**INTRODUCTION**

India has made great strides in many aspects along with industrialization. We are witnessing the emergence of many new diseases. One of the underestimated causes of morbidity, workplace absenteeism, increasing economic burden for the patient has been the growing threat of chronic venous disease.

We do not have exact statistics for the Indian population figures from the west make grim reading. India is likely to be only worse with regards to venous disease.

Consider the following:

- Chronic venous disease affects 40% of the US population
- Chronic venous insufficiency (CVI) with ulceration affects up to 2% of the population; an incidence comparable with the incidence of diabetes
- In UK almost 1 billion dollars equivalent is spent on managing leg ulcers
- Disease becomes more common with advancing age when other issues in the family takes priority and these elderly patients may not find support from the family members
- Many employers do not wish to employ these patients with active ulcers
- Author has personally seen a patient whose wife divorced him due to his chronic ulcers. Also many young male patients have their marriage delayed due to ulcers.

Unfortunately, despite all of the above, physicians and the patients do not consider CVI seriously as it is neither life nor limb threatening.

**PRESENTATIONS OF VENOUS DISEASE**

(FIGURES 1A AND B)

The presentation may be one of the following:

1. **Varicose veins (dilated tortuous veins):** Classification includes trunk veins (varicosities of greater and lesser saphenous veins), reticular veins (subcutaneous veins that begin at the tributary of trunk veins) and telangiectasias (intradermal small varicose veins which are asymptomatic)
2. **Deep vein thrombosis (DVT):** This may involve any deep vein from tibial veins up to a totally occluded inferior vena cava (IVC) symptoms, in an appropriate settings, includes unilateral leg edema, pain, warmth, dilated veins
3. Superficial vein thrombosis or superficial thrombophlebitis
4. **Sequelae of old chronic venous insufficiency:** Heaviness, pigmentation, discoloration venous eczema, ulcerations. These
groups of symptoms form what is called the post-thrombotic syndrome.

**RISK FACTORS FOR VARICOSE VEINS**

- **Age:** Incidence increases with age
- **Sex:** More common in females. Pregnancy may be the most important stress leading to varicose veins
- **Genetics:** Individual with a genetic predisposition may develop varicose veins when exposed to stress like obesity and pregnancy
- **Occupation:** It conflicts reports. But incidence is definitely higher in standing occupations like barbers
- **Parity:** Women with multiple pregnancies may be at risk
- **Diet:** Constipating diet may lead to straining, raised intra-abdominal pressure and this leads to varicose veins
- **Other factors** include obesity and heavy weight lifting.

**RISK FACTOR FOR DEVELOPING DEEP VEIN THROMBOSIS**

These are summarized by what is called *Virchow's Triad*. The origin of the term “Virchow’s Triad” is of historical interest, and has been subject to reinterpretation in recent years. While both Virchow’s and the modern triads describe thrombosis, the previous triad has been characterized as “the consequences of thrombosis” and the modern triad as “the causes of thrombosis”.

Rudolf Virchow elucidated the etiology of pulmonary embolism, whereby thrombi occurring within the veins, particularly those of the extremities, become dislodged and migrate to the pulmonary vasculature (Figure 2). He published his description in 1856 in detailing the pathophysiology surrounding pulmonary embolism; he alluded too many of the factors known to contribute to venous thrombosis. While these factors had already been previously established in the medical literature by others, for unclear reasons they ultimately became known as Virchow’s triad. This eponym did not emerge in the literature until long after Virchow’s death. One estimate of the first use of the phrase dates it to the early 1950s.

Although the concept of the triad is usually attributed to Virchow, he did not include endothelial injury in his description (Figure 3). This has been attributed to a dispute Virchow had with Jean Cruveilhier, who considered local trauma of primary importance in the development of pulmonary artery thrombosis.

1. **Stasis of blood flow:** The first category, alterations in normal blood flow, refers to several situations. These include venous stasis, turbulence, mitral stenosis and varicose veins
2. **Endothelial injury:** The second category, injuries and/or trauma to endothelium includes vessel piercings and damages arising from shear stress or hypertension. This category is ruled by surface phenomena and contact with procoagulant surfaces, such as bacteria, shards of foreign materials, biomaterials of implants or medical devices, membranes of activated platelets and membranes of monocytes in chronic inflammation
3. **Hypercoagulability:** The last category, alterations in the constitution of blood, has numerous possible risk factors such as hyperviscosity, deficiency of antithrombin III, nephrotic syndrome, changes after severe trauma or burn, disseminated cancer, late pregnancy and delivery, race, age, whether the patient is a smoker, and obesity. All of these risk factors cause the situation called hypercoagulability.

**INVESTIGATIONS**

- Routine investigations include preoperative work up for varicose vein patients
- Color Doppler has become the gold standard in the evaluation of the venous patient. A thorough evaluation of all the components of the venous system from IVC to ankle will take almost 45 minutes and may not be possible in a busy set up. This must be done with patient in the lying down and erect position. All perforators must be marked on the skin with indelible ink, as must be the saphenopopliteal junction if incompetent. More challenging is the evaluation of the patient with recurrent varicose veins (Table 1)
- Other investigations include plethysmography, isotope studies, venography and intravascular ultrasound which are not available widely and also may not be much relevant from a practical point of view
- For the patient with DVT, apart from venous Doppler, other investigations will include CBC (to evaluate Hb possible leukemias), urea, creatinine, complete urinalysis to evaluate proteinurias and liver function tests. Malignancy is an important etiological factor—idiopathic spontaneous thrombosis either arterial or venous is never a diagnosis—it is a symptom of some underlying pathology. This may be malignancy. All possible investigations must be considered as 10% of patients with idiopathic DVT go on to manifest the underlying malignancy over due course. This includes prostate, lymphomas, bronchogenic ca, ovarian ca and so on
- The role of evaluating the patient for hypercoagulopathies after first thrombotic episode is not very rewarding; it is very expensive, up
There is a misconception that even after surgery, varicose veins are not a concern. Even specialist doctors like dermatologists do not refer the patient.

Some of the worst sufferers come from the group involved in long standing occupations like grocery shop, bakery, hotel, police who do not have the awareness nor the means to change occupation.

TREATMENT OF DEEP VEIN THROMBOSIS

This involves initial treatment with heparin, either unfractionated or low molecular weight, and then converting to oral anticoagulation. Proper advice must be given regarding duration, wearing proper graduated compression stockings, dos and don’ts with regards to diet, intramuscular injections, other drug interaction, etc.

PROBLEMS PECULIAR TO INDIAN SCENARIO

- Many patients regard varicose veins as “nerves” and are scared of treatment—they fear that they may not be able to walk again. In fact, many patients go to a neurologist for treatment.
- There is a misconception that even after surgery, varicose veins will recur—surgeons have to mention a recurrence rate of 5% when getting consent.
- Patients present only advanced state in fact, it is one of the complications of varicose veins which brings the patient to the surgeon—ulcer, bleeding from varicose, superficial vein thrombosis which can lead to DVT in about 10−15%.
- Unlike west, request for surgery from a cosmetic point of view does not happen in India due to full length dresses worn by patients with even advanced cases.
- Even specialist doctors like dermatologist do not refer the patient at the appropriate time for some reason best known to them.
- Some of the worst sufferers come from the group involved in long standing occupations like grocery shop, bakery, hotel, police who do not have the awareness nor the means to change occupation.
- Deep vein thrombosis has always been under recognized, under diagnosed and under treated in India. These patients present very late due to severe stasis changes. Physicians should remember that the post-thrombotic syndrome of today is the neglected DVT of yesterday.
- There is a very high incidence of pro-thrombotic state in the Indian population; one condition which is easy to diagnose and treat is secondary polycythemia due to smoking.
- Fear of surgery, fear of recurrence, neighbors and relatives are the main reasons why the Indian patient typically comes very late.
- Employers attitude: A famous textile chain in south forbids its employees from sitting throughout the day—no chairs are available and they are forced to stand throughout their duty which may be between 8 and 10 hours. This is unheard of and unacceptable in a western society.
CONCLUSION

- Patient and doctors are to be educated regarding morbidity caused by chronic venous problems and persuaded to seek surgical treatment at the earliest. Skin changes, once they set in, almost become permanent.
- Have a low threshold for getting a venous Doppler for any patient with a unilateral swelling in an appropriate clinical setting to rule out DVT-post-thrombotic syndrome of today is neglected DVT of yesterday.
- In all patients with idiopathic DVT suspect and rule out underlying malignancy and thrombophilias by ordering appropriate tests.
- Proper compression stockings are essential to prevent post-thrombotic syndrome.
- Varicose veins and venous eczema must be aggressively treated, especially in the diabetics as they run a high risk of developing limb threatening cellulitis.

BIBLIOGRAPHY