's point of view, it can be assumed that a patient 'survives' within 24 hours after an abdominal operation, a closed-heart operation takes about twice as long and a valve replacement may take 3 to 4 days before continuous monitoring can be abandoned.

The procedures that are used for different forms of heart disorders vary some-