

# Ilio-Iliac Arteriovenous Fistula – a diagnostic and therapeutic challenge

**Authors:** Andreia Coelho<sup>1</sup>, Pedro Brandão<sup>1</sup>, Ignacio Lojo Rocamonde<sup>2</sup>, Miguel Lobo<sup>1</sup>, Victor Martins<sup>1</sup>, Ricardo Gouveia<sup>1</sup>, Jacinta Campos<sup>1</sup>, Rita Augusto<sup>1</sup>, Nuno Coelho<sup>1</sup>, Ana Carolina Semião<sup>1</sup>, Alexandra Canedo<sup>1</sup>;

<sup>1</sup> Serviço de Angiologia e Cirurgia Vascular; Centro Hospitalar de Vila Nova de Gaia/Espinho

<sup>2</sup> Servicio de Angiología, Cirugía Vascular y Endovascular; Hospital Quirón A.Coruña

# Disclosure

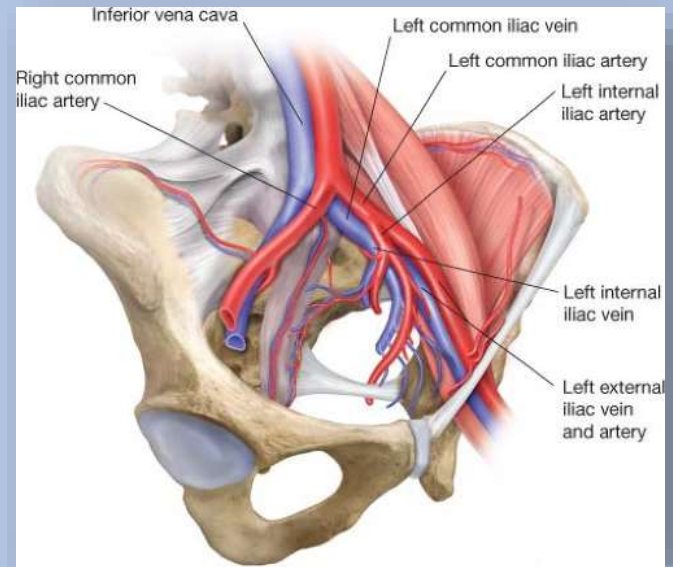
**Andreia Pires Coelho, M.D.**

I have the following potential conflicts of interest to report:

- Consulting
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)
  
- I do not have any potential conflict of interest

# Introduction

- Major **pelvic Ilio-Iliac Arteriovenous fistula (AVF)** is an exceedingly rare diagnosis with only a few described cases in the literature.
  - Most of them related to congenital defects or trauma.



# Introduction

- In this case report, we present a case of an **ilio-iliac AVF** with a **very atypical clinical presentation** treated in our institution.

# Case Report

- 77 year-old female;
- Medical History:
  - Remote hysterectomy more than 40 years ago;
  - Otherwise, no relevant medical history.



# Case Report

- After a short-course plane flight, patient developed an exuberant unilateral right leg oedema



- **Diagnosis: Iliofemoral deep vein thrombosis (DVT)**
  - Positive d-dimers concentration of 25000  $\mu\text{g}/\text{mL}$
  - Diagnostic Doppler Ultrasound Scan



- Treatment: Warfarin + daily elastic compression stockings.



# Case Report

## FOLLOW-UP

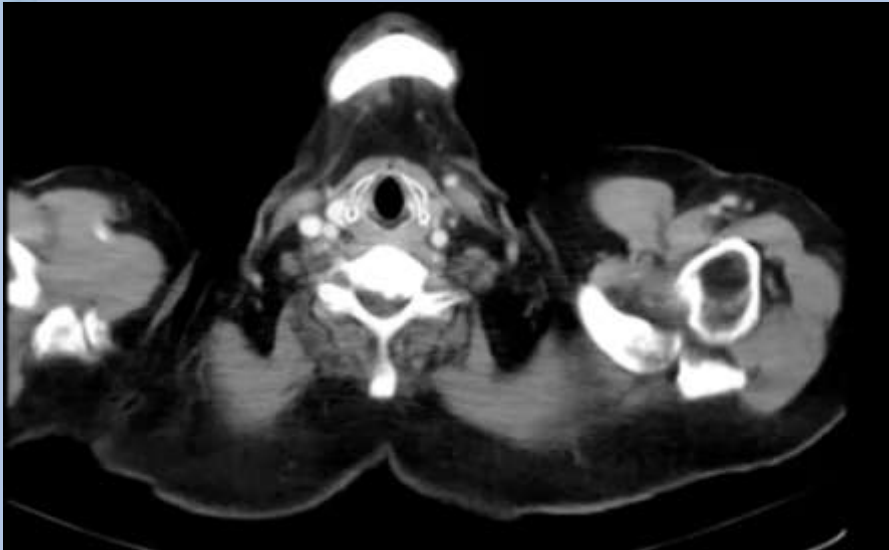
- **No improvement in leg oedema;**
- Development of **serious pain** in the right leg, refractory to pain medication;
- Several weeks later, she started developing right foot numbness which eventually evolved to paralysis and **dropped foot**.



# Case Report

MAY 2016

- With this peculiar clinical history, a **CTA** was performed to **exclude any compression or paraneoplastic syndrome:**



NO  
REMARKABLE  
FINDINGS



# Case Report

OCTOBER 2016

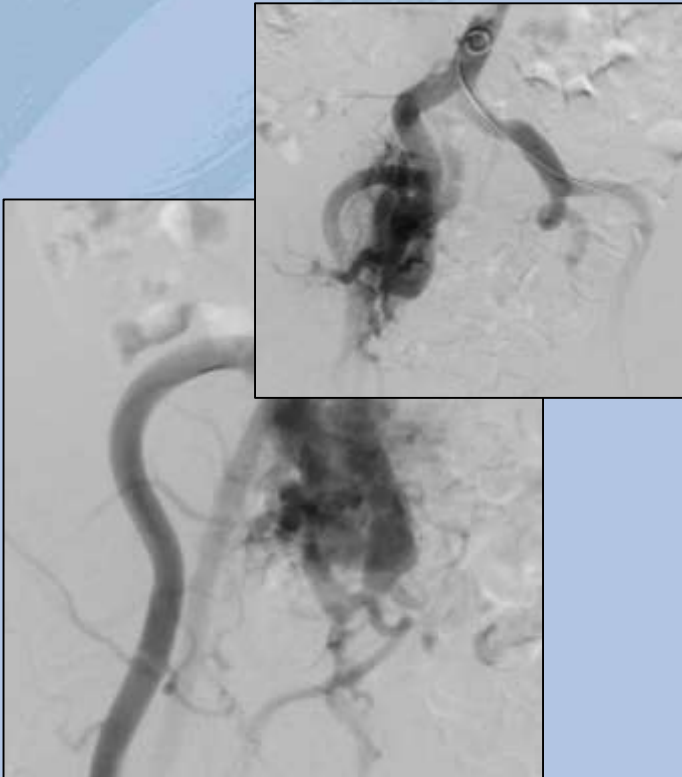
- Patient symptoms continued to worsen with **no plausible explanation!**
- A new **CTA** was performed:



ILIO-ILIAC ARTERIOVENOUS  
FISTULA (AVF)

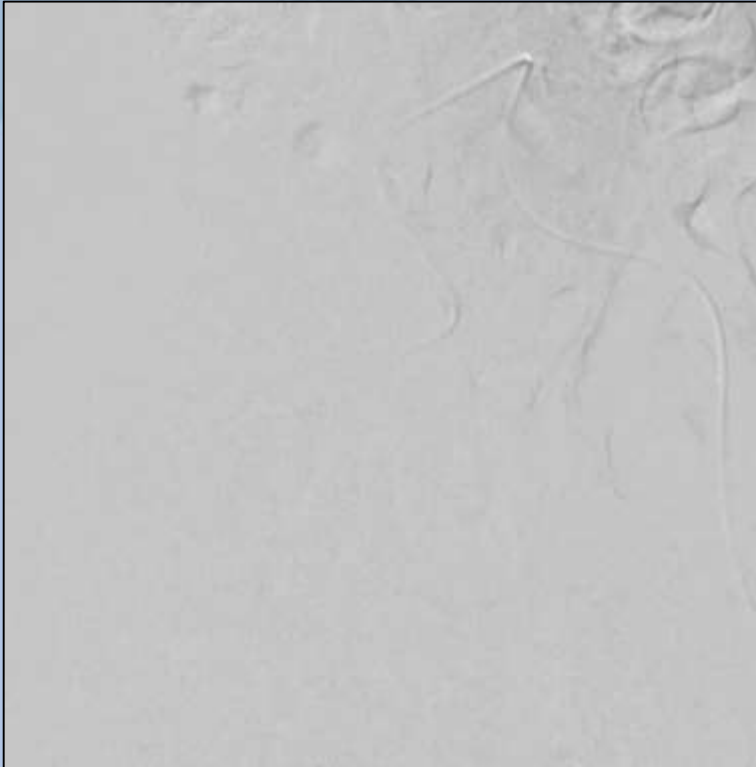
# Case Report

- Diagnostic Angiography



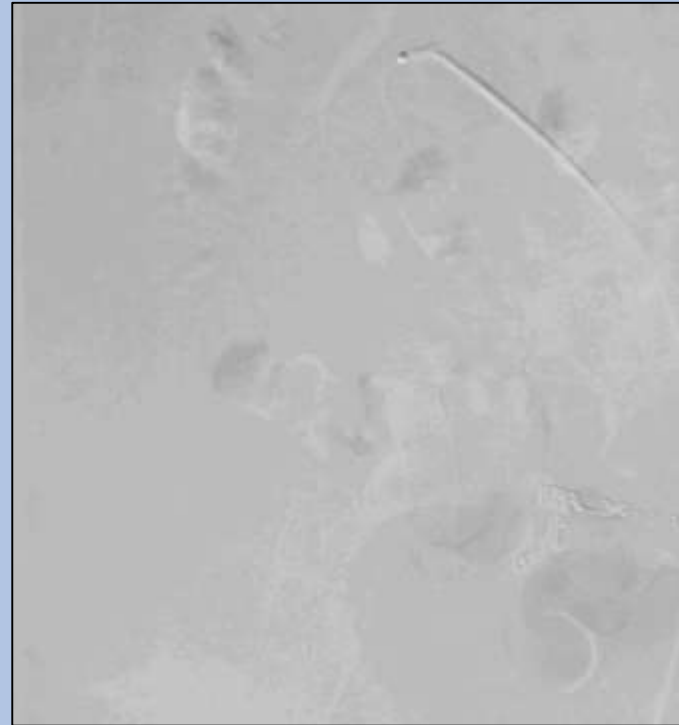
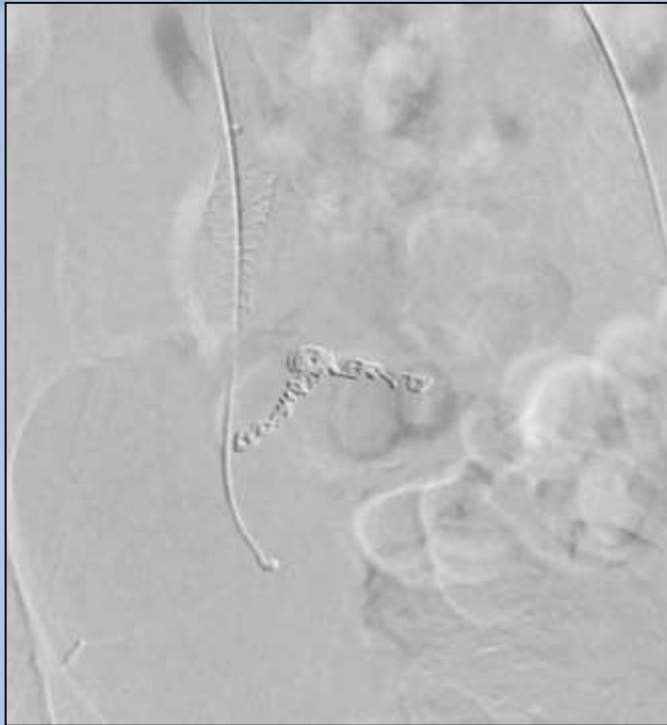
# Case Report

- **Coil embolization of the AVF (Helix EV3®)**



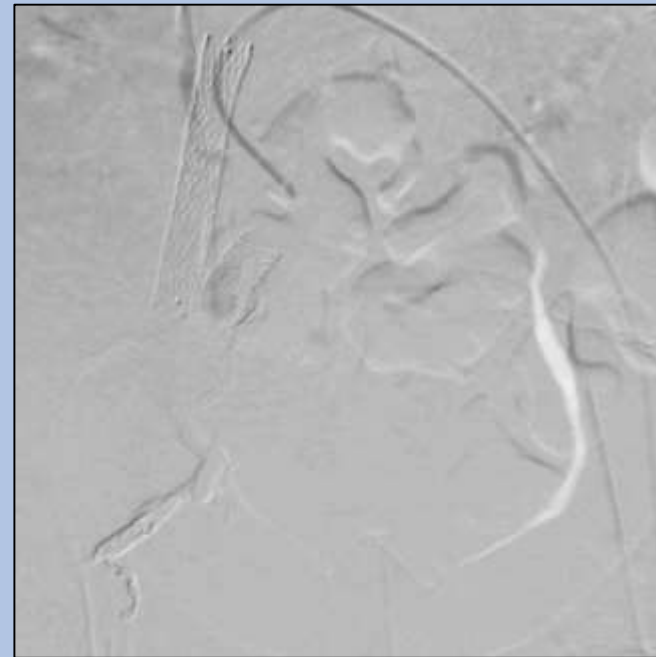
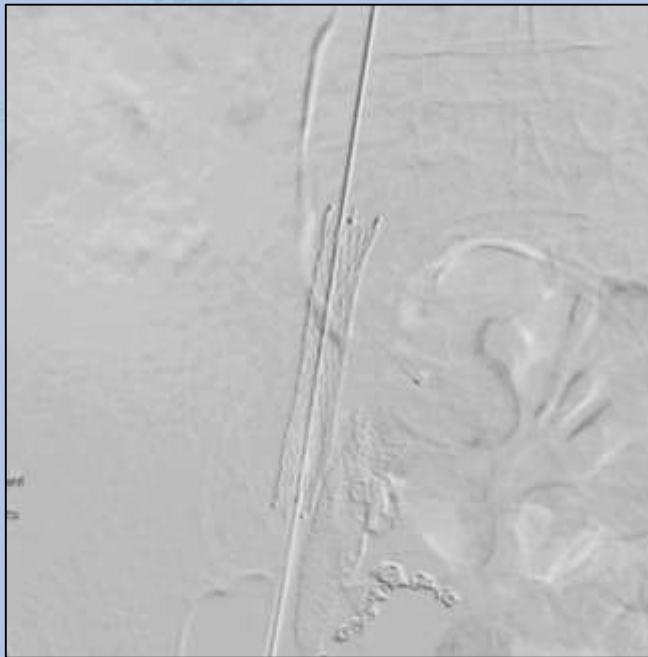
# Case Report

- Deployment of **stent graft Advanta V12®** in the IIA to seal the fistulous tract



# Case Report

- Common iliac vein recanalization and deployment of a **Venovo® stent**;
- Embolization with **Helix EV3® coils** and **Onyx®** of the IIA branches



# Case Report

## FOLLOW-UP

- **Drastic improvement in leg oedema;**
- **Progressive improvement in leg pain;**
- **Little improvement in dropped foot with physiotherapy;**
- **Major improvement in quality of life.**



# Discussion

- In this case, a **definite etiologic relationship is very difficult to establish**
  - AVF as a result of venous hypertension and inflammatory reaction associated to the **DVT**;
  - **Iatrogenic** AVF after hysterectomy, with symptom burst after DVT;
  - **Right-sided May-Thurner syndrome**, with AVF development due to chronic venous hypertension and local trauma.

## May-Thurner Syndrome

in a 68-Year-Old Woman after Remote Abdominal Surgery

May-Thurner syndrome, also called iliac vein compression syndrome, is a rare cause of iliac deep vein thrombosis, which arises from aubstatic compression of the left com

## Acquired Peripheral Arteriovenous Malformations in Patients with Venous Thrombosis: Report of Two Cases

Daniel P. Link, MD, Armando S. Garza, BS, and Wayne Monsky, MD

The etiology of arteriovenous (AV) malformations remains incompletely understood. malformations wholly located within the thrombosed lumen of the femoral and external iliac veins. The patients presented with symptoms of high venous pressure: pigmented skin malformations have been rarely described in the extracranial circulation. The associated pain was successfully treated with catheter-based embolization of the lesions. The induction of the AV malformations in the peripheral circulatory system raises questions regarding the nature of angiogenesis and its possible triggers.

## Recanalization of the Left Common Iliac Vein for May–Thurner Syndrome Associated with Arteriovenous Fistula

H. Yuan <sup>a</sup>, J. Sun <sup>b</sup>, H.T. Qj <sup>c</sup>, X. Jin <sup>a</sup>, X.J. Wu <sup>a,\*</sup>

<sup>a</sup>Department of Vascular Surgery, Provincial Hospital Affiliated to Shandong University, Jinan, China

<sup>b</sup>FuWai Cardiovascular Disease Hospital, Peking Union Medical College, Chinese Academy of Medicine Science, Beijing, China

<sup>c</sup>Shandong Medical Imaging Research Institute, Jinan, China

**Introduction:** Cases of May–Thurner syndrome associated with pelvic arteriovenous fistula (AVF) are

Short Report

## A Case of Iatrogenic Ilio–iliac Arteriovenous Fistula Initially Mistaken for Deep Venous Thrombosis

X. Liu <sup>a,b,c</sup>, M. Lu <sup>a,b,c</sup>, H. Shi <sup>a,b,c</sup>, M. Jiang <sup>a,b,c,\*</sup>

<sup>a</sup>Department of Vascular Surgery, Ninth People's Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai 200011, China

<sup>b</sup>Vascular Center, Shanghai Jiao Tong University School of Medicine, Shanghai 200011, China

<sup>c</sup>Institute of Traumatic Medicine, Shanghai Jiao Tong University School of Medicine, Shanghai 200011, China

# Discussion

## Ischemic Monomelic Neuropathy

- **Pathophysiologic mechanisms:**
  - Inflammatory local reaction to the DVT;
  - Ischemic steal syndrome, due to the AVF.





# Discussion

## Endovascular Treatment

- **Systematic review** that included all published articles until september 2013;
  - n = 54 patients;
- **Open surgical repair**
  - 12-25% peri-operative mortality rate;
- **Endovascular treatment (n=38)**
  - **No perioperative mortality;**
  - 94% technical success;
  - 12% re-intervention
  - No follow-up beyond 24 months

### Endovascular Treatment of Major Abdominal Arteriovenous Fistulas: A Systematic Review

Ghassan Nakad<sup>1</sup>, Ghassan AbiChedid<sup>2</sup>, and Raed Osman<sup>2</sup>

- Emerging, safer, more efficient approach when compared to open surgery.
- Several isolated case reports of successful endovascular treatment have been published.
- Nonetheless, long term results (beyond 24 months) are currently lacking.

# Ilio-Iliac Arteriovenous Fistula – a diagnostic and therapeutic challenge

**Authors:** Andreia Coelho, Pedro Brandão, Ignacio Lojo Rocamonde, Miguel Lobo, Victor Martins, Ricardo

Gouveia, Jacinta Campos, Rita Augusto, Nuno Coelho, Ana Carolina Semião, Alexandra Canedo

**Thank you for your attention**

# Ilio-Iliac Arteriovenous Fistula – a diagnostic and therapeutic challenge

**Authors:** Andreia Coelho<sup>1</sup>, Pedro Brandão<sup>1</sup>, Ignacio Lojo Rocamonde<sup>2</sup>, Miguel Lobo<sup>1</sup>, Victor Martins<sup>1</sup>, Ricardo Gouveia<sup>1</sup>, Jacinta Campos<sup>1</sup>, Rita Augusto<sup>1</sup>, Nuno Coelho<sup>1</sup>, Ana Carolina Semião<sup>1</sup>, Alexandra Canedo<sup>1</sup>;

<sup>1</sup> Serviço de Angiologia e Cirurgia Vascular; Centro Hospitalar de Vila Nova de Gaia/Espinho

<sup>2</sup> Servicio de Angiología, Cirugía Vascular y Endovascular; Hospital Quirón A.Coruña