

Arterial Diseases

Diagnosis of arterial diseases

History: - cardiovascular history

- Relation between peripheral vascular diseases, coronary arterial diseases and cerebrovascular diseases
- Transient ischemic attack, stroke
- Angina, previous myocardial infarction
- Also determine history of diabetes, hypertension, hyperlipidemia and tobacco use

Vascular Examination: -

- Check pulses
- Listen for bruits
- Determine ankle – brachial index (ABI)
- Evaluate color and skin nutrition
- Compare lower extremities

Vascular testing

- **Duplex scanning:** it implies ultra sound technique to determine blood flow and obtain vascular image
- **Segmental pressure measurement**
- **Angiography:** diagnostic angiography has represented the gold stander in vascular imaging prior to intervention
- **Computed tomographic angiography:** it depend on intravenous infusion of iodine based contrast
- **Magnetic resonance angiography:** the contrast used is gadolinium and it is generally not nephro toxic

Aneurismal disease: is defined as dilatation of an artery greater than 1.5 times its normal diameter

Classification

According to shape

- Fusiform or spindle shape. Artery is diffusely dilated
- Sacular aneurysm. One wall normal and other dilated

According to wall constituent

- True aneurysm. The wall of the aneurysm is entirely composed of dilated arterial wall
- Pseudo aneurysm or false aneurysm. Composed partly of arterial and partly of adjacent tissue

According to etiology

- Dissecting aneurysm. Occur when vessel wall is split and the vessel enlarged, mostly occur in thoracic aorta
- Mycotic aneurysm. The vessel wall infected as a consequence of the ongoing inflammation it undergo progressive dilation
- Traumatic aneurysm. Occur from any type of trauma.

Management of aneurysm depends on site size presence or absence of symptom and presence or absence of complication.

Acute arterial occlusion

One of the most common vascular emergencies is acute lower extremity ischemia, also some time occlusion of mesenteric, renal or upper extremity arteries presented with severe symptoms which reflect ischemia in the organ supplied by those vessels.

The heart is the most common source of distal emboli it account for 70% of distal arterial emboli especially from atrial fibrillation and diseased valve.

Lower extremity acute ischemia

-Clinical manifestation: acute lower extremity ischemia manifested with (five Ps) pain, paler, pulseless, parasthesia and paralysis.

Typically patient will complain from severe pain of foot and calf. The most common location for an embolus to lodge in the leg is at the common femoral bifurcation.

-Management: in the absence of any significant contra indication the patient should be immediately anti coagulated this will prevent propagation of the clot into unaffected vascular beds after that patient treated surgically by embolectomy.

Raynauds syndrome:

Is a condition characterized by episodic vaso spasm classically the episode consisting of intense pallor of the digits followed by cyanosis and rubor this usually occur in response to cold exposure or emotional stimuli.

Patient with Raynauds syndrome may be divided into two distinctive pathophysiology obstructive and vasospastic. Patients with obstructive Raynauds syndrome has significant obstruction of the palmar and digital arteries, usually due to chronic arteritis associated with autoimmune disease and atherosclerosis.

Treatment:

Pharmacological drugs include vasodilator including reserpine and guanethidine. Calcium channel blocker such as nifedipine and beta blocker drugs.

Surgical therapy include sympathectomy for lower extremity lumbar sympathectomy is don and for upper extremity cervical sympathectomy.

Atherosclerosis: is a disease process that involves both large and small arteries it tend to occur in certain locations such as proximal internal carotid artery, infra renal aorta and superficial femoral artery.

Risk factors: this includes cigarettes smoking, diabetes mellitus, hypertension, lipid abnormalities and strong family history.

Clinical presentation

١. Claudication: Patients complain of profound fatigue aching or crampy pain in the lower extremity usually the legs occur after walking to certain distant and relieved by rest usually within minutes.
Treatment: most of claudication can be managed with out surgery by exercise program and cessation of smoking. Pentoxifylline drug which decrease blood viscosity by decreasing plasma fibrinogen and platelet aggregation.
٢. Ischemic rest pain: result from severe compromise of arterial flow and patient describe intense pain burning usually across the distal foot exacerbated by elevating the foot and relieved by keeping the foot in dependent position.
Treatment: revascularization by end arteriectomy or by arterial jump graft.
٣. Gangrene; it's a tissue necrosis occur when blood flow is in adequate to maintain tissue viability caused by:
 - Chronic progressive arterial disease.
 - Embolization of cholesterol or an organized thrombus from proximal source.
 - Occasionally gangrene of the toes may occur with out significant proximal arterial disease and occur due to occlusion of small blood vessels owing to intrinsic obliterative disease and most commonly in patients with diabetes mellitus.Treatment: local debridement or amputation of none Viable tissue and revascularization or removal of the Of the source of emboli to protect the remaining Tissue at risk

Buergers Disease (Thromboangitis Obliterans)

Buergers Disease, also known Thromboangitis Obliterans, is a progressive nonatherosclerotic segmental inflammatory disease that most often affect small size and medium-sized arteries, veins, and nerves of the upper and lower extremities.

The cause of Buergers disease is unknown; however, use of or exposure to tobacco is essential to both the diagnoses and progression of the disease.

Buergers disease typically presents in young male smokers, with symptoms beginning prior to age 40. Patients initially present with foot, leg, arm, or hand claudication, which may be mistaken for joint or neuromuscular problems. Progression of the disease leads to calf claudication and eventually ischemic rest pain and ulcerations on the toes, feet, or fingers. A complete history should exclude diabetes, hyperlipidemia, or autoimmune disease as possible etiologies for the occlusive lesions.

The treatment of Buergers disease revolves around strict smoking cessation. In patients who are able to abstain, disease remission is impressive and amputation avoidance is increased. The role of surgical intervention is minimal in Buergers disease, as there is often no acceptable target vessel for bypass