

Original Research Article

A study of chronic superficial venous insufficiency in patients with competent saphenofemoral junction

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ABSTRACT

Background: Chronic venous insufficiency (CVI) is a condition that affects the venous system of the lower extremities rendering the superficial, perforating, and deep veins incompetent. This results in venous hypertension causing various pathologies including pain, swelling, edema, skin changes and ulcerations. Traditionally SFJ incompetence was viewed as the primary pathology for varicose veins and Trendelenburg's surgery is considered as a standard surgical procedure for the treatment of varicose veins. Later studies have shown incidence of chronic superficial venous insufficiency (CSVI) with competent SFJ was seen in as many as about 40% cases. Therefore, present study aims to identify the incidence of CSVI with competent SFJ, severity of disease in these individuals and patient outcome and response to Trendelenburg's surgery.

Methods: Prospective observational study with non-randomised purposive sampling.

Results: Prevalence of competent SFJ was about 40.54% in patient with CSVI. 56.7% patients had C4 disease, 26.7% had C6 disease, 13.3% had C5 disease and 3.3% had C2 disease. In all the patients, progression of the disease was arrested after surgical intervention and no recurrence or ulceration was seen by the end of the 3 months.

Conclusions: In comparison to patients with CVI with incompetent SFJ, patient with CSVI. Competent SFJ vary in that there is high male preponderance compared to females, disease progression and severity is independent of age and gender. Surgical outcomes were comparable to the patients with CSVI and incompetent SFJ Trendelenburg surgery can be used as the choice of surgical treatment in patients with competent SFJ and CSVI.

Keywords: Chronic venous insufficiency, Saphenofemoral junction, Trendelenburg surgery

INTRODUCTION

A disorder known as chronic venous insufficiency (CVI) affects the lower extremities venous system, rendering the superficial, perforating, and deep veins ineffective. As a result, venous hypertension develops, leading to a variety of diseases such as discomfort, oedema, swelling, skin abnormalities, and ulcerations. The underlying pathology that causes varicose veins is caused by venous hypertension from valve incompetence that results in venous reflux and/or obstructive illness.¹ In the adult population, varicose veins are thought to affect between 5% to 30% of people, with a 3:1 male to female

predominance, while a more recent study suggests a higher male prevalence.² The Edinburgh vein research tested 1566 participants for reflux using duplex ultrasound; after age adjustment, 9.4% of men and 6.6% of women had CVI, which increased dramatically with ageing (21% in men over 50 and 12% in women over 50).³ Environmental or behavioural factors, such as prolonged standing and maybe slouching postures at work, that are linked to CVI.⁴ Although active or healed ulcers are seen in roughly 1.0% of the adult population, the prevalence of the more severe effects of CVI, such as venous ulcers, is believed to be around 0.3%.⁵

Trendelenburg's surgery is regarded as a routine surgical approach for the treatment of varicose veins. Traditionally, SFJ incompetence was thought to be the major pathophysiology causing varicose veins. According to further investigations, up to 40% of cases of CSVI with competent SFJ were seen.

The purpose of the current study is to determine the prevalence of CSVI in people with competent SFJ, the severity of the disease in these people, and the course of the patient's condition after Trendelenburg surgery.

METHODS

Study design

A prospective, observational study to study the prevalence of competent Sapheno-femoral junction in patients with chronic superficial venous insufficiency and their response to the treatment in the form of Trendelenburg surgery.

Study place

The study was conducted at the department of general surgery, Malla Reddy Institute of Medical Sciences, Suraram, Medchal.

Source population

All the patients presenting to the department of general surgery in Malla Reddy Hospital with symptoms suggestive of chronic superficial venous insufficiency with or without complications were used as the source population.

Study population

All the patients presenting to the department of general surgery in Malla Reddy Hospital with symptoms suggestive of chronic superficial venous insufficiency with competent SFJ and with or without complications form the subject of the study.

Study period

The study was conducted for a duration of 6 months study from June 2021 to December 2021.

Sample size

30 subjects with chronic superficial venous insufficiency with competent SFJ were a part of the study.

Type of sampling

The study was a non-randomized purposive sampling, where consecutive cases who have given consent were enrolled till a sample size of 30 was reached.

Ethical approval

The study was approved by the institutional ethics committee.

Inclusion criteria

Patients with chronic superficial venous insufficiency with competent SFJ; age group between 18–60 years; both males and females; and patients who have given written consent on informed consent form were included in the study.

Exclusion criteria

Patients age below 18 years and above 60 years; having DVT or with secondary CSVI; not willing for Doppler ultrasonography; not willing to undergo surgery; with mental retardation and unable to understand the nature of study; and patients who have not given consent for study were excluded.

Statistical analysis

All the data is collected in approved proforma, and the data is entered in Microsoft excel 2019 and subjected to statistical analysis. Descriptive data was analyzed using proportions.

Procedure

Patients after getting admitted from outpatient department (OPD), chronic venous insufficiency was confirmed by clinical examination as well as Doppler ultrasonography with special reference to competence of Sapheno-femoral junction and perforator incompetence.

All patients fit for surgery, were subjected to saphenofemoral flush ligation and stripping of great saphenous vein from thigh to ankle, and ligation of the incompetent perforators.

All the treated patients were followed up and the resolution or otherwise of symptoms and complications including recurrence were noted. The outcomes were evaluated and statistically analyzed.

RESULTS

Prevalence of competent SFJ was about 40.54% in patient with CSVI.

The percentage of male affected are 73.4% and the percentage of female affected are 26.6% (Table 1). Male to female ratio was about 2.75.

Patients in the Age group of 45-54 are most commonly affected overall (Table 2). Ulcerative complications were also seen most commonly in this age group (Table 4).

Table 1: Gender distribution.

Gender	Count of patient
Female	8 (26.6%)
Male	22 (73.4%)
Grand total	30

Table 2: Age group (years) and gender distribution.

Gender	25-34	35-44	45-54	55-64	65-74	Grand total
Female	4	1	2	0	1	8
Male	3	6	11	1	1	22
Grand total	7	7	13	1	2	30

Pain with skin changes is the most common presenting symptom (Table 3).

Table 3: Clinical presentation (symptoms).

Clinical presentation	Female	Male	Grand total
Heaviness	1	6	7
Pain	0	4	4
Pain with skin changes	5	8	13
Ulceration	2	4	6
Grand total	8	22	30

Table 4: Age group and clinical presentation.

Clinical presentation	25-34	35-44	45-54	55-64	65-74	Total
Heaviness	1	4	2	0	0	7
Pain	0	1	3	0	0	4
Pain with skin changes	6	2	5	0	0	13
Ulceration	0	0	3	1	2	6
Grand total	7	7	13	1	2	30

Table 5: Gender wise clinical staging.

Clinical staging	Female	Male	Grand total
C3	1	6	7
C4	5	8	13
C5	0	4	4
C6	2	4	6
Total	8	22	30

56.7% patients had C4 disease, 26.7% had C6 disease, 13.3% had C5 disease and 3.3% had C2 disease.

Most male patients presented with C4 stage of disease (Table 5) and most patients in the age group of 35-44 presented with C3 stage (Table 6).

Table 6: Age wise clinical staging.

Clinical staging	25-34	35-44	45-54	55-64	65-74	Grand total
C3	1	4	2	0	0	7
C4	6	2	5	0	0	13
C5	0	1	3	0	0	4
C6	0	0	3	1	2	6
Grand total	7	7	13	1	2	30

Widespread disease or C6 and C5 disease was associated with increased age.

30 patients were subjected to Trendelenburg surgery with due consent, among those 93.3% patient had no complications and only about 6.7% patients had complications at the end of 3 months (Table 7).

Table 7: Postoperative review after 3 months.

Complications	C3	C4	C5	C6	Total
Oedema	0	0	0	2	2
Relieved	7	13	4	4	28
Grand total	7	13	4	6	30

All the complications i.e., edema and pain were amenable to treatment in terms of compression bandage.

In all the patients, progression of the disease was arrested and no recurrence or ulceration was seen by the end of the 3 months.

DISCUSSION

An obstruction of the limbs fixed venous outflow is referred to as venous insufficiency. It is brought on by the lower limbs' superficial or deep venous systems, or both, malfunctioning in the venous system, which may or may not be linked to venous valvular insufficiency. The term "chronic venous insufficiency," or "CVI," denotes a functional anomaly of the venous system and is typically used to describe people with more severe disease, such as those who have oedema, skin abnormalities, or venous ulcers.

The most significant non-invasive diagnostic technique used to assess the venous system nowadays is Doppler Ultrasonography enhanced by colour flow imaging. Individual vein reflux can be identified and measured using duplex scanning. It assists in identifying whether the SFJ is competent or incompetent and establishes whether the deep, superficial, or perforator veins were involved in the development of the CVI. Historically, surgical decisions were dependent on the SFJ's competence and the severity of the illness. Conservative management of patients with competent SFJ was linked to recurrences and prolonged morbidity.

In our study, there was a 40.54% prevalence of CSVI with competent SFJ. A prevalence of 30% was revealed by the Jutley et al study.⁶ According to studies by Engelhorn et al and Chastanet and Pittaluga, the prevalence was 20% and 51.4%, respectively.^{7,8} 53.8% of the patients in the current study were between the ages of 40 and 59. The study's participants have an average age of 42.9±10.4 years. Rehman, 2021 study indicated a mean age of 47.83±12.02 years, while Radhakrishnan et al study showed a mean age of 49.4±13 years.^{9,10} In 2013 study by Khan et al revealed a mean age of 39±13.2 years.¹¹

Males in the age range of 45 to 54 years are most affected. Our study's male to female ratio, which was determined to be 2.75:1. Irodi et al study indicated a 2.5:1 male to female ratio (Table 8).¹² When compared to patients who had CSVI and an incompetent SFJ, the majority of the patients had C4 disease. Patients with CSVI and competent SFJ differ from those with CSVI and incompetent SFJ in that there is a higher male preponderance than females. Age and gender have no bearing on the severity or course of a disease.

Table 8: Clinical classification of disease (present study versus other studies).

Clinical classification	Current study	Radhakrishnan et al, 2018	Khan et al, 2013	Irodi et al, 2011
C3- Varicose veins (%)	3.3	47.67	36.7	12
C4-Pigmentation, eczema, lipodermatosclerosis or atrophic blanche (%)	56.6	25.24	13.2	43
C5- Healed venous ulcer (%)	13.3	15.19	3.2	11
C6- Active venous ulcer (%)	26.6	0.1	1.7	34

CONCLUSION

Trendelenburg surgery can be employed as the surgical treatment of choice in patients with competent SFJ and CSVI since surgical outcomes were equivalent to those of patients with CSVI and incompetent SFJ even though the outcomes were favourable after three months. A long-term study is required to examine recurrence rates in terms of ulceration and disease progression. Trendelenburg surgery can be utilised to prevent potential progression and reduce morbidity and recurrence because the majority of patients are in the early stages.

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