

EDITORIAL

How Can We Ensure Vascular Surgical Trainees Become Competent in Open Aortic Surgery in the Future Training Environment?

The use of endovascular aneurysm repair (EVAR) for the treatment of infrarenal abdominal aortic aneurysms (AAAs) is now widespread, with the minimally invasive approach, rapid recovery, and better early survival proving attractive to clinicians and patients. Approximately 60% of all AAA repairs in Europe and 85% in the USA are now by EVAR.^{1,2}

A decade ago it looked as if advances in EVAR technology would mean that very few patients would need open aortic surgery (OAS), but that position is less certain today. Although EVAR is a durable procedure when used within the instructions for use, 30–50% of patients do not fulfil these criteria and (pending their expected life expectancy) may be better treated by OAS. Where national AAA screening is established, a greater proportion of patients are diagnosed at a younger age; 50% of screen detected patients are treated by OAS. Controversially, proposed national guidelines in the UK stipulate that EVAR be restricted only to patients presenting with ruptured AAA, with those with intact aneurysms offered OAS or medical management, based on their fitness for surgery.³ For the foreseeable future at least, it would appear that there will be a need for OAS and therefore trainees will be expected to gain competency in this technique.

Exposure to OAS has been reduced both by changes in working patterns and by the reduction in the number of cases performed, mainly as a result of the rapid uptake of EVAR and more recently, by a fall in the incidence of AAA. Moreover, the cases now performed by OAS are often those anatomically unsuitable for EVAR and therefore more challenging and less suitable to be performed by less experienced surgeons.⁴

In 2016, a survey of UK vascular trainees showed that only 5% of respondents reported performing >15 “open AAA” cases per year and, worryingly, 50% were exposed to less than five per annum. Predictive modelling using national databases suggests that by 2020 an American vascular surgery trainee will complete a maximum of only three open AAA repairs.² Logbook data presented at annual appraisals and at the European Board of Vascular Surgery examination corroborate this perceived reduction in experience. Clearly, experience and competence are different, and better training can ensure competence, even with reduced exposure to cases. However, evidence from the practical stations in the FEBVS examination would suggest

otherwise. A decade ago, the numbers of candidates failing the proximal aortic anastomosis section were few, to the point that it was not discriminatory; however, it is now the commonest section that is failed.

It would therefore seem that the old apprenticeship method of training is inadequate in the current era. Paradoxically, this was recognised a decade ago with EVAR training when uptake was still patchy and some trainees were completing training without sufficient competency. This resulted in the development of dedicated EVAR fellowships and training courses. The basics of technical skills could be taught in a classroom setting and hands on deployment of devices could be performed on bench top simulators. Technology also played a key role, as endovascular techniques are particularly suited to simulation training, allowing a reasonable skill level to be gained before patient involvement. Not surprisingly, industry partners were happy to sponsor such educational ventures.

The question that now arises is whether a similar initiative is needed for OAS and whether the same model could work. The answer to the first question would seem to be yes, certainly if current trends continue. The second part is not as simple however. Some of the conditions that allowed endovascular training opportunities to be exploited may not be transferrable to OAS. Firstly, device costs and an increasingly competitive market place made for an ideal opportunity for industry support for EVAR education; this is not true of OAS in 2018. Secondly, although some experience can be gained on simulators, unless very sophisticated, OAS is less well suited to simulation than endovascular techniques and there is sparse evidence regarding the transfer of skills from simulators to real world settings. However, much can be learned from workshops using relatively simple models replicating anatomy and standard Dacron grafts and Prolene sutures. Although such courses are resource heavy in the need for dedicated trainers and attract different industry partners for sponsorship, they are possible and gain excellent feedback from trainees. Cadaveric and animal model courses remain the best training environment outside of the operating theatre, but are expensive and limited to a small number of institutions and lack AAA formation.

The recently relaunched European Society for Vascular Surgery Academy educational programme provides training in both open and endovascular surgery through hands on workshops.⁵ However, the number of courses dedicated to EVAR currently outnumber those for OAS by a ratio of four to one.

However, the opportunity that probably provides the best training of all, exposure to live cases, may become easier with time. Whereas EVAR was restricted to larger centres in the 1990s, it is now ubiquitous and it is OAS (especially for complex cases) that is becoming limited to a smaller number of vascular hubs. Trainees with aptitude and interest in OAS could be concentrated in the higher volume centres for part of their training. New training programmes provide dedicated vascular training years and should allow more opportunity for trainees to undergo specialist fellowships, both nationally and internationally.

Action is needed now if we are to avoid the risk that future vascular trainees complete training without being able to perform open aortic aneurysm repair confidently and independently.

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