

Outpatient clinic review after arterial reconstruction: is it necessary?

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After arterial reconstruction, patients have traditionally been followed up in clinic in the long term. We have pursued a policy of limited clinic follow-up, with an 'open access' service for suspected graft failure (and latterly duplex scanning surveillance for vein grafts). This policy was assessed by measurement of the success of self-referral, graft patency and patient satisfaction after operation for lower limb ischaemia in 173 patients. At median follow-up of 50 months, 61 (35%) patients had died and 45 (25%) had required amputation. Of those with salvaged limbs and available for follow-up, 55 (86%) patients reported continuing symptomatic improvement with a graft patency rate of 80%. During the review period, 27 (42%) patients had presented themselves on suspicion of graft occlusion and 14 (52%) of these had required surgical intervention. Of the patients, 45 (70%) found a single postoperative clinic visit helpful, and the majority thought that further visits would not have been helpful to them. Limited clinic appointments seem especially desirable for elderly patients for whom journeys are an imposition, as well as reducing travel costs, and giving surgeons more time to deal with new referrals. These results suggest that properly educated patients present themselves when signs of graft occlusion occur, and there is little to be gained by regular long-term clinic follow-up in vascular surgical practice.

Vascular surgeons have traditionally followed up their patients after arterial reconstruction at outpatient clinics, often for prolonged periods. The objectives of follow-up are patient reassurance, the detection of graft failure and reintervention as required, the reinforcement of lifestyle changes (for example abstinence from smoking) and for research purposes. Harris has suggested, however, that patients should be seen regularly only as part of a graft patency surveillance policy by the vascular laboratory, and that clinic follow-up should be reserved for specific clinical problems (1,2).

A minimal follow-up policy has been employed for several years by the Exeter Vascular Service. Patients have been seen once only after operation and not at all if the visit would have been an imposition; for example, in the elderly living some distance away. Patients have simply been counselled to attend if they develop symptoms. Latterly, patients with femorodistal vein grafts have been entered into a duplex surveillance programme.

The aim of the study was to audit this limited outpatient clinic follow-up policy, to assess patient satisfaction, the success of self-referral and the persistence of lifestyle changes.

Patients and methods

We reviewed all patients who had reconstructive arterial surgery for lower limb occlusive disease between 1 January 1987 and 31 December 1989. There were 173 patients (116 male), aged 40–95 years (median 71 years). There were 48 proximal grafts and 131 infra-inguinal grafts (six patients had both). Review was by case notes only if limb loss or death were documented. The remain-

ing patients were invited for a structured interview and clinical examination.

During the follow-up period of 30–66 months (median 50 months), 45 patients (26%) had required amputation and 61 patients (35%) had died. This left 70 patients available for clinical review. These patients were offered outpatient appointments and 64 of 70 accepted (91% attendance rate). The six non-attenders had either moved from the area or were unable to attend because of other medical or psychiatric conditions.

Results

In all, 64 patients were reviewed by questionnaire, clinical examination, Doppler measurements and duplex scan as required to assess graft patency. There were 46 men and 18 women with a median age of 66 years (range 40–89 years). There were 27 proximal grafts and 41 infra-inguinal grafts (four patients had both).

Patients had had a median of one follow-up visit after operation (range 0–6) (Table I). A total of 45 patients (70%) had found their single outpatient clinic visit helpful for further explanation of operative details and for reassurance about the success of the procedure. Forty patients (63%) did not feel that further outpatient visits would have been helpful to them. On direct questioning, 48 patients (75%) claimed to have remained non-smokers since discharge from hospital (this was not however verified by objective testing).

Fifty-five patients (86%) reported continuing symptomatic improvement compared with preoperatively and the overall objective graft patency rate was 80%. During the review period, 27 patients (42%) had presented themselves directly to the ward or via their general practitioner because of concern about their graft, and 14 (52%) of these had required reoperation for graft occlusion. Our follow-up study detected three graft occlusions which had not been identified previously. Two of these were in elderly patients who had not experienced ischaemic symptoms and therefore had not re-presented. One patient with an occluded femorotibial graft had experienced symptoms but had not taken action. There was one further patient who had recognised deterioration but waited 3 months before presenting; however, this graft was patent.

Table I. Number of follow-up visits per patient

Number of visits	Number of patients
0	2
1	29
2	19
3	7
4	4
5	2
6	1

Discussion

The traditional surgical practice of long-term post-operative clinical follow-up for certain conditions has recently been questioned, for example after operation for colorectal cancer (3,4), and more recently for patients who have had arterial reconstructive surgery (1,2). In the case of conditions such as colorectal cancer, clinical follow-up was performed in the hope of detecting recurrent disease, but has been shown to confer no advantage over a policy of self-presentation when problems arise. Clinical abdominal examination and sigmoidoscopic examination of the unprepared rectum are unlikely to detect early tumour recurrence and have been replaced by annual colonoscopy. Similarly, in vascular surgery clinical examination is unlikely to detect a failing graft, but regular duplex surveillance will detect early stenoses in distal grafts and permit early reintervention to improve graft patency rates (5–7). Long-term outpatient follow-up places a burden on the Health Service and is inconvenient for patient and clinician alike. Elderly, frail patients are often unable to meet appointments, and follow-up attendances may displace newly referred patients from an earlier or more lengthy initial consultation.

Patient education about the nature of the disease and its complications is a fundamental prerequisite to limited clinic follow-up. We provide a full explanation of the operative procedure and risks to each patient at the time of surgery. They are educated to recognise deterioration in the limb and signs of graft failure. They are strongly encouraged to contact the ward directly or via their general practitioner immediately if ischaemic symptoms occur. Patients are generally seen once in clinic about 6 weeks after leaving hospital, but thereafter only if there is a need to check on persisting postoperative symptoms, to reassure selected patients, or for a specific clinical reason. From the patient's point of view, this arrangement seemed to be generally acceptable—only 18 (28%) would have liked further clinic follow-up. The reasons given for preferring more attendances were to meet with the consultant again, and simply to be reassured that all was well.

This review does not support the notion that clinic follow-up is important to detect failed or failing grafts. Our policy of patient education seemed to be a reasonable alternative, because all but three patients whose grafts had occluded reported to hospital when they developed symptoms. The potential disadvantages of limited follow-up are possible limb loss due to failure of the patient to recognise ischaemic symptoms and/or delay in seeking medical advice. This may result in re-presentation with a graft occlusion despite months of signs of graft stenosis. It is well recognised that clinical examination and simple Doppler tests will often miss developing stenoses, and vascular laboratory surveillance (rather than ordinary outpatient clinic follow-up) is becoming increasingly common. Our femoropopliteal vein grafts are now entered into a duplex surveillance programme for scans at 6 weeks, 3 months, 6 months and 1 year after

reconstruction, still with a single outpatient clinic appointment after 6 weeks.

An overall death rate of 35% at median follow-up of 50 months is not unexpectedly high for this group of patients. Amputation in 26% (mostly femorodistal grafts) is disappointing, but perhaps reflects the fact that many of these patients were depending on a patent graft for viability of their limbs. It could be argued that a number of these patients might have enjoyed and benefited from clinic follow-up visits, but data to evaluate this are not available: we can only comment on those patients with salvaged limbs who were followed up. It is important to stress that these patients were operated on before we instituted our present policy of duplex scanning surveillance.

Allowing for the limitations of assessment of smoking habit by interview only, the majority of patients had persisted as non-smokers without regular reminders at the outpatient clinic. It was disappointing to find that at least 25% were smokers on follow-up, and we do not know the proportion of smokers among those who had died or required amputations, and who were therefore not seen.

Research has been cited as a reason to pursue long-term clinic follow-up. This has been a tradition in teaching hospitals with sufficient experienced junior staff to review patients, while preserving adequate space for new patients to be seen by consultants without a long delay. This distribution of labour is questionable as a training exercise. Regular review is required for construction of life tables in assessing graft patencies, but it certainly is a luxury which is difficult for surgeons to justify for all vascular reconstructions and is an imposition for patients. It is perfectly possible to perform good clinical audit and research by recalling patients for specific studies on an *ad hoc* basis. Selected patients may require long-term regular follow-up with a particular aim in mind.

Keeping follow-up to a minimum saves money and allows surgeons to devote time to new patients who need their advice and care. By the same token, patients who have had operations deserve both reassurance and adequate recourse to help if they develop problems; and surgeons must be able to audit their long-term results. This study has shown that the majority of patients find a policy of limited clinic follow-up acceptable. Patient education is effective for the management of failed grafts, while asymptomatic stenosis needs vascular laboratory surveillance, not visits to clinic. A reasonable level of audit and clinical research can be achieved without the practice of intensive long-term clinic follow-up.

References

- 1 Harris PL. Follow up after reconstructive arterial surgery. *Eur J Vasc Surg* 1991; 5: 369–73.
- 2 Harris PL. Vein graft surveillance—all part of the service. *Br J Surg* 1991; 79: 97–8.
- 3 Ovaska J, Jarvinen H, Kajuri H, Ikku P, Mecklin JP. Follow up of patients operated on for colorectal carcinoma. *Am J Surg* 1990; 159: 593–6.
- 4 Gerdes H. Surveillance after colon cancer: is it worthwhile? *Gastroenterology* 1990; 99: 1849–51.
- 5 Moody P, Gould DA, Harris PL. Vein graft surveillance improves patency in femoro-popliteal bypass. *Eur J Vasc Surg* 1990; 4: 117–21.
- 6 Taylor PR, Wolfe JH, Tyrrell MR, Mansfield AO, Nicolaidis AN, Houston RE. Graft stenosis: justification for 1 year surveillance. *Br J Surg* 1990; 77: 1125–8.
- 7 Mills JL, Harris EJ, Taylor LMJ, Beckett WC, Porter JM. The importance of routine surveillance of distal bypass grafts with duplex scanning: a study of 379 reversed vein grafts. *J Vasc Surg* 1990; 12: 379–86.

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