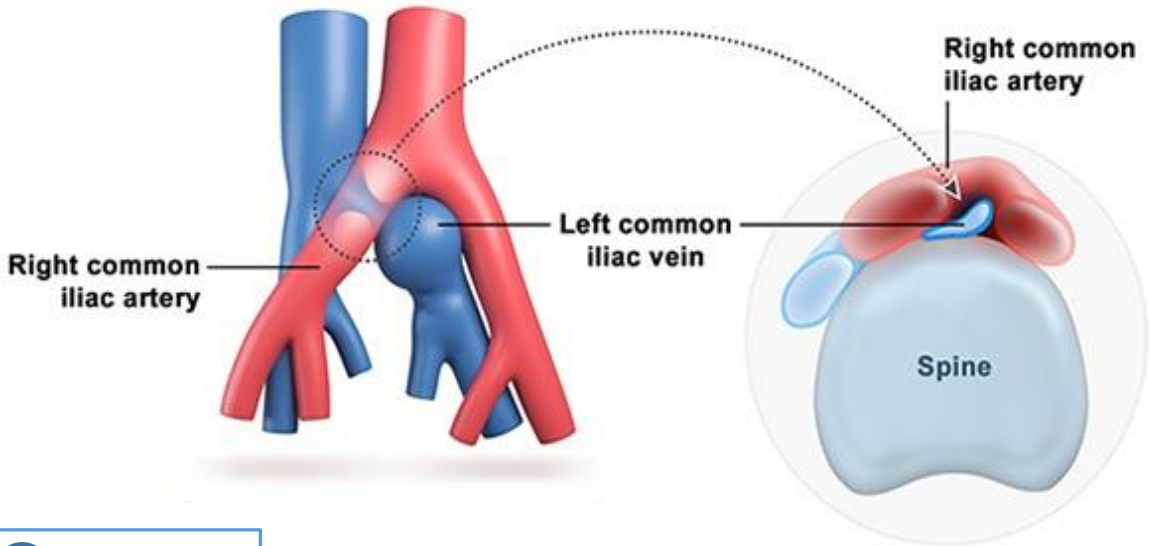




Iliac Vein Compression (May Thurner Syndrome, MTS)

Shared Decision Making on IVUS guided Stenting



Overview

Iliac vein compression, defined as compression of iliac veins by iliac artery and spine with less than 50% of normal intra-luminal cross-section area or 60% of normal maximal diameter, may contribute to subsequent symptoms such as recurrent lower legs varicosis, swelling, soreness, pain, redness, frequent cramping and even chronic ulcers were quite troublesome to daily living activities. Treatment strategies such as **lifestyle modification**, **oral medication**, and **intravenous ultrasound (IVUS) guided iliac vein stenting** had been clinically proved as it leads to better circulation and thus symptom relief. Endovascular technique such as IVUS guided stenting had shown benefits of minimal invasion and quick recovery, but it also came with risks and complication. We suggest a shared decision making between you and our medical staff for better mutual understanding, trust and medical results.

Risk factors for MTS

Prolonged standing/sitting, Spinal compression, Bladder extension, tumor, pregnancy, trauma, previous surgery...

Symptoms/Signs of MTS

Leg heaviness, swelling pain, soreness, edema, varicosis, venous ulcer, dermatitis...



Acute vs Chronic stages



Acute stage (days to weeks)

Swelling, pain, local heat.

Chronic stage (months to years)

Edema, claudication, pigmentation, eczema, varicosis with leg ulcers...

Dx

3 examinations & 2 evaluations

Exams	To check...
Vascular echography	Thrombus, GSV-F regurgitation.
Phleborheography	If Maximal Venous Capacity < 70%
Computed Tomography	If iliac vein > 50% stenosis

Evaluations	Criteria for Dx
VCSS score	More than 8
CEAP classification	More than 3



Dx : Diagnosis. GSV-F : Great Saphenous Vein – Femoral junction
 VCSS: Venous Clinical Severity Score
 CEAP: Clinical signs-Etiology-Anatomy-Pathophysiology



CEAP Classification

Grading the severity of chronic venous insufficiency

Grade	說明
C1	Telangiectasia , reticular or spider veins.
C2	Varicosis , echo-measured superficial venous maximal diameter >3mm. Progressive leg heaviness, soreness, swelling and pain.
C3	Worsening venous edema after prolonged standing and usually resolved when wake up in the morning. Bilateral thigh/leg differences in circumference .
C4	4a - Hyperpigmentation , eczema. 4b - Lipodermatosclerosis , Atrophie blanche. 4c - Corona phlebectatica .
C5	Healed venous ulcer.
C6	Active venous ulcer.



C1

C2

C3

C4

C5/C6

Treatment for MTS

1. Maintain healthy lifestyle.
2. Oral medication.
3. IVUS guided iliac vein stenting.

Maintain healthy lifestyle



Varicosis during Pregnancy

Wear medical designed elastic stocking.



Avoid hanging lower legs

It may affect venous return and aggravate varicosis.



Sitting exercise for lower limbs

Sit and straighten your legs while performing dorsiflexion and plantar flexion exercise.



Straight leg raise exercise

Elevation of your legs for 15 mins before sleep, and put a pillow to elevate the legs.



Body weight control

Reduce legs weight bearing by diet control.



Regular scheduled exercise and rest

Maintain habits of regular exercise, quit smoking and alcohol, and healthy diet.

Oral Medication

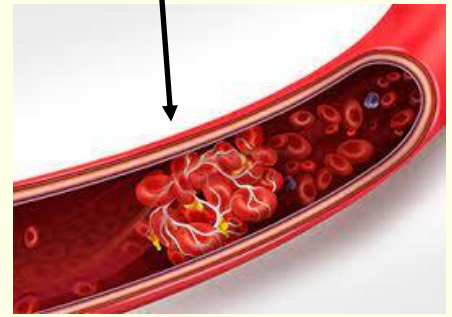


Oral antiplatelets or anticoagulants, to prevent platelet aggravation and thrombus formation while encourage thrombolysis, thus resolve MTS related symptoms.

Antiplatelets (Generic/Blend):

- Aspirin/Bokey 伯基
- Ticlopidine/Licodin 利血達
- Clopidogrel/Plavix 保栓通

Thrombosis with total occlusion!!



Anticoagulants (Generic/Blend):

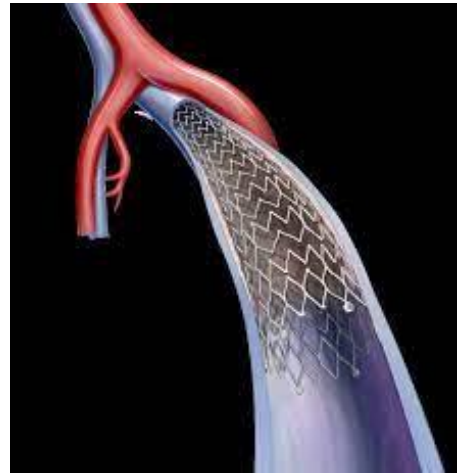
- Rivaroxaban/Xarelto 拜瑞妥
- Warfarin/Cofarin 可化凝
- Apixaban/Eliquis 艾必克凝
- Dabigatran/Pradaxa 普栓達
- Edoxaban/Lixiana 里先安

Allergic reactions associated with these drugs could be alleviated by prescription of oral anti-histamines or corticosteroids.

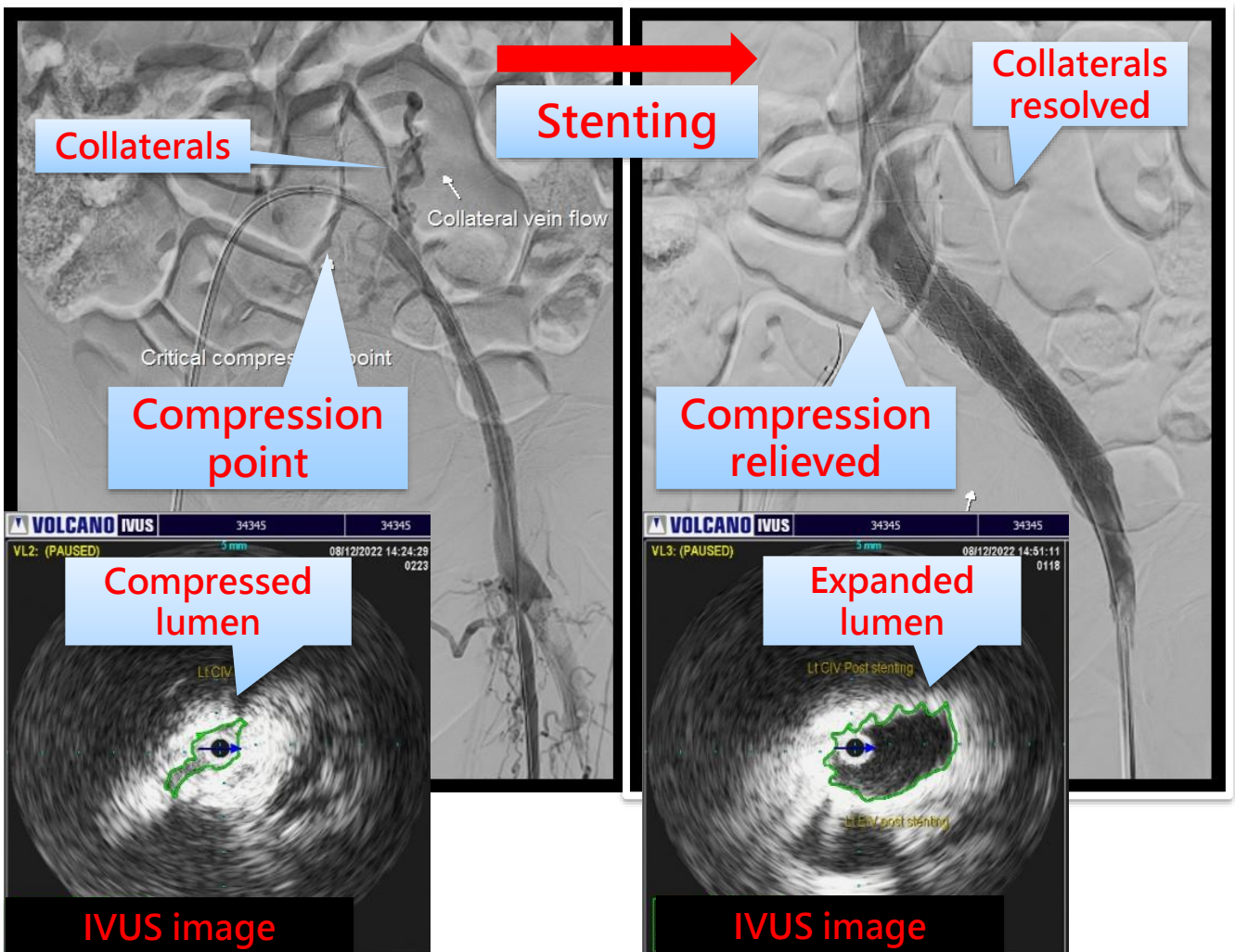


保栓通 膜衣錠 75毫克
Plavix F.C. Tablets 75mg
Clopidogrel

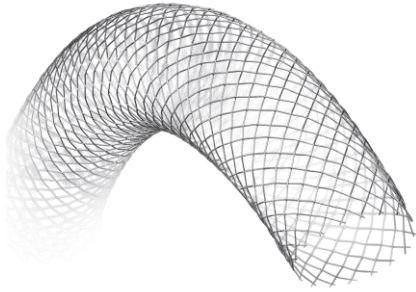




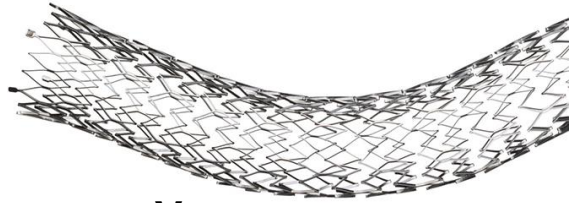
Advanced minimally invasive endovascular surgery; by applying **IVUS** to explore, measure, guide and re-evaluate the iliac vein stenting process with precision and safety, effectively **relieve vein compression** and **improve venous return**.



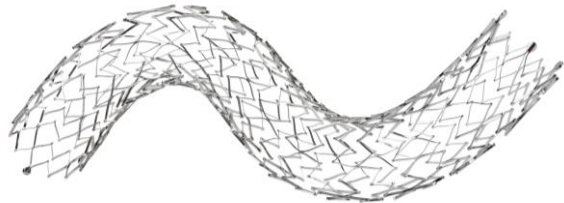
IVUS guided iliac vein stenting



Wall stent



Venovo stent



Abre stent

These **self-expanding, Nitinol-made stents** were specifically designed for highly pressurized and tortuous environments such as deep veins. Its strong radial force with better conformity could effectively expand **intra-luminal space** of iliac veins, improve venous flow and thus restore venous return.

Contemporary literature had confirmed its ability in **alleviating symptoms** such as venous edema, venous tensional pain and skin pigmentation, and further **improve quality of life**.

Brand	A (TWD)	B (TWD)	Pros	Cons
Boston Scientific Wall stent (1 st generation)	5,320	58,000	Price lower	<u>Moderate radial force and conformity</u>
BD Venovo stent (2 nd generation)	5,320	64,000	Good radial force and conformity	Price higher
Medtronic Abre stent (2 nd generation)	5,320	64,000		
Note	A: Self-pay price (10%) after NHI reimbursement B: Self-pay price (TWD, New Taiwan Dollar)			

IVUS guided iliac vein stenting

Comparison between NHI and Self-pay plans



	NHI reimbursement	Self-pay
Price	Preoperative application Self-pay 10% of NHI price $53,200 \times 10\% = 5,320$ TWD	Self-pay 58,000-64,000 TWD
No.	Unilateral (Left or Right) : 2 stents. Bilateral (Left and Right) : 4 stents.	
IVUS	Self-pay 45,360 TWD	
Pros	Lower cost IVUS + 2 stents: 56,000 TWD IVUS + 4 stents: 66,640 TWD (Hospitalization expenses not included.)	Short waiting time
Cons	<ul style="list-style-type: none"> Preoperative application time (At least 14 days). Long waiting time, uncertainty of NHI verification. May prolong time to treatment. 	Higher cost IVUS + 2 stents : 173,360 TWD IVUS + 4 stents : 301,360 TWD (Hospitalization expenses not included.)
Note	No.: Number of stents allowed for implantation.	

Name :

Sex : Male Female

Age :

Me Representative

Chart No.:

What is your favorite plan?

Plan A: Maintain healthy lifestyle + Oral medication.

Plan B: IVUS guided iliac vein stenting.

Step 1
A or B?

Decision making in following 4 steps



	Plan A	Plan B
Tx	1. Daily oral medication: a. Antiplatelets b. Anticoagulants c. Sucralfate, protects gastric mucosa 2. Maintain healthy lifestyles	1. Hospital stay 1-3 days. 2. Out-patient clinic followup. 3. Post stent anticoagulants for 3~6 months. 4. Maintain healthy lifestyle.
S/S	CEAP C1-C3, VCSS < 8 : S/S and QoL might improve. CEAP C4-C6, VCSS > 8 : S/S and QoL might not improve.	CEAP C4-C6, VCSS > 8 : 81-92% S/S resolve. From our experience : (521 stents in 266 patients.) CEAP : 3.86→2.56 VCSS : 9.63→3.71 Healing of ulcers : 96.49%, in 162.25 days. S/S resolve 92.15% .
Note	S/S: Symptoms and Signs, QoL: Quality of Life.	

Cont.	Plan A	Plan B
F/u	Out patient clinic (OPD) followup.	<ol style="list-style-type: none"> Vascular echography : Every 3 months to rule out stent migration or thrombosis. CT Venography : It would be arranged to clarify abnormal findings of vascular echography if necessary. VCSS and CEAP : Every 3 months via phone interview by our case managers.
Cx	<p>Cx related to oral anticoagulants : Hematuria, bloody stool, prolonged hemostasis, ecchymosis...</p> <p>Novel Oral AntiCoagulant (NOAC) had reduced the incidence to 1~6%.</p>	<ol style="list-style-type: none"> Restenosis or thrombosis : Due to intimal hyperplasia or other risk factors, ~1% incidence. Stent migration : Incidence: 1~2/100,000 patients. Stent not fully expanded : Incidence: 2/100,000.
PTS	Incidence: 80-90%	<p>Incidence : <10%</p> <p>Our cases : <3% (5 years)</p>
Cost	OPD related costs.	OPD and Hospitalization related costs.
Hx	No hospitalization.	Hospital stay for 1-3 days.
Note	<p>F/u: Followup, Cx: Complications PTS: Post Thrombotic Syndrome, Hx: Hospitalization</p>	

Step 2

What are your concerns?



Concerns	Not at all Concerned \longleftrightarrow Very much concerned				
	1	2	3	4	5
Quality of Life	1	2	3	4	5
Complications	1	2	3	4	5
Hospitalization	1	2	3	4	5
Medical Costs	1	2	3	4	5
Others					

Step 3

How would you recognize following statements?



Statements	Yes	No	Not sure
Maintaining healthy lifestyles and taking oral medication could fully resolve S/S of MTS, disregard of severity.			
Post stenting thrombosis were found in 1% of cases.			
Post stenting restenosis were found in 1% of cases.			
Post stenting OPD followup and monitoring were necessary.			
Stenting or not, maintaining healthy lifestyles were equally important.			

Step 4

Have you made your decision?

I have made my decision, I choose...

- Maintaining healthy lifestyles and oral medication.
- IVUS guided iliac vein stenting.
- Not receiving any treatment, Because...

I can not make my decision for now...

- I need more discussion with my doctor.
- I need more discussion with other people.
- I have other questions:

How do you feel about our shared decision making (SDM)?

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 = Very Unhappy.
5 = Very Happy.

