Organisation of vascular surgical services: evolution or revolution?

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The trend towards subspecialisation in hospital services is likely to lead to the development of vascular surgery as a separate specialty. If vascular surgery is to emerge as a high quality service then vascular emergencies—a substantial component of the workload—should be dealt with by surgeons with adequate training, and all patients should have equal access to the service. A specialist vascular surgical unit would have to be large enough to make efficient use of other services that it needs, such as radiology, and so may require the amalgamation of smaller health district units. Because of the differing local degrees of subspecialisation, national or regional strategies for vascular surgery must be developed.

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The increase in subspecialisation in hospital services may create organisational problems for providers of health care. In general surgery an increasing number of posts are advertised with a special interest, subspecialist training is being developed,¹ and many trainees intend to pursue a career in a subspecialty.² If the trend in Britain follows the trend in other countries vascular surgery looks likely to emerge as a separate specialty over the next few years. The results of a recent audit of vascular surgery in Oxford Regional Health Authority show that considerable inequality of access to vascular surgical services already exists; this may relate to differing degrees of subspecialisation.³

Evolution of vascular surgery as separate specialty

Some years ago urology separated from general surgery to become a distinct specialty; this separation evolved gradually as specialist training was introduced. General surgeons with a special interest in urology either reduced their general surgical commitments or appointed colleagues with urological training. Most districts now have at least one urologist working alongside general surgeons.

Several issues may make it undesirable for specialist vascular surgery to evolve in the same way as urology. Vascular surgery entails a considerable emergency workload,⁴ and growing evidence exists that better results are obtained when ruptured aneurysms⁵ and acute ischaemia⁶ are treated by specialists. As a result, many surgeons with a special interest in vascular surgery provide an emergency service on an informal basis, which often involves a considerable additional commitment out of hours.⁷ With many changes occurring in the cover provided by junior doctors, in training, and in workload, hospitals may be unwise to rely on such informal arrangements for specialist cover. Vascular surgery also requires extensive support from other services, including radiology, a vascular laboratory, and a high dependency facility. With the increasing use of thrombolysis and other minimally invasive techniques specialist emergency vascular radiology is also needed. Recent evidence suggests that a more active vascular service practice results in a lower

rate of amputations with huge potential savings in morbidity and costs (J A Michaels, P Rutter, J Collin, R B Galland, for the Oxford Regional Vascular Audit Group, annual scientific meeting of the Association of Surgeons, Harrogate, 1994).

Principles of a high quality vascular surgical service

A few basic principles should govern the provision of vascular surgical services if a high quality, cost effective service is to be developed. Vascular emergencies should be dealt with by surgeons with adequate training and a continuing elective vascular surgical practice. All patients should have equal access to vascular surgical services on the basis of clinical need, and scarce resources should be distributed to provide the maximum benefit. These basic criteria do not seem to be met currently, and services need to be rationalised.

Data on vascular surgical workload suggest about one full time vascular surgeon per 250 000 of population is currently required.⁸ This estimate is based on levels of workload reported some years ago, since when the need for vascular surgeons has increased and will continue to do so. This increase is due partly to demographic changes and partly to an expansion in techniques such as femorodistal bypass and carotid reconstruction, which require considerable commitment from vascular specialists. Thus a population of 600 000 to 800 000 should generate enough work for at least three to four vascular surgeons, which would allow a specialist vascular emergency service and efficient use of radiology and vascular laboratory facilities. Such a unit would be large enough to support a dedicated high dependency unit, emergency vascular radiology, and some degree of subspecialisation for procedures such as carotid endarterectomy.

Four to six units of this size would be required for each region; if the units were in appropriate locations patients in most of Britain would have easy access to services. Some types of vascular surgery that require lower levels of support services, such as routine operations on varicose veins, may be identified separately. In the districts without support services for major vascular surgery a designated vascular surgeon could assess patients in an outpatient clinic, carry out some surgery, and see inpatient referrals; general practitioners and physicians would thus continue to have local access to the opinion of a vascular surgeon.

Removing the current inequalities

Clearly, several ways exist for dealing with the current problems. Emergencies could be covered jointly by surgeons in neighbouring hospitals or by regional referrals. More complex procedures could be dealt with by tertiary referral to selected centres. The current pressure on scarce resources and high capital costs, however, are likely to militate against the

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provision of underused support services in every district. A fully staffed facility for digital subtraction angiography could probably serve the needs of a population of over a million but would stand idle for much of the time in an average district general hospital. A vascular specialist working singlehandedly in a small district would probably not be able to provide a full range of cost effective services to the local population, and evidence suggests that tertiary referrals are not providing equal access to services.³

One effect of the recent health service reforms is that neighbouring hospitals are often seen as competitors, and, as shown in the Oxford region,³ health authorities may be buying different vascular services depending on the local arrangements. A system capable of solving the current problems is unlikely to evolve naturally, as a result of market forces. Thus if equal access to a high

quality and cost effective vascular surgical service is to be achieved then national or regional strategies for vascular surgery must be developed.

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- 3 Michaels JA, Browse DJ, McWhinnie DL, Galland RB, Morris PJ. The provision of vascular surgical services in the Oxford region. *Br J Surg* 1994;81:377-81.
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- 5 Ounel K, Geary K, Green RM, Fiore W, Geary JE, DeWeese JA. Factors determining survival after ruptured aortic aneurysm: the hospital, the surgeon, and the patient. *J Vasc Surgery* 1990;11:493-6.
- 6 Clason AE, Stonebridge PA, Duncan AJ, Nolan B, Jenkins AM, Ruckley CV. Acute ischaemia of the lower limb: the effect of centralizing vascular surgical services on morbidity and mortality. *Br J Surg* 1989;76:592-3.
- 7 Ruckley CV. Mounting problems in vascular surgery. *BMJ* 1988;297:577-8.
- 8 Darke SG. The provision of vascular services. *Eur J Vasc Surg* 1987;1:217-8.

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Commentary: The obituary of general surgery?

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Good organisation of vascular surgical services need not be accompanied by the emergence of vascular surgery as a separate specialty, but J A Michaels and colleagues are right to point to the need for change. Patients referred to a surgeon by their general practitioner often ask the surgeon whether he or she is a specialist in their problem. By the next century no patient will wish to be sent to a general surgeon. The obituary of general surgery is in view.

Vascular surgery is a good example of these trends, and so the main thrust of the comments of Michaels and colleagues should be supported. Patients can indeed expect emergencies to be managed by expertly trained vascular surgeons doing elective vascular surgery during the day, and patients must have proper access to the necessary skills. The current requirement of one full time vascular surgeon per 250 000 population¹ is supported by the report on vascular surgical services in Scotland, which recommends six major vascular units with three surgeons per unit for the whole population of Scotland of just over five million.²

The Scottish report and Michaels and colleagues both call for vascular units to have an emergency vascular rota, a vascular laboratory, colour duplex and spectral Doppler ultrasonography, computed tomography, access to a high dependency unit and intensive care, short stay beds, and excellent angiography at operation. The Scottish report recognises further the need for intermediate vascular units with lower levels of vascular facilities. Such intermediate units could make tertiary referrals to the regional vascular service, as well as satisfying market forces and the requirements of the patient's charter and the expectations of NHS trust hospitals of treating as many patients as possible as close to their home as possible. A hub and spoke model seems to be ideal.

Specialist vascular surgeons must be available

Undoubtedly, patients must have access to a specialist vascular surgeon just as they must have access to a specialist breast surgeon or specialist in gastroenterology, surgical oncology, transplantation, or urology. Equally patients can expect a specialist surgeon to have received a broad training in order to manage emergencies at night. Surgeons on acute on

call rotas require training in many aspects of surgery, and they will soon expect to perform elective surgery entirely within their subspecialty during the day. Urology split off some 25 years ago. Vascular surgeons have decamped in France and Germany in recent years, but the remaining member states in the European Union recognise only a monospecialty of surgery and have stopped using the term general surgery.

The European Union of Medical Specialties in Brussels defines the monospecialty of surgery in terms of being responsible for acute on call take in surgery and having within it subspecialties including vascular surgery; similar training is required for such surgeons until the last two years. Vascular surgeons in the United States split from the monospecialty of surgery a decade ago, and it is difficult to see that this has resulted in better relationships between vascular surgeons and those they left or improvement in patients' chances of access to the optimal specialist.

Coping with on call demand

There can be no argument against the need for regrouping vascular surgical services in the way mentioned by Michaels and colleagues and in the Scottish report.² With this reorganisation, however, general surgeon practitioners will not in the future have patient and purchaser support for elective surgery. General surgery as a concept is doomed. However, the monospecialty of surgery must surely evolve to continue to provide the training that all such surgeons require to be in the front line for acute emergency work, if only to arrange transfer to the appropriate surgeon. The economies of Europe simply cannot cope with the monospecialty of surgery being split into five or six groups with each being on call only for emergencies within its particular specialty. The basic training for all subspecialties in surgery is similar, all groups requiring specialist training in the last two years. Greater dialogue between the subspecialty groups within the monospecialty is required rather than less. Surely vascular surgery should remain a part of this monospecialty while achieving all the objectives required for optimal patient management discussed above.

1 Drake SG. The provision of vascular services. *Eur J Vasc Surg* 1987;1:217-8.

2 Working Group of the National Medical Advisory Committee. *Vascular surgery services: report*. Edinburgh: HMSO, 1993.