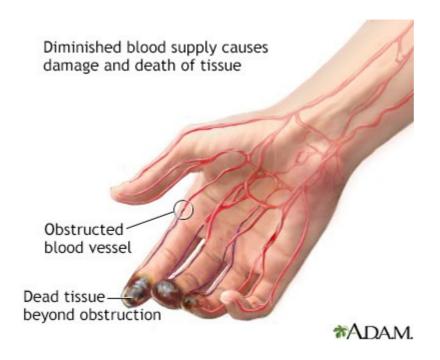
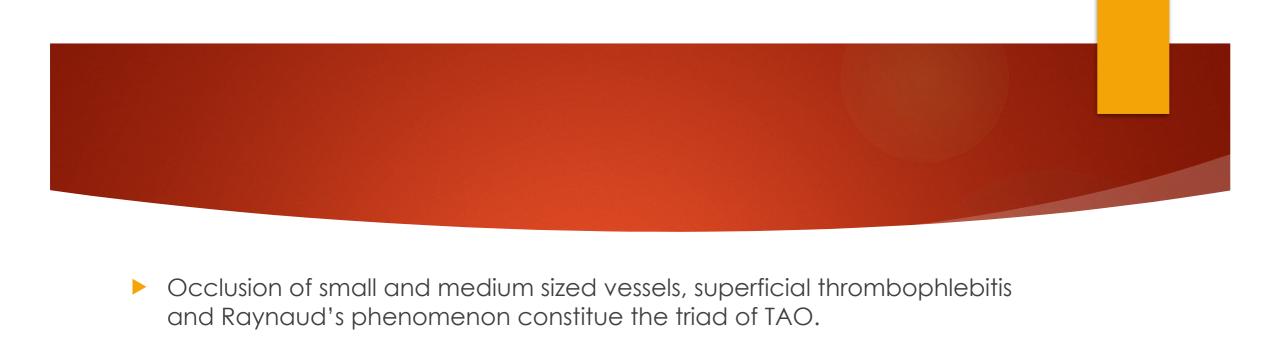
BURGERS'S DISEASE



Burgers's disease

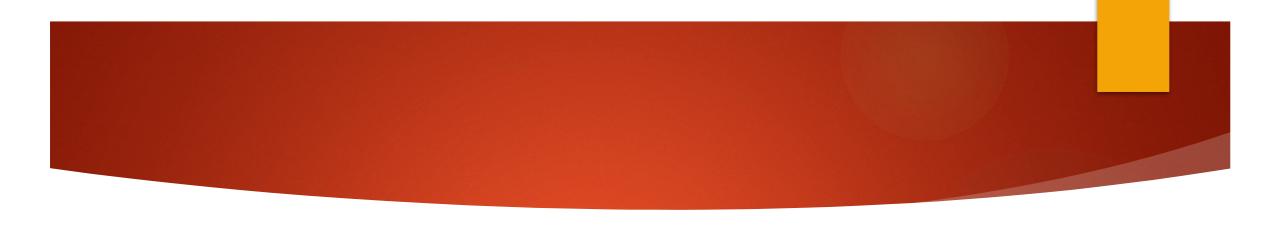
Puerger's disease (also known as **thromboangiitis obliterans**) affects blood vessels in the body, most commonly in the arms and legs. Blood vessels swell, which can prevent blood flow, causing clots to form. This can lead to pain, tissue damage, and even gangrene (the death or decay of body tissues).



ETIOLOGY:

- ▶ The usual victims of this disease are young male below 40 years of age.
- Both upper and lower extremities are affected.
- In lower extremities the disease generally occurs beyond popliteal artery, starting in tibial arteries extending to the vessels of foot. So far as etiology concerned with this disease has a striking association with cigarette smoking.

- It is a smoker's disease. Excessive tobacco produces severe vasospasm of the vessels.
- Excessive smoking produces increased level of carboxyhaemoglobin which damage these vessels.
- Low socioeconomic group, recurrent trauma to the foot, poor hygiene are additional factors.
- Hypercoagulable state.



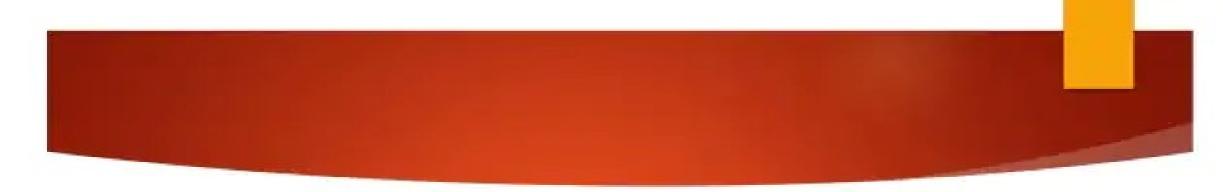
- Autonomic hyperactivity
- Autonomic factors

Pathogenesis

- Smoke carbon monoxide and nicotinic acid --- vasospasm & hyperplasia of intima ----thrombosis of vessels ---- obliteration of vessels ----panarteritis --- artery, vein, and nerve are together involved --- nerve involvement causes rest pain --- Patient present with features of ischemia in the limb.
- Note Panarteritis = inflammation of all three layers of an artery (intima, media and adventitia)



- Artery ,vein and nerve are together involved
- Nerve involvement due to blockage of vasa nervosa causes rest pain
- Artery involvement leads to features like claudication pain
- With blockage plenty of collaterals open up
- Collaterals maintain the blood supply to the ischemic area this is known as compensatory peripheral vascular disease.
- Disease progression due to smoking leads to blockage of collaterals also leading to severe ischemia known as decompensatory peripheral vascular disease or critical limb ischemia



- Arterial lumen is blocked but not thickened like in case of atherosclerosis
- 10 % disease is bilateral
- 10% is seen in females but rare
- 10% seen in upper limbs
- Large arteries are not involved as in case of atherosclerosis

TAO – Diagnostic = Shionoya Criteria

- Age at onset < 50 years</p>
- Smoking history present
- Distal extremity ischaemia, upper limb involvement, phlebitis migrans
- Typically infrapopliteal occlusions

Classification of buerger's disease

- Type 1: upper limb TAO
- Type 2: involving legs & feet crural/infrapopliteal
- Type 3 : femoropopliteal
- Type 4 : aortoiliofemoral
- Type 5 : generalised

- Common in male smokers between 20-40 years of age group smoker's disease
- Intermittent claudication pain in foot and calf
- Recurrent migratory superficial thrombophlebitis

Claudication pain --- rest pain --- ulceration and gangrene



- Rest pain also known as Critical Limb Ischemia, is the constant burning pain you may experience in the lower leg, feet or toes.
- Intermittent claudication, also known as vascular claudication, is a symptom that **describes muscle pain on mild exertion** (ache, cramp, numbness or sense of fatigue), classically in the calf muscle, which occurs during exercise, such as walking, and is relieved by a short period of rest.

SIGN AND SYMPTOMS:

- Wrist and ankle pulses are absent but brachial and popliteal pulses are present.
 - Paresthesias of the foot
 - Foot and leg cramps
 - Skin ulceration
 - gangrene
 - Pain in the affected area
 - Color changes in the extrimities (cyanotic blue to reddish blue)
 - Skin becomes thin and shiny
 - Hair growth is reduced

Investigations

- Blood sugar levels DIABETES MELLITUS
- Lipid profile- any dyslipidemia
- Decreasesd Hb levels delayed healing
- WBC count infection

Transfemoral retrograde angiogram

- It shows blockage site, extent, severity
- Corkscrew appearance of vessels dilation of vasa vasorum
- Inverted tree/spider legs pattern of collaterals
- Severe vasospas m corragated /rippled artery appearance
- Distal run off amount of dye filling in the main vessel distal to the obstruction through collaterals
- Distal run off
 - Good then ischemia is compensated
 - Poor then it is decompensated



- Ultrasound abdomen to see abdominal aorta for occlusion
- CT Angiogram and MRI angiogram
- Ankle brachial pressure index
- Normal > 1
- < 0.9 ischaemia present</p>
- < 0.3 marked ischeamia & gangrene</p>

- Omentoplasty to revascularise the affected limb.
- Profundoplasty is done for blockage in the profunda femoris artery so as to open more collaterals across the knee joint.
- Lumber sympathetectomy to increase cutaneous perfusion as to promote ulcer healing, but it may divert blood muscle towards skin causing more.
- Amputations are done at different levels depending upon the severity usually below knee or above knee amputations are done.

SPECIAL TESTS FOR ASSESSMENT OF CIRCULATORY INSUFFICIENCY

- BUERGER'S TEST (Vascular angle) In a normal person the leg can be kept at 90 degree angle without appearance of any pallor
- Appearance of pallor at 20 degree indicates severe ischaemia

HOW WILL YOU ASSESS BUERGER'S ANGLE OF CIRCULATORY INSUFFICIENCY VASCULAR ANGLE

- Keeping the patient supine in the bed, raise leg gradually and keep at 20 degree angle to the bed for 2 minutes and look for pallor or any discomfort – pain
- If no pallor raise limb to 30 degree / 45 degree / 60 degree / 90 degree and look for pallor
- Mention at what level pallor appears

CONTD

- The angle at which pallor appears is called Buerger's angle of circulatory insufficiency
- In a normal person the leg can be kept at 90 degree angle without appearance of any pallor
- Appearance of pallor at 20 degree indicates severe ischaemia

HOW WILL YOU ASSESS CAPILLARY FILLING TIME

- After estimating the vascular angle by noting the level at which pallor appears
- Patient is asked to sit up and hang his leg below the bed
- A normal leg will maintain the pink colour
- An ischaemic leg will show change of colour from pallor to pink and red purple colour

HOW WILL YOU TEST FOR CAPILLARY REFILLING

- Press the nail bed or the pulp of the tip of the finger for two seconds- and then release
- Look for the rapidity of capillary refilling
- In normal person there is quick capillary refilling
- In severe ischaemia capillary refilling may be delayed

HOW WILL YOU TEST FOR VENOUS REFILLING

- Empty a segment of vein by milking with two index fingers and the distal finger is released
- Note the time of venous refilling

TREATMENT

- 1. Absolute, permanent abstinence from tobacco in all forms is crucial.
- 2. The patient should avoid:
- Excessive use of the affected limb
- Exposure to temperature extremes
- Use of drugs that diminish the blood supply to extremities
- Trauma
- Fungus infections
- 3. Aspirin and vasodilators may be prescribed.
- 4. For arterial spasm, blocking of the sympathetic nervous system by injection of various drugs or by sympathectomy may be done.

Prevention:

All types of tobacco using must be avoided. Men have to be more careful than females because it typically occurs in male.

Care of limbs

- Buergers position and exercise
- Regular graded exercises upto the point of claudication improves collateral circulation
- In buerger's position head end of bed is raised, foot end of bed is lowered to improve circulation
- In buerger's exercise leg is elevated and lowered alternatively each for 2 mins for several times at a time to improve collateral circulation

Care of feet

- Exposure of feet cold and warm temperature should be avoided
- Trauma and pressure in the feet should be avoided
- Dryness of feet and leg should be avoided by applying oil
- Footwear should be worn with socks
- Heel raise of 2cm should be used
- reduces the calf muscle work which leads to improved claudication time

