SUMMARY

The arterial reconstructive surgery is classified into direct and indirect arterial surgery.The direct surgery as the arterial repair, bypass grafting,endarterectomy and arteriotomy, and embolectomy and thrombectomy. They are used either to restore the continuity of blood flow, or to provide an alternative channel (Bypass) . The indirect arterial surgery as sympathectomy which is used for the treatment of vasospastic disease as Rayanaud's disease and peripheral arteries and in atherosclerotic vessels as plantar or digital arteries where its vasodilator effect in improving skin lesions as small ischemic ulcers, is required.

In this subject we discuss the arterial grafts or substitutes which can be used in arterial reconstructive surgery (bypass grafting) and the discussion comprises the following points : Firstly the optimal arterial graft which should be durable, easily, reliable, resistant to infection and of high long term patency and others. Secondly: Types of grafts are being used currently both

clinically and experimentally , including arterial autografts, arterial allografts, arterial xenografts, venous autografts, venous allografts, synthetic grafts, composite or compound grafts and solid tube grafts. Considerable evidence at present suggests that large arteries are best replaced by textile grafts and small arteries by venous autografts of approperiate size.

Then we discuss the procedures of arterial reconstructive surgery (e.g bypass grafting and endarterectomy)in different sites of the arterial system of the body.

In aortic reconstructive surgery as in the aorto-iliac reconstruction for occlusive and stenotic diseases in the infrarenal abdominal aorta and the iliac axis,the optimal treatment is either by means of endarterectomy of the occlusive process is localised or by insertion of an aorto-femoral or aorto-iliac bypass grafts if the obliterative disease is extensive. However, there is alternative approaches to the patient with total occlusion of the infrarenal abdominal aorta, including axillary -

femoral bypass and bypass from the ascending or descending thoracic aorta to femoral arteries.
The proper choice of operation depends on the general patient, the extent of the arterio-scleortic occlusive disease and the experience of the surgeon.

The procedures are discussed in a variety of points as indications, technique, Materials used as a graft, and results.

In aorto iliac bypass surgery using Dacron grafts give better longterm results than endarterectomy in men but not in women. Women have a higher incidence of localised disease at the aortic bifuercation.
In patients who have a patient superficial femoral artery, equally good results were obtained for endarterectomy and Dacron grafts.
The extra anatomic arterial bypass grafting is used when the risk of standard operations is high because of associated disease or anticipated technical problems. The most common indication for this type of operation is

pulmonary or cardiac disease.

The extra anatomic bypass grafting includes femro-femoral, axillofemoral grafts or a combination of both.

The most pressing indication for an extranatomic bypass procedure-which is an absolute one, is infection in a previously, placed aorto-iliac graft. the treatment of choice in this instance, is total removal of the infected graft, with ligation of the infra-renal abdominal aorta and iliac arteries and bypass of the abdominal infection is performed with axillo-femoral or femorofemoral grafts or both.

The graft materials used for extra-anatomic bypass may consists of autogenous vein, woven or kinitted Dacron, or the newer polytetrafluroethylene grafts. Obturator foramen bypass grafting is used for infection in the groin of a previously placed graft from the aorta to the femoral artery and for infection in the femoral region of a femoro-popliteal bypass graft, particularly if the graft is of a plastic material and is used for other indications.

The graft materials used in obturator foramen bypass grafting are autogenous saphenous vein woven or knitted Dacron or the newer polytetrafluroethylene grafts.

The profundoplasty is required as an adjunct to an inflow, procedure such as aorto-femoral, axillofemoral, or femoro-femoral bypasses, To avoid early thrombosis of a limb of an aorto-femoral graft . and May be considered as an alternative to femoro poplitial bypass when either operation is available to the surgeon. Angiography is the most effective technique for identifying patients in need of profunoplasty.

Femoro-popliteal and Femoro-tibial reconstruction are indicated for the salvage of a limb e.g. ischemic lower extremity. Gangrene itself does nto rule out successful limbs salvage provided it involves a limited area to permit successful amputation on the foot when the gangrenous tissue is ultimately excised. They are used also in claudication. The graft materials used for both are: autogenous saphenous vein or cepholic vein, PTFE,Human

umblical vein or Knitted Dacron grafts. The autogenous vein graft prefered and has the best results . Arterial reconstruction of the aortic dissecting aneurysms included transection of the aorta oversewing of the false lumen, with or without interposition of a synthetic graft or local reentery procedures .

Wall reinforcement with highly parous Dacron Meshin aortic surgery used for prevention of suture line complication particularly in aortic aneurysms without resection and Reinforcement of adventitia or autogenous vein following thromboendarterectomy.

The experience of many authors indicates that nothing is better than the autogenous saphenous vein in Aorto-Coronary artery bypass grafting . In cases in which saphenous vein is not available, the cephalic vein along the lateral aspect of the arm has proved to be a very acceptable substitute.

For aorto-renal bypass, autogenous saphenous vein has many advantage over the synthetic either Knitted

Dacron or expanded teflon(Impra) grafts.

Endarterectomy is a method of arterial reconstruction limited to the aorta and common iliac arteries and to special areas such as the proximal perfounda femoris, renal, carotid or subclavian arteries.

The use of sympathectomy is arterial reconstruction patients increases the total limb blood flow during the early postoperative period.

Lastly we discuss the complications after arterial reconstruction procedures which are divided into early and late complications and the appropriate management of each.