A Multidisciplinary Approach to the Co-morbid Vascular Patient

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The functions of multi-disciplinary clinic include sharing of information, consensus about the interventional plan, and access expertise in specific areas. There can be risks of delay, even just to discuss a patient, but usually this is due to further tests, e.g. the requirement for cardiac investigations and intervention. A balance or consensus will be required at the end of this process. The aim is to provide safe, timely and appropriate intervention.

In terms of information sharing, it is useful for the teams to know what actually is planned from the surgical perspective. Some of the procedure variables include;

- Standard stent graft
- Juxtarenal AAA
- Open thoraco-abdominal repair
- Complex stent graft with proximal (axillary) approach
- CSF with spinal catheter
- Neck de-branch
- Arm vein/contra-lateral leg vein harvest
- Naso-tracheal intubation.

There is usually a risk assessment which clearly depends on the procedure e.g.

Femoral popliteal bypass	1.8% 30d 6.5% 1yr (ACH audit)
Open AAA repair	0-10%
EVAR	0-5%

Some information is sought about the natural history of disease. In the aneurysm area this is usually the risk of rupture. Care must be undertaken to remember that most AAA (and carotid) intervention is prophylactic treatment and that there are no physical symptoms. There may be significant anxiety to contend with. With leg revascularisation there are differences in expectations between claudication and critical limb ischaemia (rest pain, tissue loss = critical limb ischaemia (CLI)).
With claudication, there is an approximately 2% risk of amputation (this is higher in diabetics).

CLI 30-80% risk of amputation

AAA <5cm = <1% risk of rupture
5-6cm = 5-10% risk or rupture
>7cm = 20-50% risk of rupture
Higher in Women (and possibly in Maori)

The natural history of medical conditions should be sought, for example; malignancy, coronary artery disease, heart failure, or valvular heart disease. Other important comorbidities include severe respiratory disease, renal dysfunction/renal failure, frailty, poor mobility or poor functional status. Cognitive impairment is also important to consider when planning major surgery.

Patient factors should be sought. The can be desperation to get rid of pain (CLI or claudication). There may be an acceptance of death often more than disability, resulting in a willingness to accept a high procedural risk. The dread of amputation can be present also. Conversely in severe cases there can be a “wish to die”. This may be more prevalent in acute and in-hospital assessments of leg disease. In aneurysmal disease anxiety or the “time bomb” phenomenon can be significant. It remains the clinician’s responsibility to manage this and certainly not to feed this.

Consensus about plan is useful at each MDM with designated tasks and documentation of decisions. There should be an agreed workup. If intervention is planned then an agreed strategy can be designated for anti-coagulation/anti-platelet management, ICU acceptance and limitations and equipment requirements.

Outcomes of MDM

Intervention as planned	– go ahead
Clarification – more investigations	– on hold for tests
Improve medical health	– on hold for medical optimisation
Surveillance or medical therapy	– masterful inactivity
No treatment	– discharge

No treatment option discussion

Usually done by Vascular Surgeon in clinic setting
Documented
Agreement about what to do in ruptured AAA setting – usually no treatment

References

Leg revascularisation

Bypass for infrainguinal occlusive disease is associated with limb salvage rates > 80%(ref 1)and mortality rates of 0.9–2.0%(ref 2-4)

The Bypass versus Angioplasty in Severe Ischemia of the Leg (BASIL) trial remains the only prospective, randomized trial to compare outcome of a surgery-first with an angioplasty-first strategy in patients with severe limb ischemia due to infra-inguinal disease. Quality of life and amputation-free survival in the 2 years following revascularization were similar between groups. Beyond 2 years, post hoc analysis showed a survival advantage for patients who underwent surgery first.(ref 5)

The unfortunate reality is that many patients with CLI will spend a significant portion of their remaining life tending to the needs of their ischemic limb.(ref 6-8). A retrospective examination of 133 patients who underwent infrainguinal bypass for limb salvage showed that only 14% of patients had an ‘ideal’ surgical result, defined as an uncomplicated operation with long-term symptom relief, maintenance of functional status, uncomplicated wound healing, and no recurrence or repeat operations regardless of postoperative survival time.(ref 9)

The Basle and Framingham studies (ref 10,11), which are the two large-scale studies that have looked at unselected claudicant patients, found that less than 2% of PAD patients required major amputation.
It is no longer possible to describe the natural history of patients with CLI because the majority of these patients now receive some form of active treatment. Treatment very much depends on the center to which the patient is referred. Large surveys suggest that approximately half the patients with CLI will undergo some type of revascularisation, although in some, particularly active, interventional centers an attempt at reconstruction is reported in as many as 90% of CLI patients. (ref 12)

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Amputation

In BASIL, 16% of patients in both the surgery-first and angioplasty-first group underwent repeated procedures only to eventually die or lose their leg (or both) within the first 12 months. (ref 5)

The 30-day mortality for BKA is 5% and AKA 16%. Long-term survival is markedly reduced with a higher amputation level (1-year survival after AKA 50.6% vs BKA 74.5%), diabetes, end-stage renal disease, decreased serum albumin, advanced age, and no prior coronary artery bypass surgery. (ref 13,14)

A non-randomised, retrospective study in patients with limb-threatening ischemia suggested that compared with primary amputation, angioplasty was associated with a mortality hazard. (ref 15)

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AAA

DREAM, “A small but significant difference in 30-day operative mortality in favor of endovascular repair had previously been reported in the DREAM trial and in two large, randomized trials.” “…among patients with large abdominal aortic aneurysms, there was no significant difference between endovascular repair and open repair in the rate of overall survival at a median of 6.4 years.” (ref 16)

In a FEVAR review Cumulative mortality following f-EVR was 1.4%, and following open repair was 3.6%. 14.9% patients developed renal impairment following f-EVR, compared to 20% following open repair.(ref 17)

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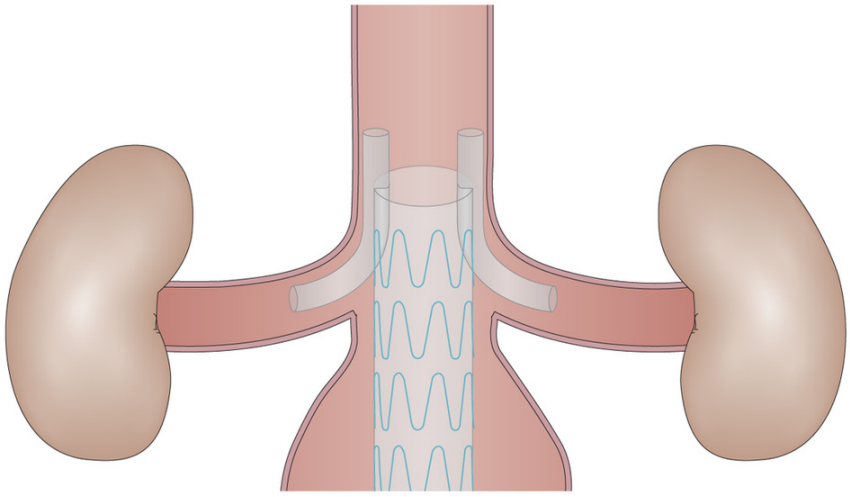
Fenestrated graft (2 renals and scallop for SMA)



Chimney Graft (2 renals)