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病人安全 · 人性關懷


慢性下肢淋巴水腫的外科治療經驗

台北醫學大學萬芳醫院
血管暨淋巴治療中心
許文憲醫師

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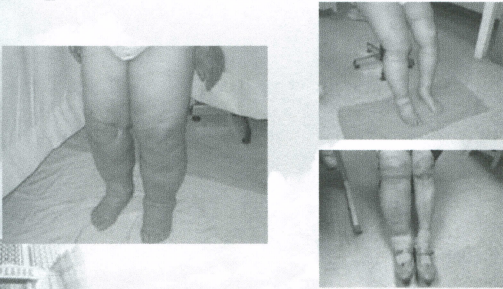
Lymphedema praecox



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Moderate to severe lymphedema



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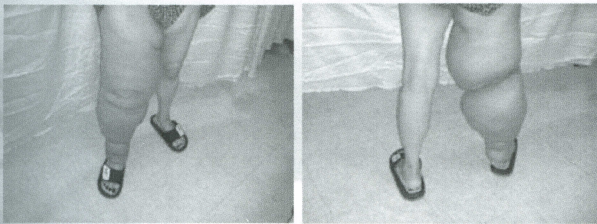
Elephantiasis(advanced lymphedema)



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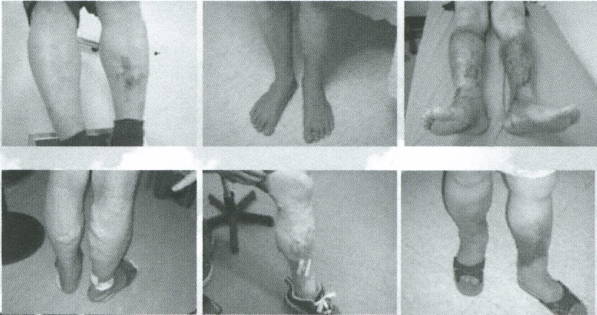
Post-thrombotic syndrome resulting lymphedema



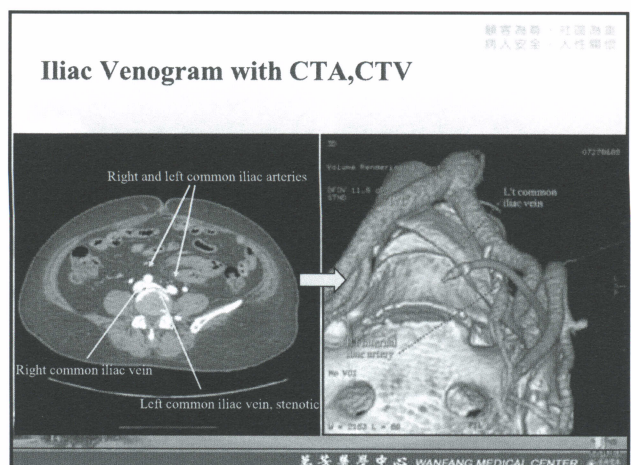
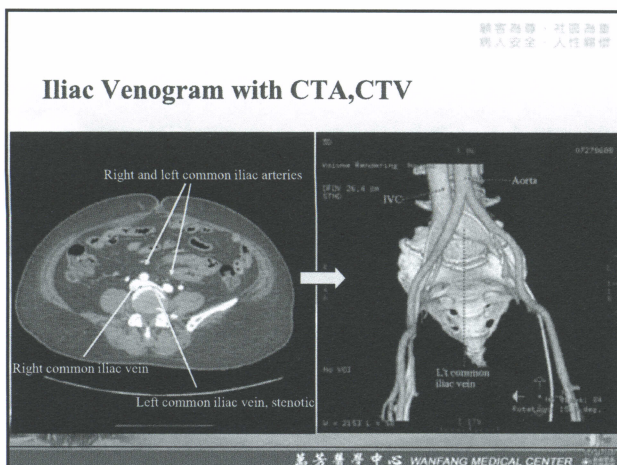
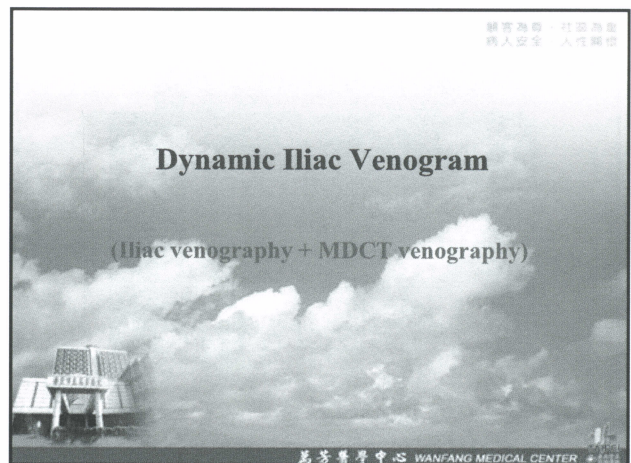
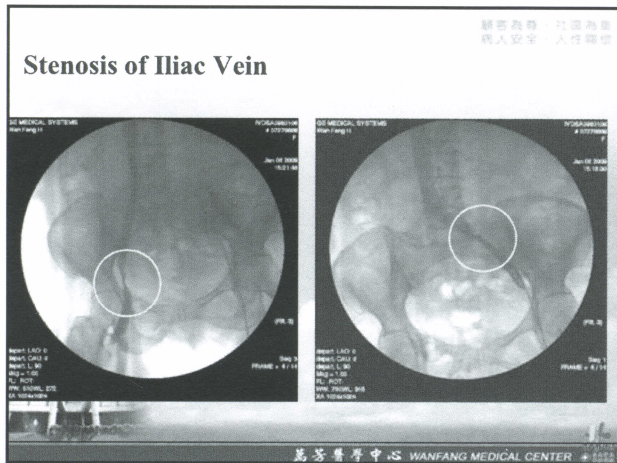
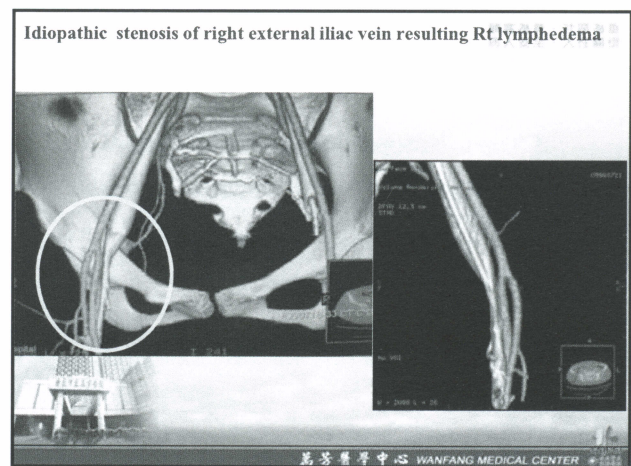
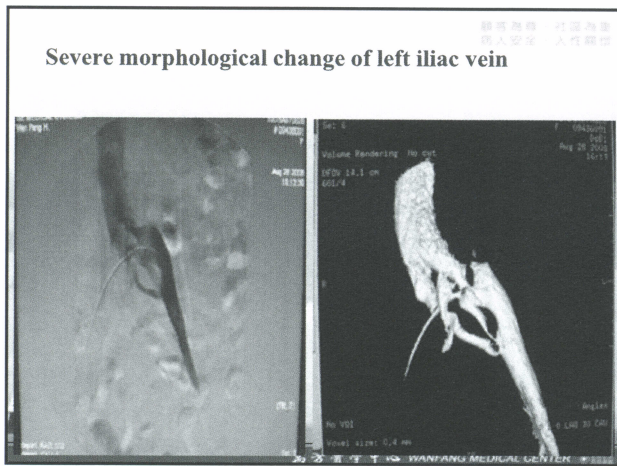
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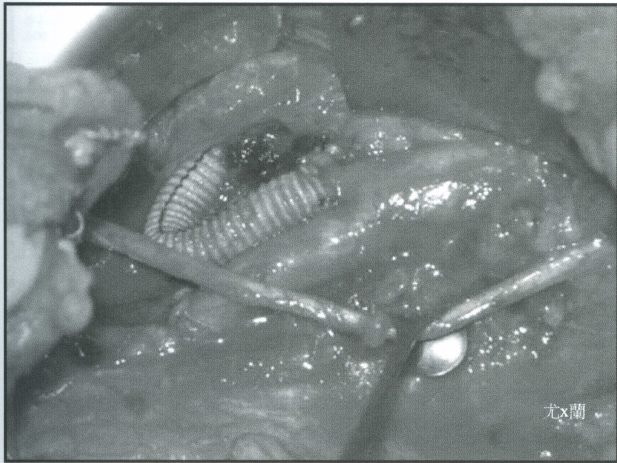
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Chronic Venous Insufficiency and Complex CVI



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The latest operative modality

- Pelvic vascular de-cicatrization + iliac vein balloon dilatation and stenting + omental transposition for advanced lymphedema

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Surgery

- Right-sided antero-lateral oblique incision.

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Surgery

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Before and After Angiolysis and Decicatrization in The Pelvis

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Surgery

- Iliac vein balloon angioplasty through femoral access with Seldinger's technique.

6 ~ 16 mm balloon dilator

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Surgery

- Percutaneous transluminal placement of metallic stent

either 14 mm or 16 mm

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Postoperative KUB

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Clinical outcomes after surgery (n=100)

Procedures	Adjunctive procedure	N	Results	complications
Percutaneous iliac vein stenting	Without pelvic angiolysis	5%	Fair in respect to improvement of lymphedema	Venous thrombosis
Percutaneous iliac vein stenting	With pelvic angiolysis & decalcification	95%	Satisfactory in terms of improving clinical symptomatology	<ul style="list-style-type: none"> Minor wound infection Transient sensory dysfunction in upper thigh Venous thrombosis Retroperitoneal bleeding

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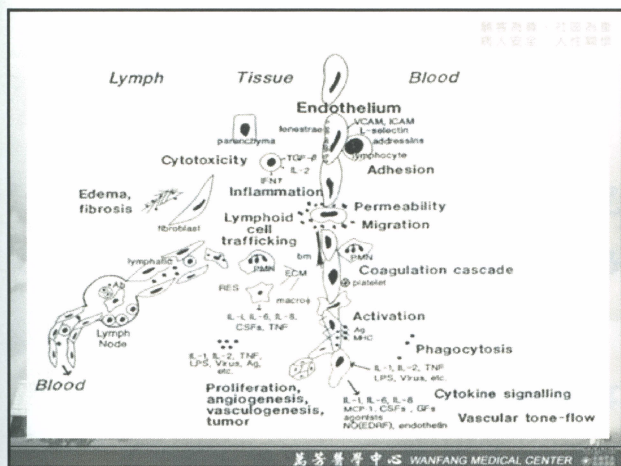
Potential Complications of Venous Stenting Procedure

- Acute iliac vein rethrombosis (< 24 hrs)
- Retroperitoneal bleeding
- Arterial injury
- Guide wire gets caught in the stent
- Postoperative swelling of unknown cause

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Future Perspective

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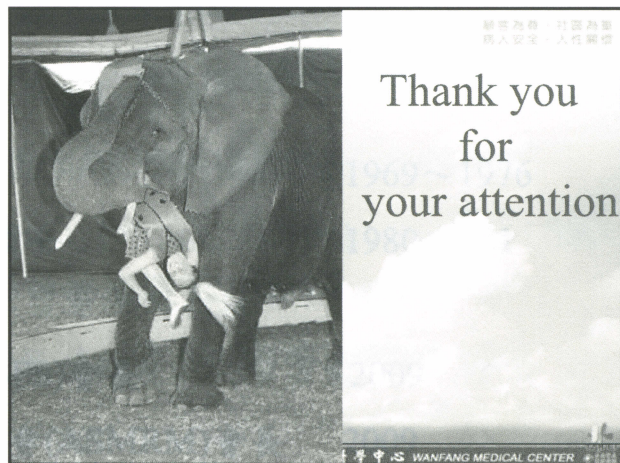


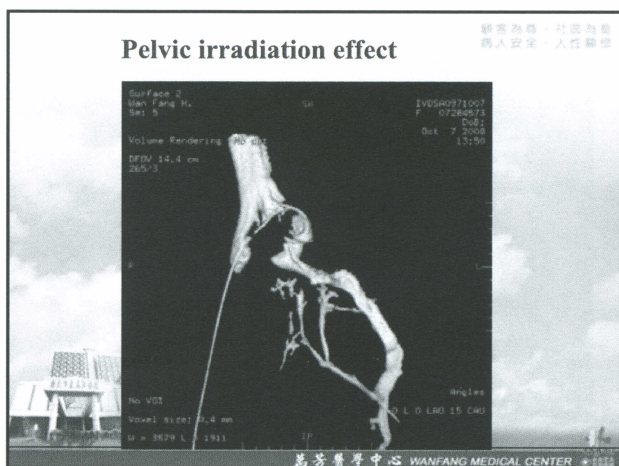
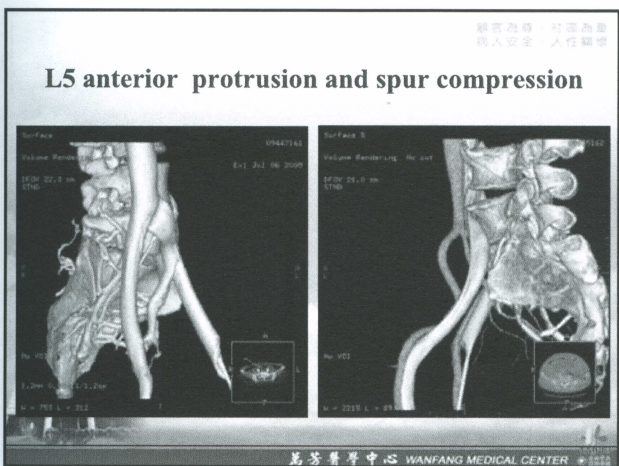
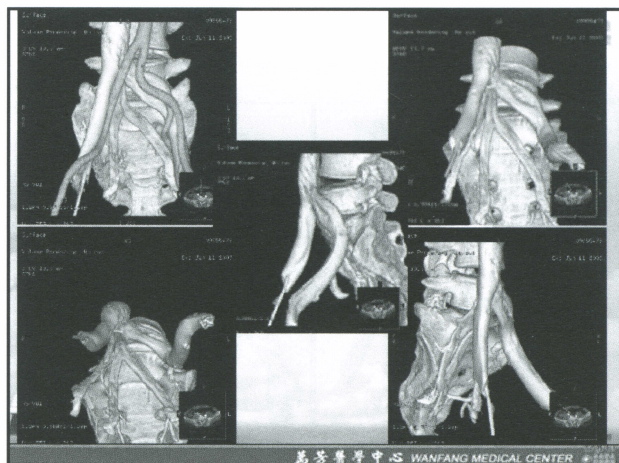
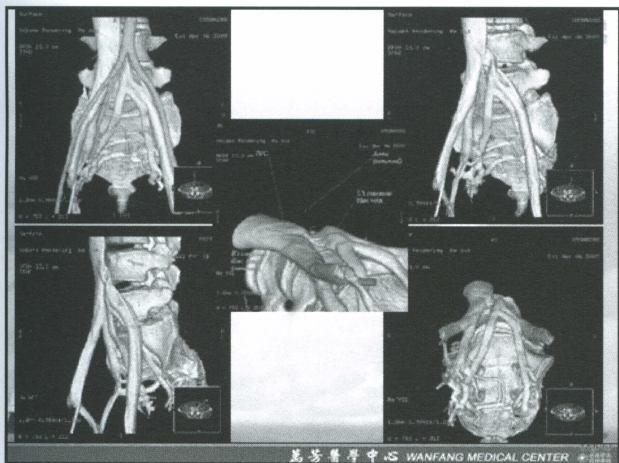
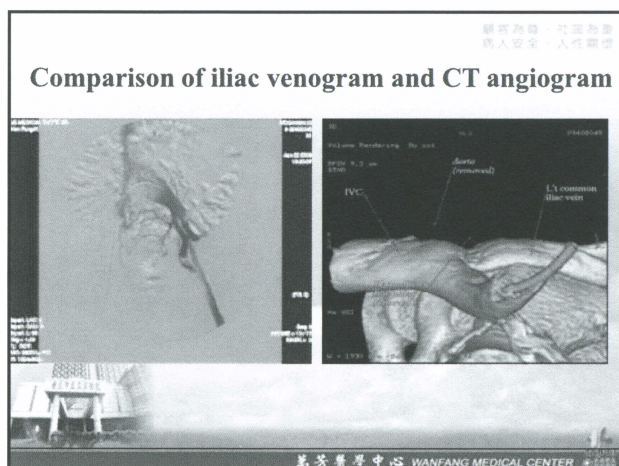
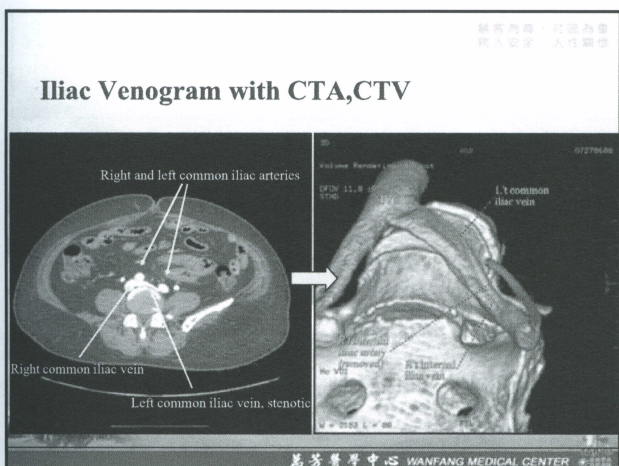
第二講題簡報

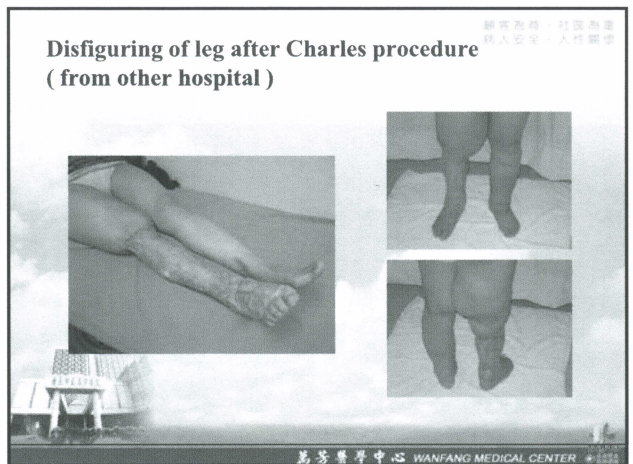
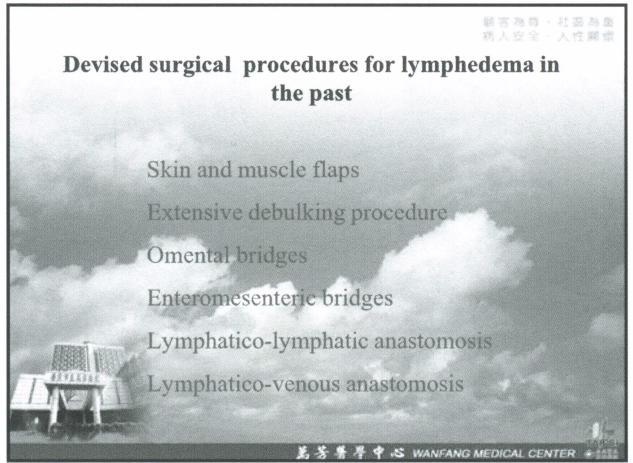
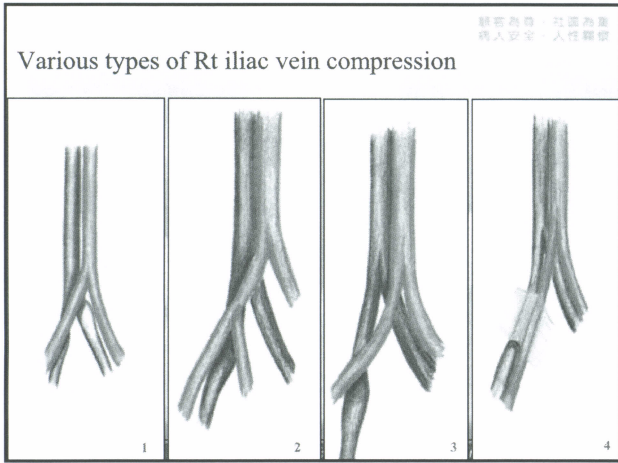
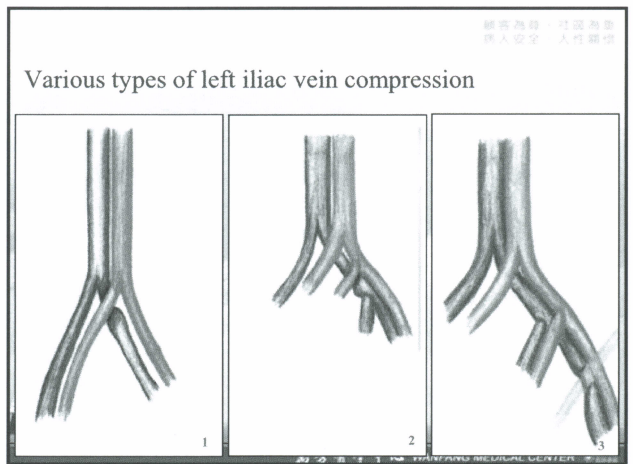
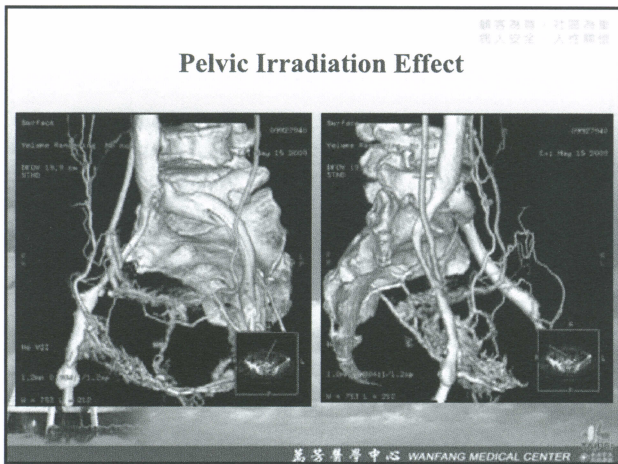
CONCLUSION

- Endovascular surgery has revolutionized the traditional vascular operation.
- Percutaneous intraluminal stenting alone is only suitable for fresh cases with short-term history of clinical symptoms.
- For chronic lymphedema of lower limbs the pelvic vascular adhesiolysis is necessary to assure full expansion of iliac vein.
- Releasing the pelvic vascular adhesions and intravascular placement of stent at one setting is safe and effective.
- Long-term follow up is necessary to verify the value of this operation.
- The future perspective is to discover the molecular mechanisms in lymphatic function and disease.

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Innovation of surgical treatment in WFH

1. Omental transposition alone
2. Omental transposition +debulking procedure
3. Retroperitoneal angiolysis+arterial relocation
4. Retroperitoneal de-cicatrisation + iliac vein stenting
5. Retroperitoneal de-cicatrisation + iliac vein stenting + omental transposition for the worst cases.



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Scientific Exhibit

Omental Transposition in the Control of Chronic Lymphedema

Henry S. Goldsmith, MD, Professor of Surgery, MD, and Edward J. Benbow, Jr., MD

Chronic lymphedema of an extremity has persisted over the years as an unsolved surgical problem. The multiple operations that have been attempted for this condition indicate a continued search for an ideal procedure. Lymphedema appears to be the result of lymphatic flow obstruction in association with varying degrees of venous blockage. Successful treatment of lymphedema would therefore require the introduction of new lymphatic and venous channels.




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out by injecting ethiodized oil (Ethiodol) into the paw of dogs who had had a massive defect created in their legs which was bridged only by skin and omentum. The injected contrast material was subsequently visualized in the lymphatics of the intraperitoneal omentum as well as in intraperitoneal lymph nodes. It was concluded, therefore, that there was no pathway for the ethiodol to travel from lymphatics of the paw into intraperitoneal

From the Department of Surgery, Memorial Hospital for Cancer and Allied Diseases, and the Sloan-Kettering Institute, New York.
Reprint requests to 444 E 68th St, New York 10021 (Dr. Goldsmith).

JAMA, March 25, 1968 • Vol 203, No 13




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Omental transposition

- In 1968 Dr. Goldsmith proposed omental transposition for lymphedema of lower extremity. (Sloan-Kettering Memorial Hospital in New York).
- Animal model first to establish theory.
- Applied to two patients with success.
- In 1968 Dr. Goldsmith did more cases in Philadelphia with success.




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Indication of Surgery

- Not for cosmetic purpose
- Chronic lymphedema with recurrent lymphangitis and cellulitis
- Disfigured leg and ankle, but not thigh alone
- Functional impairment(flexibility , elasticity)
- Failure of the debulking operation such as Charles procedure or Thompson operation




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Surgical Technique I

- Laparotomy
- Omental mobilization
- Develop vascular-pedicled omentum flap with right or left gastroepiploic artery
- Pelvic adhesiolysis
- Tunnel creation above the external iliac artery.
- Exposure of femoral artery and vein in the groin with excision of scar tissue and tunneling into peritoneal cavity.



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Surgical Technique II

- Wide excision of adipose tissue and lymph-accumulating tissue in the thigh.
- Exteriorization of omental pedicle and anchor the omentum to the femoral muscle.
- Excision of lymph-accumulating tissue in the lower leg and ankle.
- Placement of fenestrated Gortex graft from ankle to mid-thigh. (abandoned due to high incidence of infection)

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Innovation of the surgical technique

- Omental transposition without preoperative iliac venography- ended up with recurrence of leg edema in 30% of cases.
- Placement of Gortex graft in the leg and lower thigh + omental transposition
- Retroperitoneal exploration with angiolysis and vascular reconstruction + omental transposition
- Retroperitoneal angiolysis + iliac vein balloon dilatation stenting + omental transposition

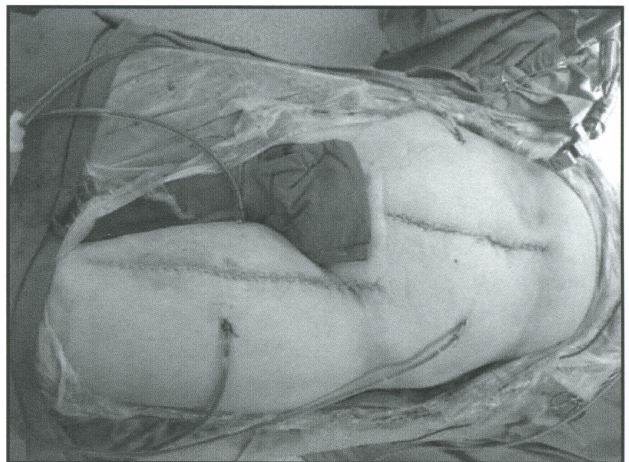
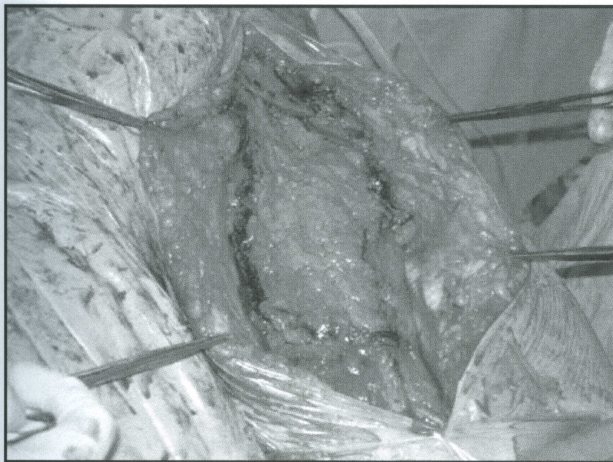
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Creating groin to peritoneal cavity tunnel

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Complication of omental transposition

- Skin edge necrosis
- Wound breakdown
- Upper GI symptoms
- Graft infection, rejection
- Bowel obstruction
- Inguinal hernia

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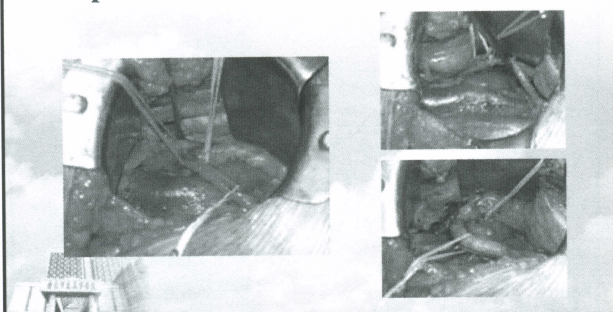

• Omental transposition + release of iliac vein compression



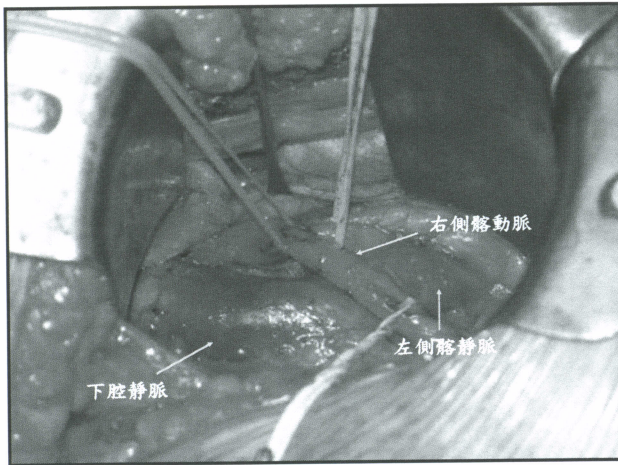
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Graft interposition for relief of compression

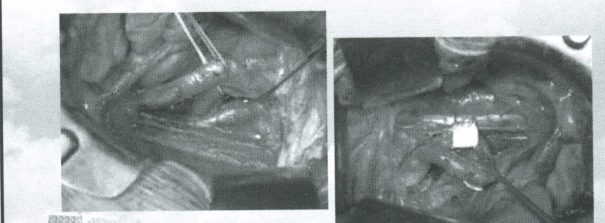




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Sling suspension of the internal iliac artery

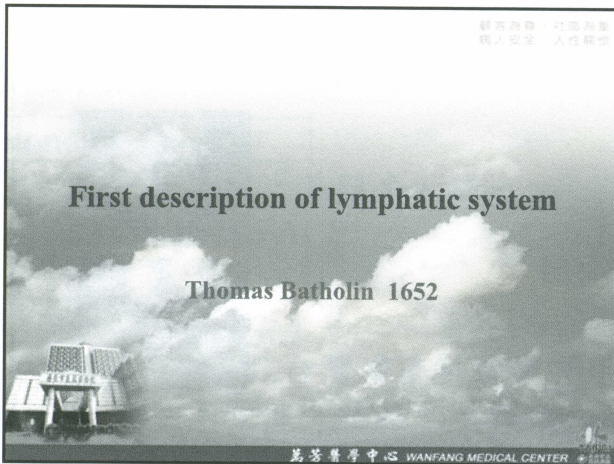



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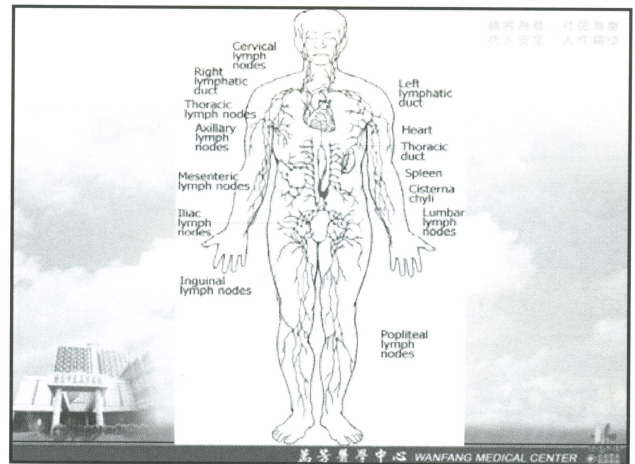
First description of lymphatic system

Thomas Bartholin 1652

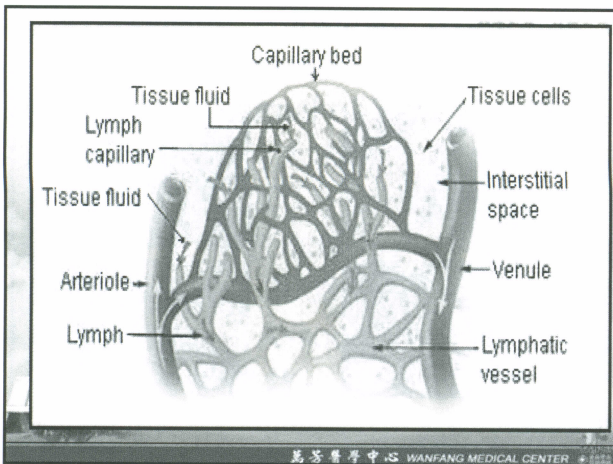


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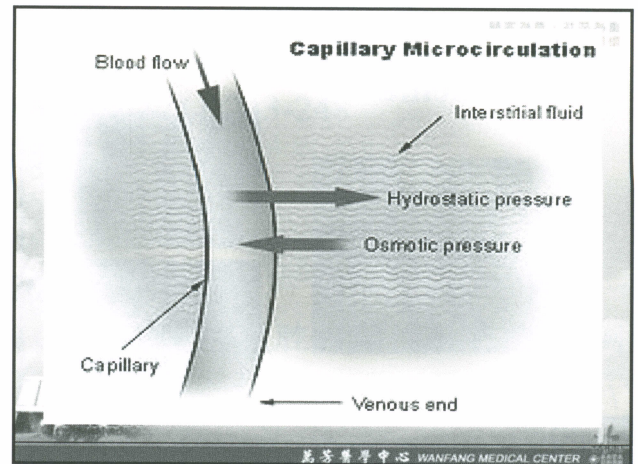
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Capillary Microcirculation

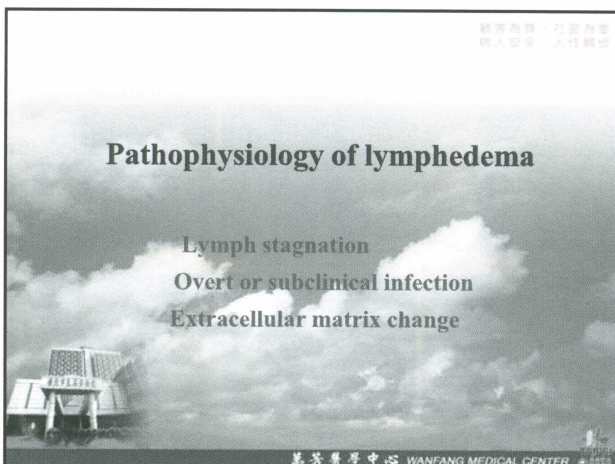


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Pathophysiology of lymphedema

Lymph stagnation
Overt or subclinical infection
Extracellular matrix change

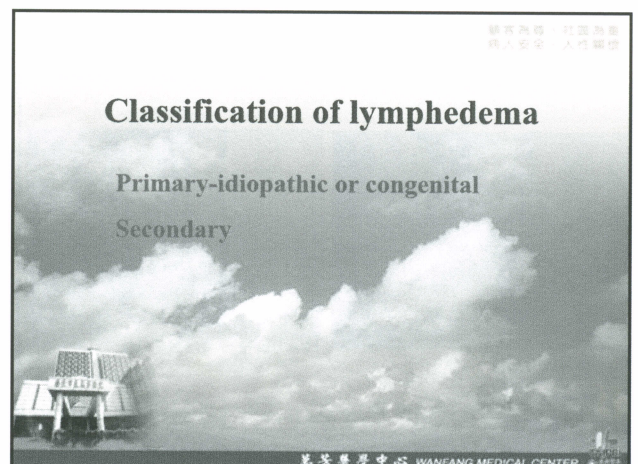


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Classification of lymphedema

Primary-idiopathic or congenital
Secondary



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Secondary

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Malignant disease-pelvic tumor, prostatic cancer, rectal cancer

Surgery
Pelvic surgery with or without LN dissection
Groin dissection – for melanoma, cancer of external genitalia

Radiotherapy –resulting iliac vein stenosis, vascular adhesion

Infection
Parasitic (filariasis)
Pyogenic (β -hemolytic streptococci, staphylococcus aureus)
Tuberculosis

Venous disease – DVT or post-thrombotic syndrome ,iliac vein compression, other venous pathology

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Clinical investigation

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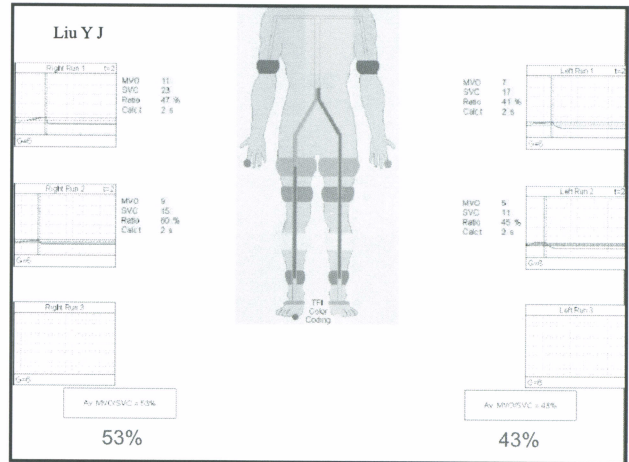
- Non-invasive vascular test : Phleborheography(PRG)
- Contrast-enhanced abdominal CT scan
- MRI of the lower extremity
- Catheter-directed iliac venography
- Iliac venography + MDCT (multi-detector computed tomography)

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Phleborheography (PRG)

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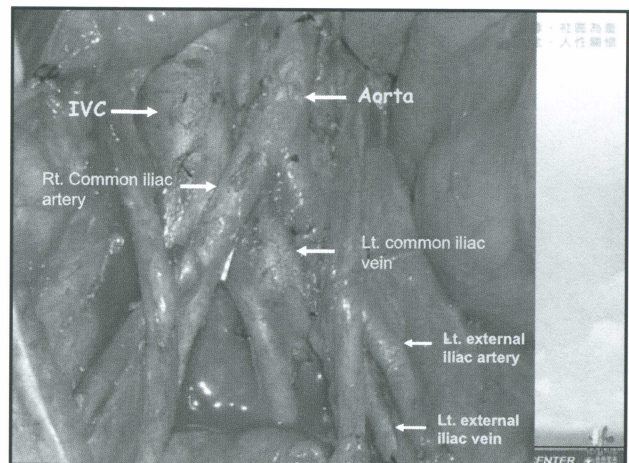


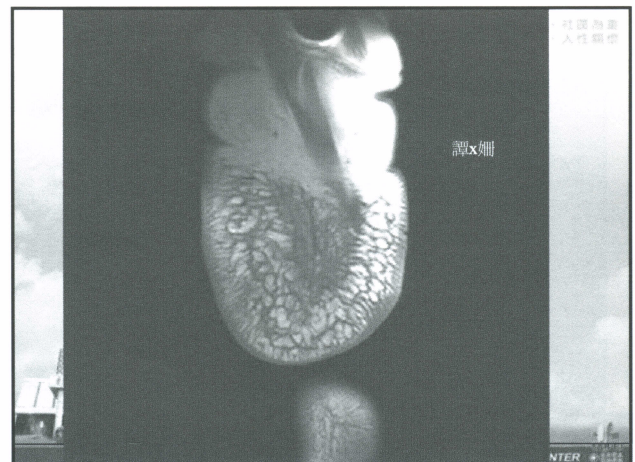
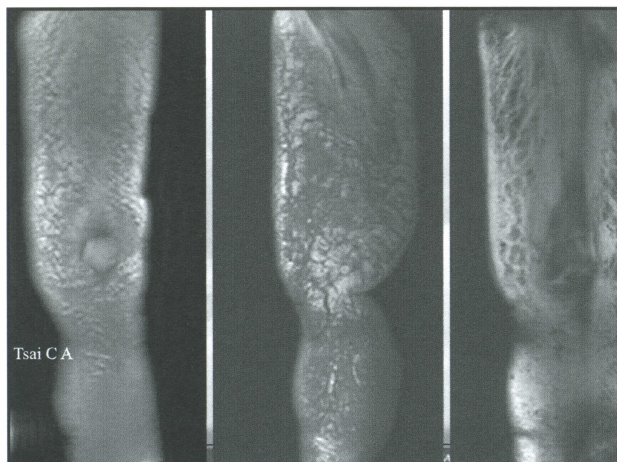
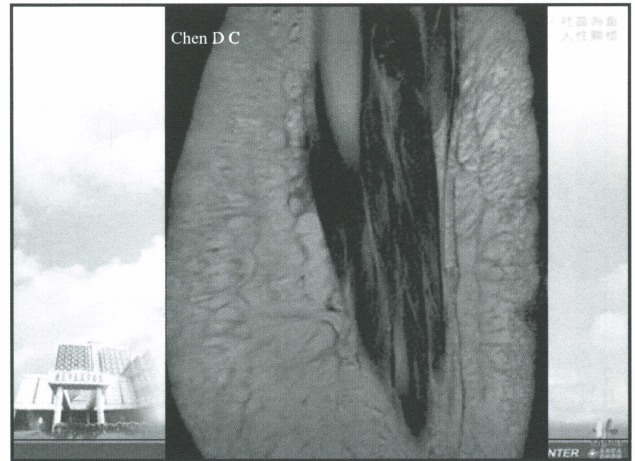
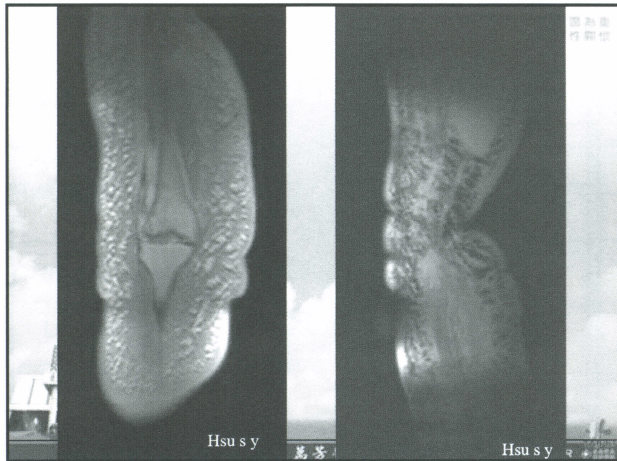
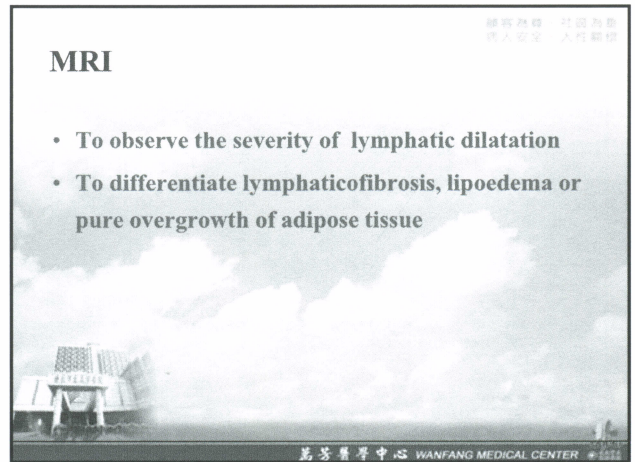
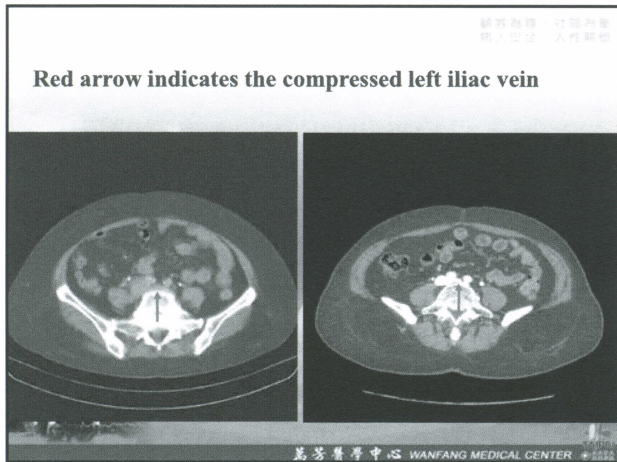
Abdominal CT scan

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- To delineate the anatomic relationship of iliac artery and vein
- To identify the venous collaterals in the pelvis
- To demonstrate any space-occupying lesion that compresses the iliac vein or IVC.

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Iliac venography

- Catheter-directed , through contralateral femoral access
- To verify the iliac vein compression , venous morphology and venous collaterals
- To measure the iliac vein pressure in the pre-stenotic and post-stenotic area

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Compression of ilio-caval junction

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Lt external iliac vein encasement

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Rt & Lt external iliac vein encasement

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Complex venous anomaly

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