

Vascular Surgery

Vascular Surgery is a surgical subspecialty that deals with all diseases that can affect the arteries and veins. The exceptions are the coronary arteries which the Cardiothoracic Surgeons operate on and the cerebral brain arteries which the neurosurgeons are responsible for. There are five main areas in which we work:

Carotid Surgery

The formation of plaque at the origin of internal carotid artery, which is the main blood supply to the brain, can lead to small fragments of blood and plaques (emboli) moving into the brain and causing a stroke. In the operation of Carotid Endarterectomy the plaque is removed and the artery repaired to greatly reduce the risk of a stroke occurring.

Aortic Surgery

The aorta which is the main artery of the body can change over time (aneurysm) to the point where it can rupture. This is usually a fatal event. This process often occurs to the part of the aorta inside the abdomen below where the kidney arteries have branched off and an aneurysm of this part of the aorta is called an Abdominal Aortic Aneurysm (AAA).

The risk of rupture depends on the diameter of the aorta and once the threshold is reached (about 5cm) elective repair is usually offered. There are now 2 main methods of repair of an AAA. The first is what is called open repair whereby an incision is made in the abdomen and the aneurysmal aorta is replaced by a prosthetic graft. The 2nd technique is called Endovascular Aortic Repair (EVAR). In this procedure access to the arteries is gained via the main groin artery (common femoral artery) and with the guidance of a radiology machine a specially packaged graft is passed up over a wire and deployed inside the aorta to act as a new pathway for the blood to flow the aneurysm is depressurised and won't rupture. Long term follow up with radiological imaging is required if this technique is used. At Middlemore Hospital this is a combined procedure performed with the interventional radiologists.

Peripheral Vascular Disease

When atherosclerotic plaque causes narrowing (stenosis) or blockage (occlusion) of the arteries that supply the legs this can lead to problems with walking (claudication) or the development of ulcers and gangrene.

There are various options to improve that blood supply (Revascularisation) often an artery can be opened up (angioplastied) using wires, catheters and balloons using X-Ray guidance. At Middlemore Hospital this work is undertaken by the Vascular Radiologists who have special training in these techniques. When the surgery is necessary there are a number of techniques available if a bypass graft around the blockage is required. Often a vein from your own leg is used to act as the connection (conduit) between the artery above and below the blockage.

Renal Access Surgery

Patients who have kidney failure need to dialyse to clear their blood of products that would normally be cleared by functioning kidneys. There are two main ways to do this; one is called Continuous Ambulatory Peritoneal Dialysis (CAPD) which involves exchanging fluid through a special catheter (Tenckhoff catheter) that goes into the peritoneal cavity (abdomen). This must be done everyday.

The other major form of dialysis is haemodialysis via a needle in a fistula vein. Blood is sucked out from the body and spun through a dialysis machine and then returned to the body via another needle into the fistula.

The fistula vein or graft is created by taking a vein and joining it to an artery. This means that the strong pulsatile flow of an artery is directed straight into a vein which dilates and can be easily 'needled' by the dialysis nurses. The flow in the so called fistula vein is now much greater so that the blood can be drained off to the dialysis machine and returned without clotting (thrombosing). The increased flow in the fistula vein causes vibrations to develop in the blood which can be heard by listening to the vein with a stethoscope (bruit) or palpated by gently placing fingers of the vein. This is called a 'twill'.

The increased blood supply and constant needling puts a strain on the veins and fistulas are often maintained by performing angioplasties and corrective surgery.

Venous Surgery

Varicose Veins (dilated and tortuous veins that can easily be seen in patient's legs) is a very common condition. Largely they don't cause major problems and can be managed by General Practitioners with simple measures such as wearing special stockings. However, occasionally they cause significant symptoms or disfigurement (cosmesis) which may threaten a patient's employment or cause significant loss of quality of life. Also on occasions they can lead to damage to the shin on the legs and this may predispose patients to the development of ulcers. In these situations, Vascular Surgeons are often asked to see and manage these patients. Surgery is offered to those patients who meet certain criteria and when other treatments such as compression stockings have failed. Unfortunately, because this condition is so common it is only those patients with more severe disease who can be offered surgery.

At Counties Manukau District Health Board there is:

- Four Vascular Surgeons
- Four Interventional Radiologists
- Three Vascular Sonographers

We do approximately 180 major arterial cases per year; a similar amount of endovascular interventions, 160 renal access procedures and 200 varicose vein operations.

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