

A Colour Atlas of
Gynaecological Surgery

Vol 3

Operations for
Malignant Disease

David H Lees and Albert Singer

2
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Volume 3: Operations for Malignant Disease

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Wolfe Medical Publications Ltd

To our wives
Anne & Talya

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Published by Wolfe Medical Publications Ltd,
London, England
Printed by Smeets-Weert, Holland
ISBN 0 7234 0725 8

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Acknowledgements

This six-volume colour Atlas of Gynaecological Surgery was produced at the Jessop Hospital for Women, Sheffield as part of a postgraduate project to teach operative surgery by edited colour slides. We are indebted to all who took part in this exercise, but there are some whom we would like to mention particularly.

Mr Alan Tunstill, Head of Department of Medical Illustration, Hallamshire Hospital, Sheffield Area Health Authority (Teaching), organised the whole of the photography. Mr Stephen Hirst, of the same Department, took nearly all of the photographs; the colour diagrams are all the work of Mr Patrick Elliott, Medical Artist of the Department.

Professor I. D. Cooke generously gave full access to clinical material in his unit. Mr K. J. Anderton and Mr B. Rosenberg of Rotherham, England referred cases of vulvar malignancy from which photographic material is used in Chapter 2. Mr Joseph Jordan of Birmingham, England contributed the photographs to the section on the use of laser in Chapter 3 while Dr Tom Powell of the Weston Park Hospital, Sheffield, England allowed us to reproduce the lymphograms as shown in Chapter 7.

Dr Frank Neil, Consultant Radiotherapist at the Weston Park Hospital, Sheffield, England accepted our invitation to write Chapter 7 on radiation therapy for gynaecological cancer. Although management of malignant disease is a matter for close liaison between surgeons and radiotherapists, the radiation techniques in some fields have become so sophisticated and complex that the radiotherapist, necessarily, must take charge of treatment.

The anaesthetists at all levels were very co-operative. Dr A. G. D. Nicholas, Dr D. R. Powell and Professor J. A. Thornton were the consultants involved. Of the numerous senior registrars we remember particularly Drs Bailey, Birks, Burt, Clark, Dye, Mullins, Saunders and Stacey.

Miss J. Hughes-Nurse, Mr I. V. Scott, Miss P. Buck and Dr H. David were the senior registrars and lecturers in obstetrics and gynaecology during the time and greatly assisted by keeping us informed of suitable cases and in the organising of operations. Drs Katherine Jones, E. Lachman, Janet Patrick, K. Edmonds, A. Bar-Am and C. Rankin were involved in the management of the cases and assisted at operations.

Miss M. Crowley, nursing officer in charge of the Jessop Hospital operating theatres ensured that we had every facility, and Sisters J. Taylor, M. Henderson, E. Duffield, M. Waller and A. Broadly each acted as theatre sister or 'scrub' nurse at the individual operations. Mr Leslie Gilbert and Mr Gordon Dalton, the operating room assistants, were valuable members of the team. We particularly wish to thank the whole theatre staff for their courtesy and efficiency.

A large amount of secretarial work was involved. We are grateful to

Mrs Gillian Hopley of the University Department who dealt with most of it. Mrs Valerie Prior and Mrs Talya Singer were responsible for typing the manuscript and both gave much genial/general help and constructive advice throughout.

The photographs in this book were taken on Kodachrome 25 colour reversal film. The camera was a 35 mm Nikkormat FTN fitted with a 105 mm f2.5 Nikkor auto lens. A PK-3 extension ring was used for close-ups and a 55 mm f3.5 Micro-Nikkor auto lens for general views. Illumination was provided by a Sunpak auto zoom 4000 electronic flash unit, set on full power. An exposure setting of 1/60th of a second at f16 was used.

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Introduction

There is probably no substitute for the type of personal tuition provided by teacher and pupil working together in the operating theatre as surgeon and assistant, with knowledge and experience being passed on directly. There is, however, the disadvantage that such a relationship is not available to everyone and is, at best, transient. In addition the learner is frequently not at a stage in his career when he can take full advantage of what is available. The majority, therefore, have to look elsewhere for such instruction.

Textbooks of operative surgery provide the principal source of information, but these are only as good as their illustrations. The occasional colour plate does not instruct and there is something unreal about the well-executed drawings prepared by a medical artist to the specification of the author. The one worthwhile teaching aid is the simple line diagram or sketch, which demands considerable skill and ingenuity and allows the student to see and follow what is required. But to carry that information in one's mind and apply it in practice is another matter. In surgery, with all its accompanying distractions, the real life structures are frighteningly different from those which the simple diagrams have led one to expect, and these same structures obstinately refuse to adopt the position and behaviour expected of them.

Cine films are excellent but the cost of their production in time and money is high, besides which they are clumsy to use. This series of atlases offers what we consider to be the next best thing: a series of step-by-step colour photographs accompanied by an appropriate written commentary. This form of presentation follows almost exactly the colour slide plus commentary method most often used to teach surgery. Using slides, of course, it is necessary to have projection apparatus and access to a library or bank of suitable material. The method adopted in this series – of using high quality colour reproduction processes – retains the advantages of the slide and commentary method while avoiding its drawbacks.

The present series of atlases sets out to provide detailed instruction in the techniques of standard gynaecological operations. Its methodology is straightforward. The technique of each operation is clearly shown, step-by-step, using life-size photographs in natural colour, and with liberal use of indicators and accompanying diagrams. Where a step is repetitive or there is a natural sequence of steps, grouping has sometimes been used, but the natural size of the structures is maintained.

The accompanying commentary is concise and is printed on the same page as the photograph or photographs to which it refers. Every effort has been made to include only necessary material, but in situations where experience and special training have provided additional information and knowledge, that has been included.

The illustrations are selected and the accompanying commentaries so arranged as to carry the reader forward in a logical progression of thought and action in which he becomes involved. Occupied with one step he is at the same time anticipating the next, and in due course confirms his foresight as logical and correct. The photographs are those of a real patient having a real operation and the picture seen is exactly what the reader will see in the operation theatre when he does it himself. Interest is concentrated on the one step of the operation being taken at that time.

In any form of medical teaching there is the inevitable problem of pitching instruction at the level required by the audience and the presumption that the

reader has insight into the specialist knowledge of the author is just as irritating as being patronised. We do not think there is a problem in this context because an atlas is by definition a guide and therefore for general use. It is just as likely to be consulted by a junior house surgeon about to assist at his first hysterectomy as by a senior colleague seeking an alternative method of dealing with a particular problem. That, at least, is the spirit in which it has been written.

Certain assumptions have had to be made to avoid verbosity, tediousness and sheer bulk of paper. It is hoped that the reader will be kind enough to attribute any omissions and shortcomings to the acceptance of such a policy. No one should be embarking on any of the procedures described without training in surgical principles, nor should he attempt them without knowledge of abdominal and pelvic anatomy and physiology.

Several areas have purposely been avoided in preparing the Atlas. There is no attempt to advise on the indications for operative treatment and only in the most general terms are the uses of a particular operation discussed. Individual surgeons develop their own ideas on pre- and post-operative care and have their personal predilections regarding forms of anaesthesia, fluid replacement and the use of antibiotics.

Even on the purely technical aspects the temptation to advise on the choice of instruments and surgical materials is largely resisted and it is assumed that the reader is capable of placing secure knots and ligatures. Each volume of the Atlas contains a photograph of the instruments used by the authors and some of these are shown individually. Most readers will have their own favourites but the information may be useful to younger colleagues. We do not consider the choice of suture material to be of over-riding importance. The senior author has used PGA suture material since its inception and although generally preferring it to catgut does not consider it perfect. It has disadvantages and can be very sore on the surgeon's hands but it does have advantages in that it is particularly suitable for vaginal work and for closing the abdomen.

There are, of course, several methods of performing the various operations but those described here have consistently given the authors the best results. It need hardly be reiterated that the observance of basic surgical principles is probably more important than anything else.

The Atlas is produced in six volumes, each of which relates approximately to a regional subspecialty. This is done primarily to keep the size of the volumes convenient for use but also to allow publication to proceed progressively.

From what has been written it might appear that the authors think of gynaecologists as necessarily male. The suggestion is rejected: the old-fashioned usage of the inclusive masculine gender is merely retained for simplicity and neatness. Anyone questioning the sincerity of this explanation would have to be reminded that every gynaecologist must, in the very nature of things, be a feminist.

Introduction to Volume 3

The surgery of gynaecological malignant disease has somehow gained the reputation of being difficult and dangerous and, at the same time, quite different from normal operative work. A mystique has grown up around it and the radical operations with their rather awesome reputations have tended to become the prerogative and responsibility of chiefs of service or senior consultants. As a result, apprenticeship and experience can be hard to come by and young specialists sometimes embark on their careers woefully inexperienced in cancer surgery and fearful of their inadequacies. The authors are determined, if possible, to demolish this misleading concept by setting out the realities of the situation.

It can be stated quite firmly that there are very few special techniques in the surgery of gynaecological malignancy that should tax a competent practising gynaecologist. There are certain recognised pitfalls in radical operations such as the danger posed by surgical dissection of certain blood vessels or urinary structures. These are well recognised and in the hands of a careful operator can all be anticipated. Such matters will be emphasised as they are dealt with in the text and a safe method of dealing with each will be illustrated. The authors believe that they can safely conduct their readers through these operations by employing well-tried and completely orthodox methods.

It can be said with equal force that matters can go badly wrong in the surgical selection of malignant cases and these are points which have to be very carefully considered. Preoperative preparation is equally important and readers need not be reminded of the dire penalties for omissions in this regard.

With the case carefully selected and prepared for operation, the techniques described in the Atlas need only be carefully and unhurriedly followed. As a final reassurance at this stage, the reader is reminded that these radical operations gained their disconcerting reputations before the benefits of modern anaesthesia, blood transfusion and antibiotics were available. The scene is now completely transformed and the anxieties previously associated with cancer surgery have largely been removed.

In previous volumes of the series some comment on the contents and their presentation has been made and that policy is continued here.

There are areas in the management of non-malignant disease where one operation is suitable for several different conditions. Abdominal and vaginal hysterectomy are obvious examples and the only problem facing the writers is to select the most suitable procedure of its type. It is then a comparatively straightforward matter to instruct the reader in the operative technique. For brevity and other reasons the authors have not become involved in the indications for any particular operation. However that may be, it is not possible to maintain an attitude of complete non-involvement in dealing with malignant disease because it is widely agreed that individualization of treatment is an essential element in successful management. The various modalities of treatment have all been fully developed and evaluated; the problem is to choose the correct one or the correct combination for the individual case, and some guidance should be available.

The authors have therefore continued their policy of selecting the operations considered of most value in the management of malignant disease but have also indicated in the text the type of case which might be suitable for a particular procedure. Surgical treatments of graded complexity are offered for vulvar, cervical, endometrial and ovarian cancer and this also allows a choice of treatment to suit the general condition of the patient. Recurrences sometimes demand further surgery of more specialised or perhaps palliative type procedures and some such operations are described. As examples, a procedure for an extensive recurrence of vulvar epithelioma is shown and a hysterectomy for cases of failed radiotherapy in uterine carcinoma is described.

The Atlas is largely based on personal records of work done by the authors. Sometimes proven methods, though not universally known and which may be of interest to the reader, are described. For example, the results of an extended hysterectomy with partial vaginectomy which has given the senior author consistently good results in over 100 cases of endometrial carcinoma is discussed. Another such example is the techniques used in the treatment of epithelioma of the vulva, where much benefit can be conferred on the patient while saving a large amount of hospital time by immediately covering the raw vulvar area with a split skin graft.

The authors pondered over the question of pelvic exenteration and decided against its inclusion. These formidable operations are fortunately only rarely required. They are specialist procedures in the sense that, apart from the difficulties of technique, unique hazards and obstacles may be encountered during the operation. Post-operative management demands special nursing skills, careful blood and electrolyte control and a considerable measure of psychological support for the patient. The latter is probably the most demanding requirement and is generally the least likely to be available. Sometimes a gynaecologist will share with a urologist the surgical management of an anterior exenteration or combine with a rectal surgeon in doing a posterior exenteration. By such co-operation the patient may be very effectively treated and we are aware of the satisfaction engendered by such procedures. Unless one has the support of the very best facilities, however, and particularly if there is any question of total pelvic exenteration, it is better to direct the case to a centre specially equipped to deal with it.

Readers will obviously wish to know what kind of results should be obtainable with surgical treatment and in each chapter we have tried to provide some information on the particular cancer under consideration, although it can only be in very general terms. We have sought the latest opinion of recognised authorities and freely used the 'Annual Report on the Results of Treatment of Gynaecological Malignancy' (1976) as a source of reference. Ovarian cancers in particular and some of the vulvar growths so often demand individualized treatment that statistics are of limited value and should be accepted as a very general guide to what can be achieved.

1: Surgical anatomy and instruments

SURGICAL ANATOMY

Lymph glands and vessels

In treating any form of malignancy the aim of surgery is to excise the affected organ or group of organs completely, with the excision line well outside the estimated tumour edge. If the tumour is known to spread by the lymph stream the glands on the line of drainage from the structures are also removed. Gynaecologists are fortunate in that the anatomy of pelvic and vulvar lymph drainage is well understood and it is possible to plan and carry out logical procedures with good prospects of success provided the lesion is in an early stage of development.

Pelvic lymph drainage

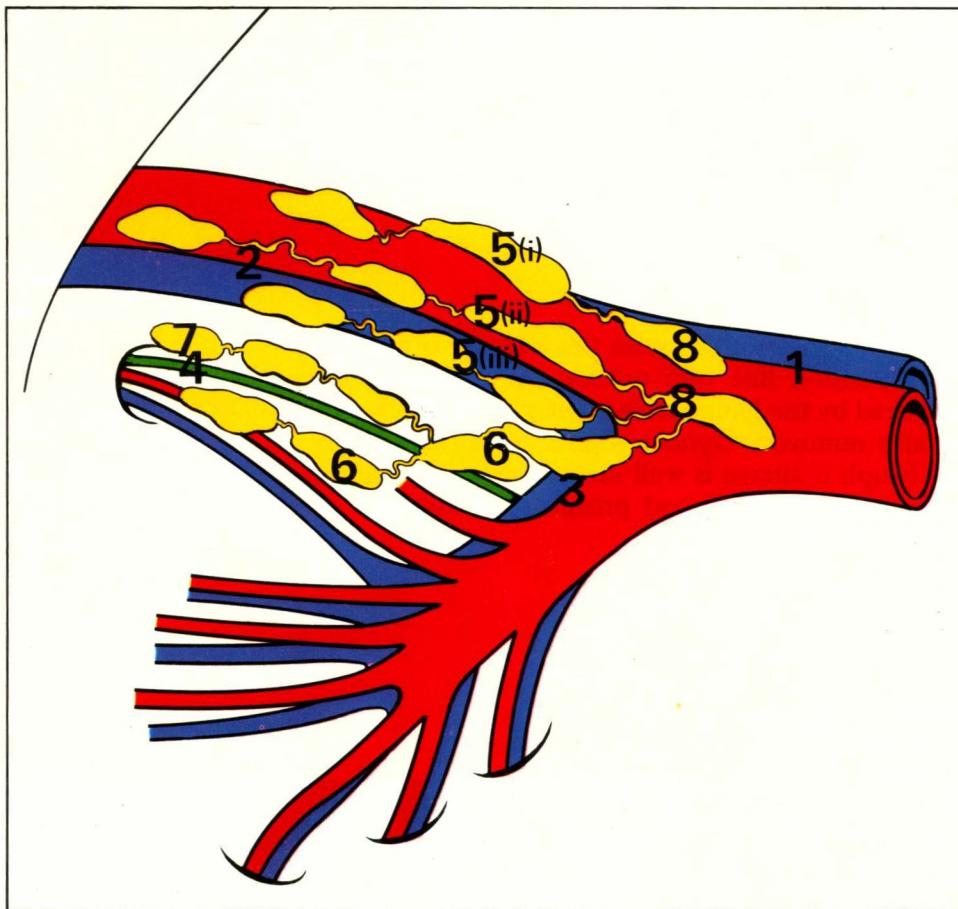
The lymph drainage from the pelvis is ultimately towards the upper abdomen by the para-aortic glands and follows the direction of the main blood vessels. The glands and lymph vessels in the pelvis itself lie on and surround the common iliac, the external iliac and the internal iliac arteries and veins. These lymph vessels receive tributaries from the vulva which enter through the femoral and sometimes through the obturator canals. Most of these join the external iliac lymph flow. The lymphogram (Figure 1) is shown to indicate the general tide of lymph drainage from the pelvis, vulva and groins, while the diagram (Figure 2) shows the major lymph drainage pathways from the pelvis with the important groups of glands numbered and named.



1 Normal lymphogram

An A.P. radiograph, lymphogram and I.V.U. of a 48 year-old patient with a stage 1 carcinoma of the cervix. On both sides, the lymph node groups are clearly shown and are normal in size with no filling defects or other evidence of tumour deposits. The I.V. urogram is also normal.

2



2 Pelvic drainage

- 1 Common iliac vessels
- 2 External iliac vessels
- 3 Internal iliac (hypogastric) vessels
- 4 Obturator nerve
- 5 External iliac glands
 - (i) lateral chain
 - (ii) middle chain
 - (iii) medial chain
- 6 Internal iliac (hypogastric) glands
- 7 Obturator gland
- 8 Common iliac glands

In the most general terms, lymph drainage from the uterus and appendages passes through two aggregations of glands which serve as a primary line of defence. These are the middle and medial chains of the external iliac glands and the internal iliac or hypogastric glands which are continuous distally with the obturator glands. The lymph flow from these two primary groups is channelled through the second line of defence which is made up of the common iliac nodes. Thereafter it ascends to the third defence area of the para-aortic glands. There is nearly always a large gland at the bifurcation of the common iliac artery through which the major lymph flow must pass. As shown in the diagram, the external iliac glands lie on and between the external iliac artery and vein while the internal iliac group lies in the space between the external iliac vein on the side wall of the pelvis and the internal iliac artery postero-medially. This latter group of glands surrounds the obturator nerve. The obturator group of glands is usually described separately but is more or less continuous with the internal iliac or hypogastric group, although it may be recognisable separately in the region of the obturator foramen. There is no other recognisable organised lymph defence of the intra-pelvic genital organs, either in or on the parametrium, along the ureters or in the postero-lateral aspect of the pelvis. The authors make this statement categorically and advisedly, because the pursuit of such mythical glands has sometimes led inexperienced surgeons into trouble.

Lymph drainage of vulva

The lymph drainage of the skin of the vulva is of great importance in relation to epitheliomatous growths and their treatment and is shown in the form of a simple diagram (Figure 3). The grouping of these lymph glands is not constant but they generally present in two bands lying at right angles to each other. One is parallel to and just below the inguinal ligament and the other lies along the great saphenous vein and the femoral vein. They meet at and form a right-angle which opens laterally and has its apex over the femoral canal. These groups are referred to as the superficial inguinal and the superficial femoral groups respectively and they drain into the deeper femoral glands at the entrance to, and in the femoral canal. The gland of Cloquet is alleged

to be the largest of this latter group and it has always been said to transmit the main lymph flow through the femoral canal. The gland is certainly not constantly present and Way (1977, 1978) disputes its importance. Our experience leads us to the same conclusion. On entering the pelvis the lymph flow is via the external iliac chains to the common iliac glands. The skin of the vulva has lymphatic drainage to contralateral as well as to ipsilateral glands. That from the clitoris and the vestibule bypasses the superficial inguinal glands and goes direct to the external iliac group. When the urethra and vagina are involved, lymph drainage is to the obturator and internal iliac glands through the obturator foramen.

These are the essential points in relation to lymph drainage and it is not proposed to go into greater detail except where relevant to treatment in particular operations.

3 Lymph drainage of vulva

- 1 Inguinal ligament
- 2 Femoral vessels
- 3 Great saphenous vein
- 4 Femoral canal
- 5 Superficial inguinal glands
- 6 Superficial femoral glands
 - (i) on femoral vessels
 - (ii) around great saphenous vein
- 7 Deep femoral gland (Cloquet)

The green arrows indicate the general direction of the lymph flow

