

CONTROVERSES ET ACTUALITÉS EN CHIRURGIE VASCULAIRE
CONTROVERSIES & UPDATES IN VASCULAR SURGERY

JANUARY 19-21 2017

MARRIOTT RIVE GAUCHE & CONFERENCE CENTER
PARIS, FRANCE



Deep Vein

Causes of failure and complications
of pelvic congestion embolization
and how to avoid them

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Angers France





Disclosure

Speaker name: Dr F Paisant Thouveny

- I have the following potential conflicts of interest to report:
 - Consulting
 - Employment in industry
 - Shareholder in a healthcare company
 - Owner of a healthcare company
 - Other(s)
- I do not have any potential conflict of interest

Failure and complications of pelvic congestion embolization

And how to avoid them



➤ Introduction

Trans-venous occlusion of incompetent pelvic veins for chronic pelvic pain in women: a systematic review



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ABSTRACT

Chronic pelvic pain (CPP) affects 24% of women worldwide; the cause cannot be identified in 40% despite invasive investigations. Dilated, refluxing pelvic veins may be a cause of CPP and treatment by *trans*-venous occlusion is increasingly performed when gynecological causes are excluded, but is it effective?

A systematic review of the literature published between 1966 and July 2014 was conducted. Two authors independently reviewed potential studies according to a set of eligibility criteria, with a third assessor available as an arbiter.

Thirteen studies including 866 women undergoing *trans*-venous occlusion of pelvic veins for CPP were identified (Level of evidence: one study grade 2b, 12 studies grade four). Statistical significant improvements in pelvic pain were reported in nine of the 13 studies. Technical success was reported in 865 of 866 (99.8%) with low complication rates: coil migration in 14 women (1.6%), abdominal pain in ten women (1.2%) and vein perforation in five (0.6%). In a study on varicose veins of the legs, recurrence was seen in 13% of 179 women 5-years following coil embolization.

- ❖ Reported complications
- ❖ Non reported complications / exceptional cases (X files)
- ❖ Recurrences
- ❖ Failures



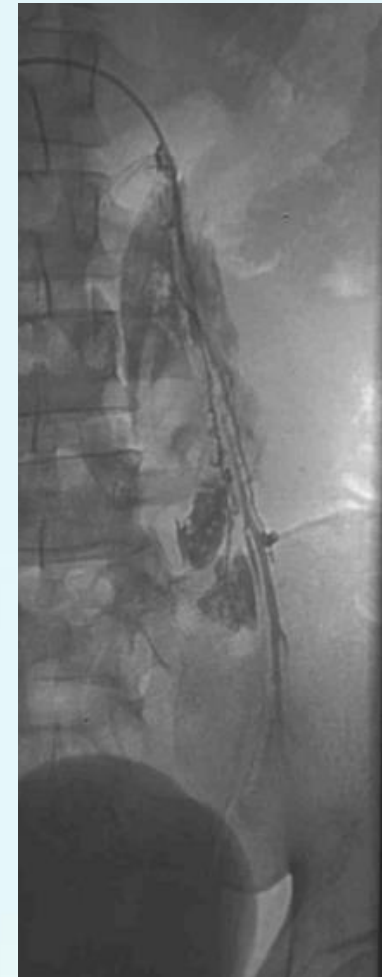
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And how to avoid them

➤ Reported / usual complications

❖ Venous access lesions :

- ★ Brachial access vasospasm
- ★ Ovarian vein lesions during catheterism
- ★ Ovarian lesion during coil dropping



➔ Use femoral access as often as possible

➔ 4Fr is sufficient

➔ Use soft and hydrophilic catheters

➔ Use micro catheters

➔ Work gently

Three patients developed significant arm vein spasm. In 2, this occurred near the completion of bilateral embolisation and the procedure was completed without requirement for any additional measures. In the other, spasm occurred at the completion of left-sided embolisation and proved intolerable. The catheter and sheath were withdrawn and the patient returned for (successful) right-sided embolisation a week later. In this case, the second procedure was performed via the opposite (left) antecubital fossa. None of these patients had any

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Garrett – Phlebology 2002

Greiner, Bigot et al. Poster SFR

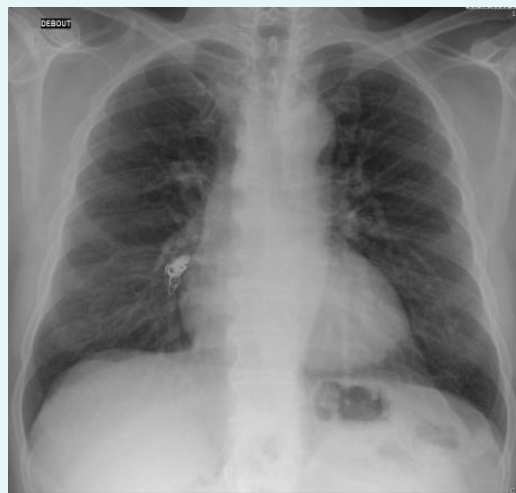
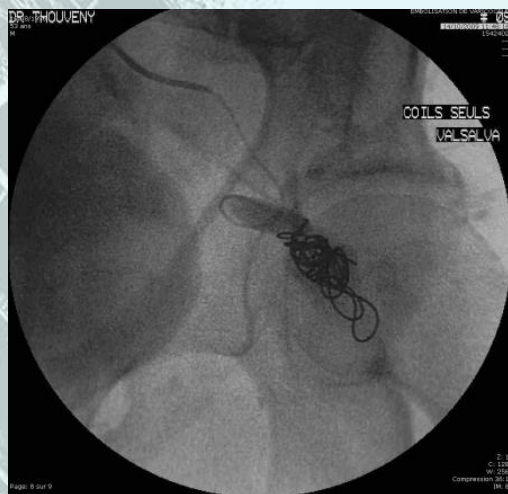
Failure and complications of pelvic congestion embolization

And how to avoid them



➤ Reported / usual complications

❖ Migrations



One major drawback to coil embolization is undoubtedly coil migration into the pulmonary system, which has been reported in 2% of patients after coiling of the internal iliac vein.³² Larger caliber veins (>12 mm) increase the risk of this complication. To prevent coil migration to the pulmonary artery, the diameter of the coils should be at least 30% or 50% larger than the diameter of the left internal iliac veins.³² Other complications include perforation of the

O'Brien J Vasc Surg 2015

J Leal Monedero et al. Embolization of pelvic reflux routes

erals was achieved. In mainstem vessels, a seal of the length of the vessel in a distal-to-proximal fashion was attempted, leaving an 8–10 cm patent proximal segment as safety margin to avoid proximal migration of embolization material. In our series, no instances of proximal migration of embolization material was recorded; however, this complication has been reported.^{40,41}

When collateral tributary veins were identified as reflow leak routes, embolization was begun at the most distal possible level in each vessel. Etoxisclerol foam was used either alone for vessel segments not accessible to coil placement or in combination with coils in a 'sandwich' fashion, to lessen the number of coils used. Care was taken to seal all identified varicosities and leaky collaterals.

Monedero et al. Phlebology 2006

➔ Avoid coils in large and short internal vessels

➔ Embolize as distal as possible

➔ Leave a safety margin

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And how to avoid them



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➤ Non reported complications (X Files)

- ❖ Compression from embolic agent
- ❖ Embolization of non target vessels



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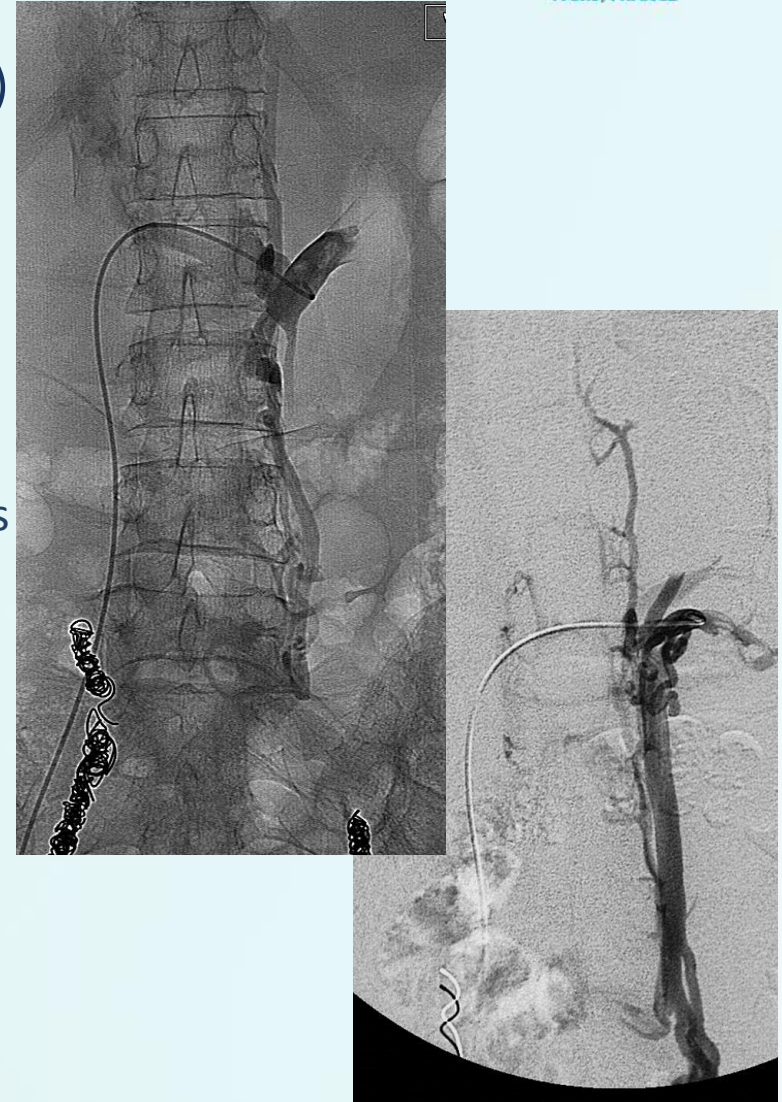
And how to avoid them



➤ Non reported complications (X Files)

- ❖ Compression from embolic agent
- ❖ Embolization of non target vessels
 - ★ Communications between ovarian veins and paravertebral, splenic, and ureteric veins
 - ★ Confusion with Reno lombo trunc

➔ Pay attention to venous communications and anatomy



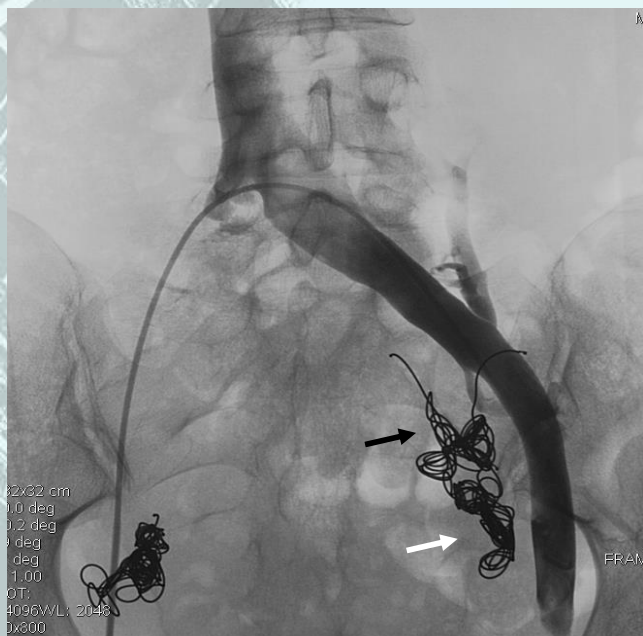
Failure and complications of pelvic congestion embolization

And how to avoid them



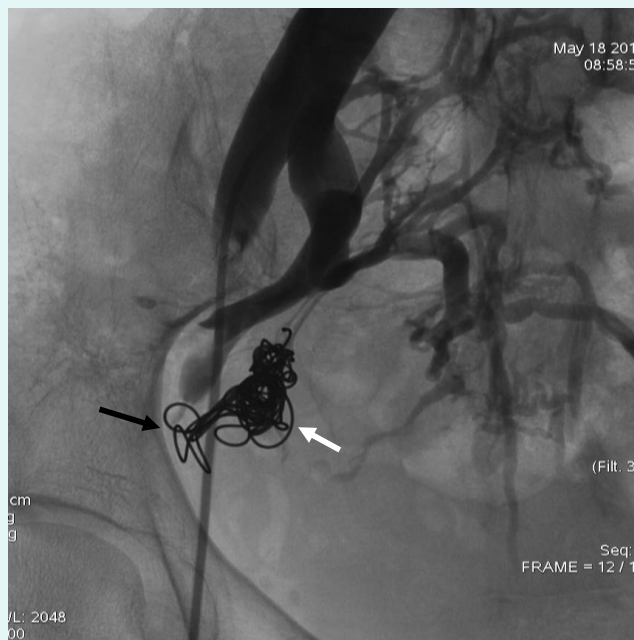
➤ Non reported complications (X Files)

- ❖ Enlarged or focal congestion do to excessive or proximal embolization



Courtesy M Greiner

Black arrow: coils in left ovarian vein
White arrow: coils in internal iliac vein



Black arrow: coils in right inf gluteal vein
White arrow: coils in right anterior internal collector



Clinical worsening with appearance of hemorrhoids

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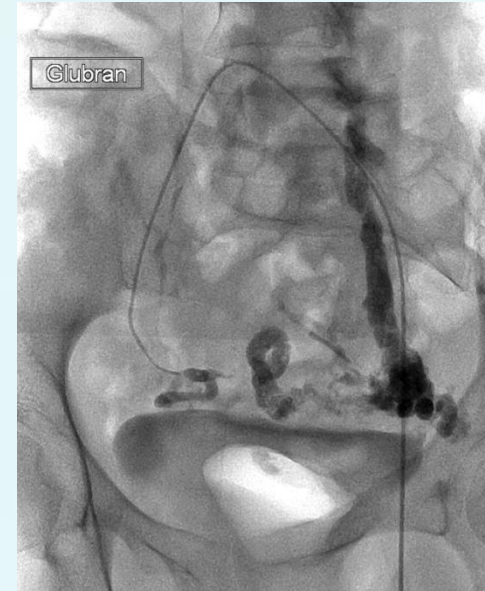
➤ Non reported complications (X Files)

- ❖ Enlarged or focal congestion do to excessive embolization

➔ Never close a proximal trunk

➔ Don't close all genital tributaries,

respect the vicariant veins



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And how to avoid them



➤ Recurrences

The relationship between pelvic vein incompetence and chronic pelvic pain in women: systematic reviews of diagnosis and treatment effectiveness

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Janesh K Gupta,³ Judy Birc
and Jane P Daniels^{1*}

Introduction

Elimination of the blood flow through an incompetent vein is a recognised strategy for incompetent veins. This can be achieved surgically by ligation of a vein or via percutaneous introduction of an embolic agent upstream of the dilated or refluxing veins. Once the incompetent vein is occluded, blood is diverted via other veins and, in time, new vessels can form in the place of the original, although in theory these too could become incompetent. Whether recurrence of symptoms is a result of failure of the original embolisation, through neovascularisation or through untreated or de novo varices, is unclear.

Champaniera et col. Health Tech Ass 2016

- ❖ Residual variceal tributaries
 - ★ Ovaric collaterals
 - ★ Uterin, pudendals
- ❖ Recanalisations

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And how to avoid them



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➤ Recurrences

❖ Residual variceal tributaries

★ Ovaric collaterals



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And how to avoid them



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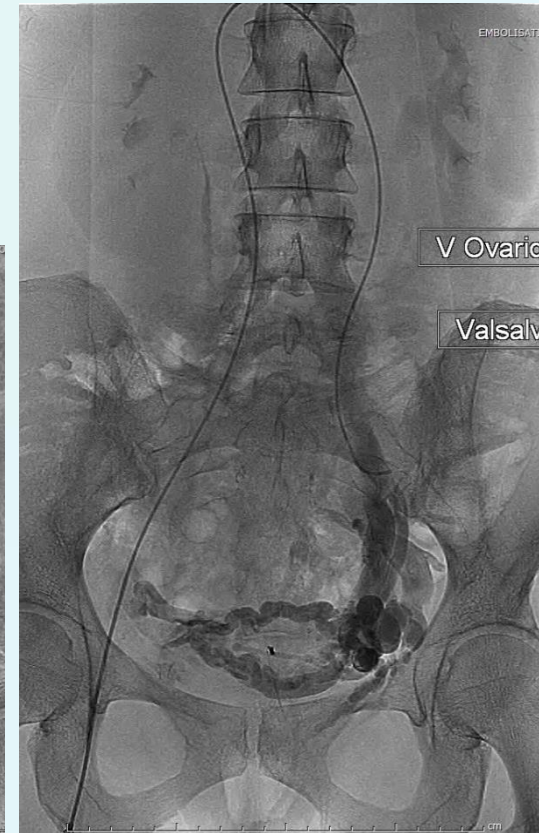
➤ Recurrences

❖ Residual variceal tributaries

★ Uterin, pudendals

➔ Don't look only at the gonadic vein

➔ Treat all incontinent tributaries





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➤ Recurrences

Complications of embolisation appear to be limited to short-term pain and fever in a reasonable proportion of sclerosant cases, or an uncommon incidence of coil migration. Coil placement is a relatively straightforward procedure but may be subject to recanalisation or development of collaterals, as has been observed in male varicocele.¹⁰⁹ Some radiologists prefer liquid sclerosant, which can reflux into any collateral veins, owing to its localised effect, the perception that a more extensive embolus is produced, and also the cost compared with metal coils.⁹⁸

Champaniera et col. Health Tech Ass 2016

❖ Recanalisations

★ Coils

➔ Prefer Glue or sclerosants

Although coils are effective in occluding the ovarian veins (4,15), recurrences related to recanalization of coils or development of collaterals can probably occur as described after coil embolization of the internal spermatic vein to treat male varicoceles (16). We prefer to use enbucilate because of our successful experience over the course of many years using glue in the percutaneous transcatheter treatment of male varicoceles, and because of its liquid state, which enables it to reflux into various branches of any eventual longitudinal collaterals, its local inflammatory effect on the veins themselves, which potentially provides a more thorough and extensive thrombosis, and its low price compared with coils.

Maleux et al. JVIR 2000

Failure and complications of pelvic congestion embolization

And how to avoid them



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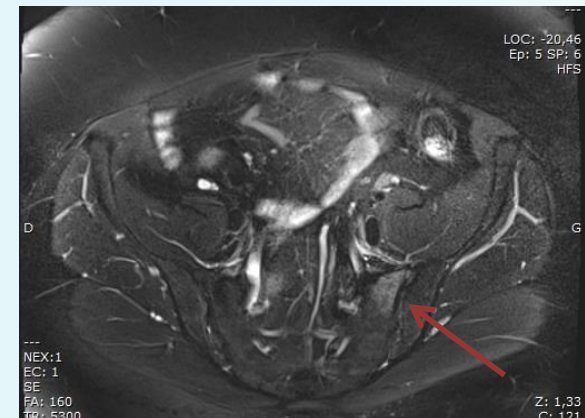
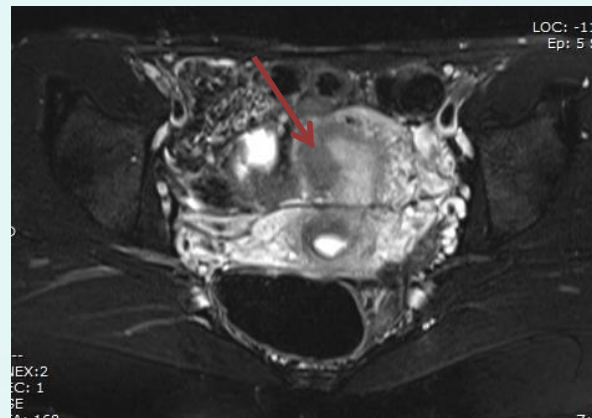
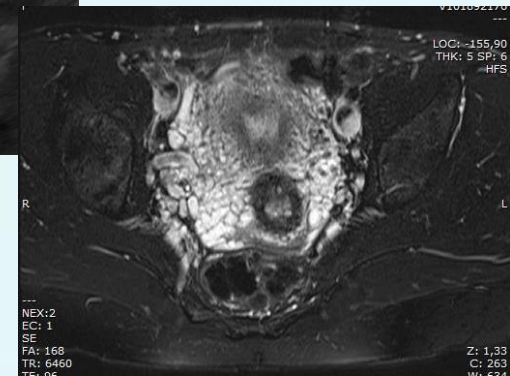
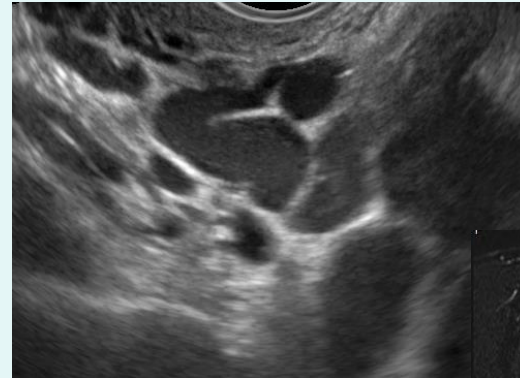
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Failures

❖ Residual variceal tributaries

❖ Interrogate your diagnosis

- ★ Gynecological
- ★ Digestive
- ★ Osteo articular
- ★



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➤ Conclusion

- ❖ Use femoral access, thin and soft catheters,
- ❖ Embolize distally, leaving safety margin
- ❖ Don't use coils in large and short iliac trunks
- ❖ Don't close proximal trunks, respect vicariant veins,
- ❖ Remember the venous anatomy
- ❖ Close all gonadal collaterals and think to pelvic tributaries
- ❖ Think to differential diagnoses

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➤ Thank You!!

