

## SUMMARY

The aim of this essay is to study new methods in treatment of varicose veins. We started by a brief review of anatomy of veins of the lower limb including :

### **1) Superficial veins:**

**It is further divided into:**

- a) Subcuticular veins.
- b) Subcutaneous veins.
- c) The main veins lying on the deep fascia:

**These further include:**

- A) Venous drainage of the foot: It includes dorsal and plantar digital veins, dorsal metatarsal veins, dorsal venous arch, and medial and lateral marginal veins.
- B) The long saphenous vein: It is the continuation of the medial marginal vein and ends in the femoral vein and it has many anatomical variations concerning its termination and duplication. It has many tributaries in the foot, the leg, the thigh, and the groin.
- C) The short saphenous vein: It is the continuation of the lateral marginal vein and ends in the popliteal vein and it has many

anatomical variations concerning site of piercing the deep fascia and the site and type of junction to the popliteal vein.

## **2) Deep veins:**

### **It is further divided into:**

- a) Deep veins of the foot: It includes plantar digital veins, plantar metatarsal veins, deep plantar venous arch, and medial and lateral plantar veins.
- b) Deep veins of the leg: It includes intra muscular veins, posterior tibial vein, anterior tibial vein, peroneal venae comitantes, and the popliteal vein.
- c) Deep veins of the thigh: It includes the femoral vein, profunda femoris vein, and the common femoral vein.
- d) External iliac vein: It is the continuation of the common femoral vein and begins posterior to the inguinal ligament.
- e) The Common iliac vein.

## **3) Perforating veins:**

These are veins that connect veins of the superficial to the deep system of veins and pierce the deep fascia. It has valves to ensure unidirectional flow of blood from the superficial to the deep system. It may be:

- a) Direct perforators: These pass straight from superficial to main deep veins.
- b) Indirect perforators: These pass from a superficial vein to a muscular vein within one of the large muscle bellies of the calf or thigh and then a further of more vessel connects with the main deep vein.

We also discussed the aetiology of varicose veins which is more common in females than males, and more common in left side than right side.

- A) Primary varicose veins:** It is diagnosed when there is no obvious underlying etiology of valvular dysfunction can be identified. It may be due to congenital incompetence of the valves or due to congenital weak vein wall. Several factors predispose to the development of primary varicose veins including pregnancy, obesity, prolonged standing, and age.
- B) Secondary varicose veins:** These follow impaired venous flow secondary to deep venous thrombosis, deep vein compression, and arterio venous fistula.

Afterthat, we discussed clinical evaluation of varicose veins of the lower limb which is divided into those of uncomplicated varicose veins and those of complicated varicose veins.

**1) Uncomplicated varicose veins:**

**Patients of this group mostly complain of:**

- a) Disfigurement.
- b) Aching and pain.
- c) Swelling.

**2) Complicated varicose veins:**

**Complications of varicose veins are not uncommon and include:**

- a) Haemorrhage.
- b) Thrombophlebitis.
- c) Eczema.
- d) Ulceration.

Then, we discussed diagnosis and investigations of varicose veins which includes:

- (1) History:
- (2) General examination:
- (3) Local examination:

Investigations of varicose veins of the lower limb are classified into:

**(1) Non invasive investigations:**

(a) Continuous wave Doppler examination.

(b) Duplex ultrasound:

It provides an image of tissue anatomy with that of blood flow and it is now accepted as the best method of investigating doubtful cases of saphenous reflux and perforating vein incompetence.

(c) plethysmography:

It is the determination of variations in the volume of an organ, part, or limb.

(d) Magnetic resonance venography:

Spin-echo imaging has been shown to detect central venous thrombosis and in addition it can reveal soft tissue masses, adenopathy, and malignancies.

**(2) Invasive investigations:**

(a) Venography:

It is the most accurate method for evaluation of anatomical variations, congenital abnormalities, and pathological changes in veins of the leg.

(b) Vein pressure measurement:

These techniques can assess calf pump function, reflux, and obstruction, but give no anatomical information.

Lastly, we discussed the lines of treatment of varicose veins which are divided into:

**(1) Conservative measurements:**

It is known to be the basic treatment of varicose vein and is indicated in cases of early primary varicose veins, pregnancy, patients who are unfit or refusing surgery, and secondary varicose veins if deep system is occluded. It includes:

- (a) Leg elevation.
- (b) Regular exercise.
- (c) Medical treatment.
- (d) Elasto-compressive therapy.

**(2) Invasive treatment of varicose veins:**

The best surgical candidates are active, healthy patients who are not over weight. Severe aching varicosities, varicose vein haemorrhage, or superficial thrombophlebitis are indications for surgery.

**(A) Operations for long saphenous vein incompetence:**

- (a) Saphenofemoral ligation (Trendelenburg's operation).
- (b) Stripping of the long saphenous vein.
- (c) Stripping or stab avulsion of secondary branches (tributaries).

**(B) Operations for perforator vein incompetence:**

- (a) Triple ligation.
- (b) Extrafascial operation.
- (c) Subfascial operation.
- (d) Subfascial endoscopic perforator vein surgery (SEPS).

Many complications of surgical treatment of varicose veins have been recognized. It includes:

**1- Intra-operative complications:**

- (a) Injury of common femoral vein.
- (b) Injury of the femoral artery.
- (c) Stripping complications.

**2- Post-operative complications:**

- (a) Haemorrhage and bruising.
- (b) Lymphocele.
- (c) Wound sepsis.
- (d) Post-operative saphenous neuritis.
- (e) Deep venous thrombosis and pulmonary embolism.

**(3) Minimally invasive procedures in treatment of varicose veins:**

**(A) Sclerotherapy:**

It is the injection of a sclerosing agent into the varicose veins. Its objective is to produce endothelial damage and subsequent fibrosis of the entire vein wall and thus cause an aseptic thrombus which organizes and close the lumen of the vein wall.

Many sclerosing agents are used in treatment in varicose veins and it includes:

- 1) Sodium tetradecyl sulphate 1% and 3%.
- 2) Hypertonic saline 20%.
- 3) Hydroxypolyethoxidodecaine.
- 4) Dextrose 65%.
- 5) Ethanolamine oleate 5% solutions.
- 6) Sodium morrhuate 5% solution.

Complications of sclerotherapy include:

- 1) Allergic reactions.
- 2) Toxic reactions.
- 3) Pain.
- 4) Intravenous haematoma.
- 5) Persistent brown staining.
- 6) Incorrect placement of the sclerosant.
- 7) Deep venous thrombosis.
- 8) Post injection gangrene.
- 9) Recurrent varicose veins.