Hemorroids and pelvic venous congestion: venous embolization is it efficient and sufficient?

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I do not have any potential conflict of interest

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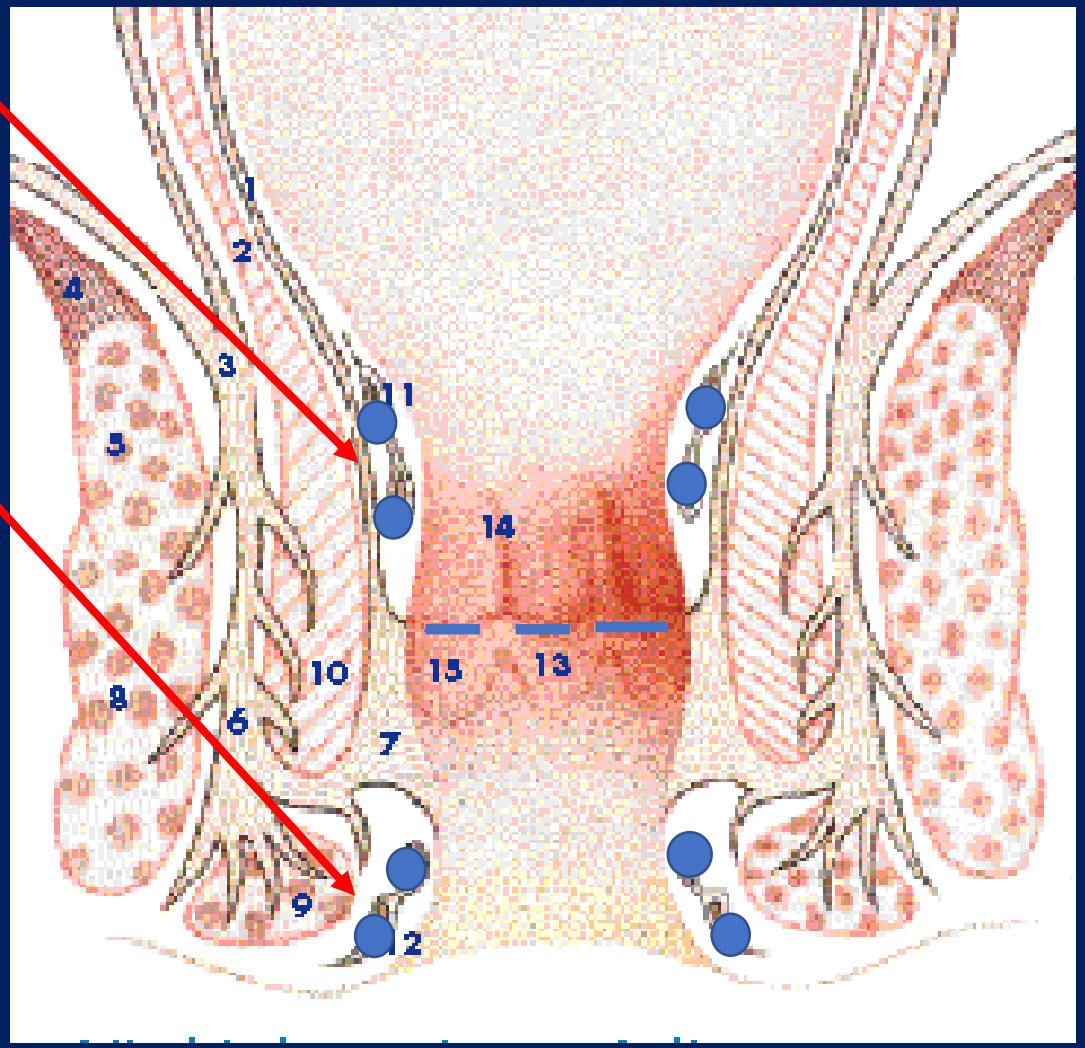
Definition

Hemorrhoids are physiological vascular anorectal structures, constituted by arterio venous anastomosis located in the walls of the rectum and anus and cushioned by smooth muscles and connective tissue.

Hemorrhoids are divided into 2 classes:

- **internal hemorrhoids**
  . Above the dentate line (13)
  . arise from the superior haemorrhoidal (valveless) plexus
  fed by the superior rectal artery
  drained into the superior rectal vein, first part of the superior mesenteric vein

- **external hemorrhoids**
  - Below the dentate line (13)
  - Originated from the inferior haemorrhoidal (valveless) plexus
  - Fed by the **inferior rectal arteries** (and the medial rectal arteries and the sacral medial artery)
  - Drained into **the** middle rectal veins, the **inferior rectal veins and the medial pudendal veins (tributaries of internal iliac veins)** , the external pudendal veins (tributaries of great saphenous veins) and the sacral veins



Pathogenesis of the hemorrhoidal disease

➢Two theories more or less associated:

- **The mecanichal theory**

  Accuse the laxity in supporting structures.

- **The vascular theory**

  Hemodynamic disorder: a lot of research has been directed at the arterial side resulting in many hemorrhoidal artery treatments *(e.g. hemorrhoidal artery ligations, rubber band ligation, thermal ablation, supra selective arterial embolization of hemorroids…).*

Pathogenesis of the hemorrhoidal disease

But

- The link between hemorrhoids and pelvic venous insufficiency (pelvic varicose veins, pelvic venous reflux) is hardly ever envisaged [1-2]

- The interest of the treatment of pelvic venous insufficiency in the treatment of hemorrhoids is suggested in a very few articles [3] .

[1] Judy M Hodstock, ScottJ Dos Santos and al. Haemorrhoids are associated with internal iliac vein reflux in up to one-third of women presenting with pelvic vein reflux. ***Phebology;*** published online 22 April 2014.

[2] Yetkin E. Hemorroid, internal iliac vein reflux and peripheral varicose vein: affecting each over or affected vessels? ***Phebology*** 2015; 30: 145

[3] Carine J.M.van der Vleuten, Janneke A.L. van Kempen, Leo J. Schultze-Kool. Embolization to treat pelvic congestion syndrome and vulvar varicose veins. ***Internal Journal of Gynecology and Obstetrics***. 2012; 118; 227-230

Links between hemorrhoids and pelvic venous pathology

hemodynamic evidence

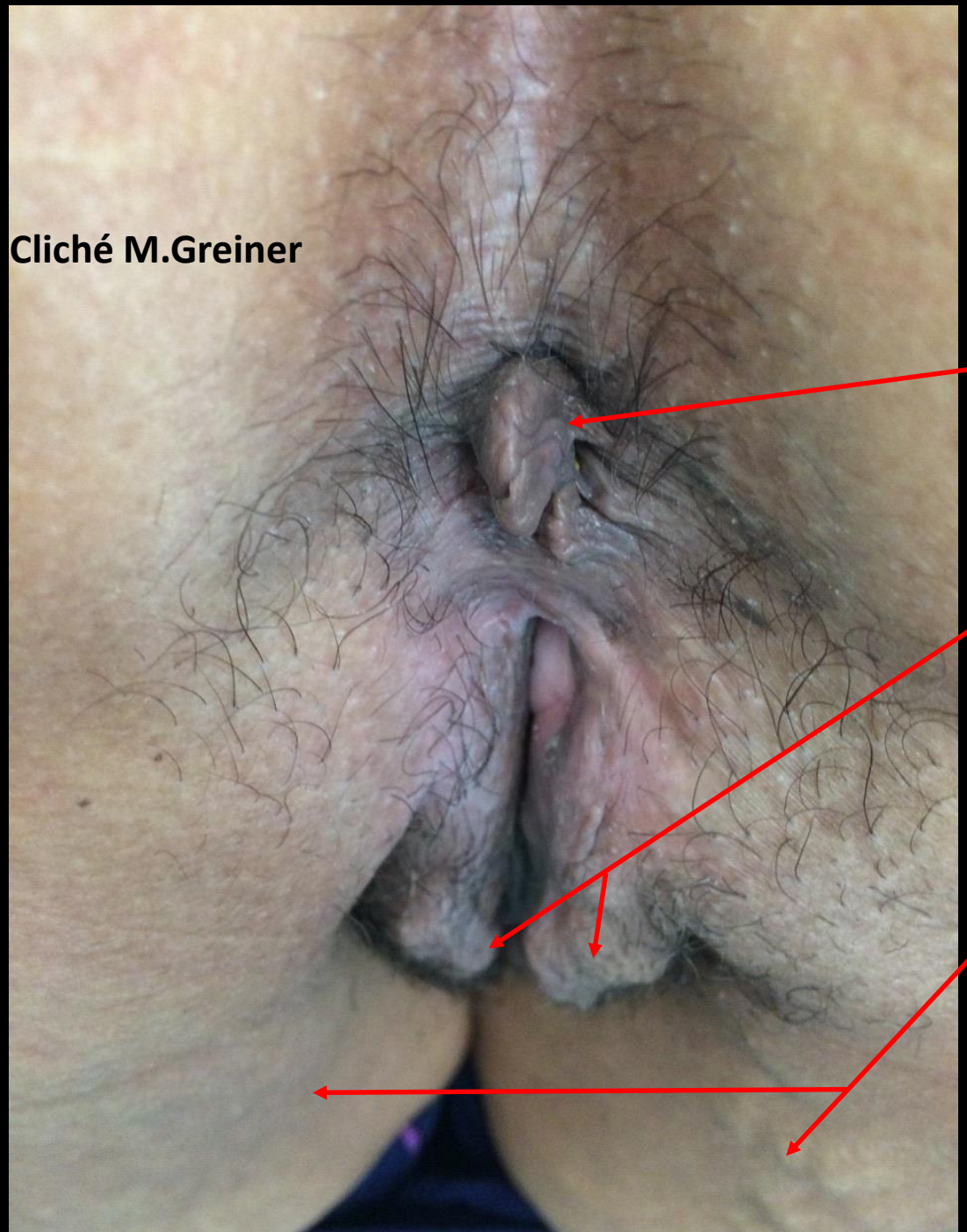
1) Numerous anastomosis exist between internal and external hemorrhoidal plexus but also between the other pelvic venous plexus; **all venous plexus of the pelvic organs are connected and valveless which allows the free circulation of flows.**

2) There is no independence of internal iliac venous tributaries; they are all connected

→ A venous hyper pressure from any pelvic plexus can overload hemorrhoidal plexus

→ An increased flow in any internal iliac tributary or a venous ovarian reflux may drain into rectal and/or medial pudendal veins, lead to rectal and/or pudendal retrograde flow and then hemorrhoids.

→ Pelvic venous embolizations are involved in the treatment of some hemorrhoids



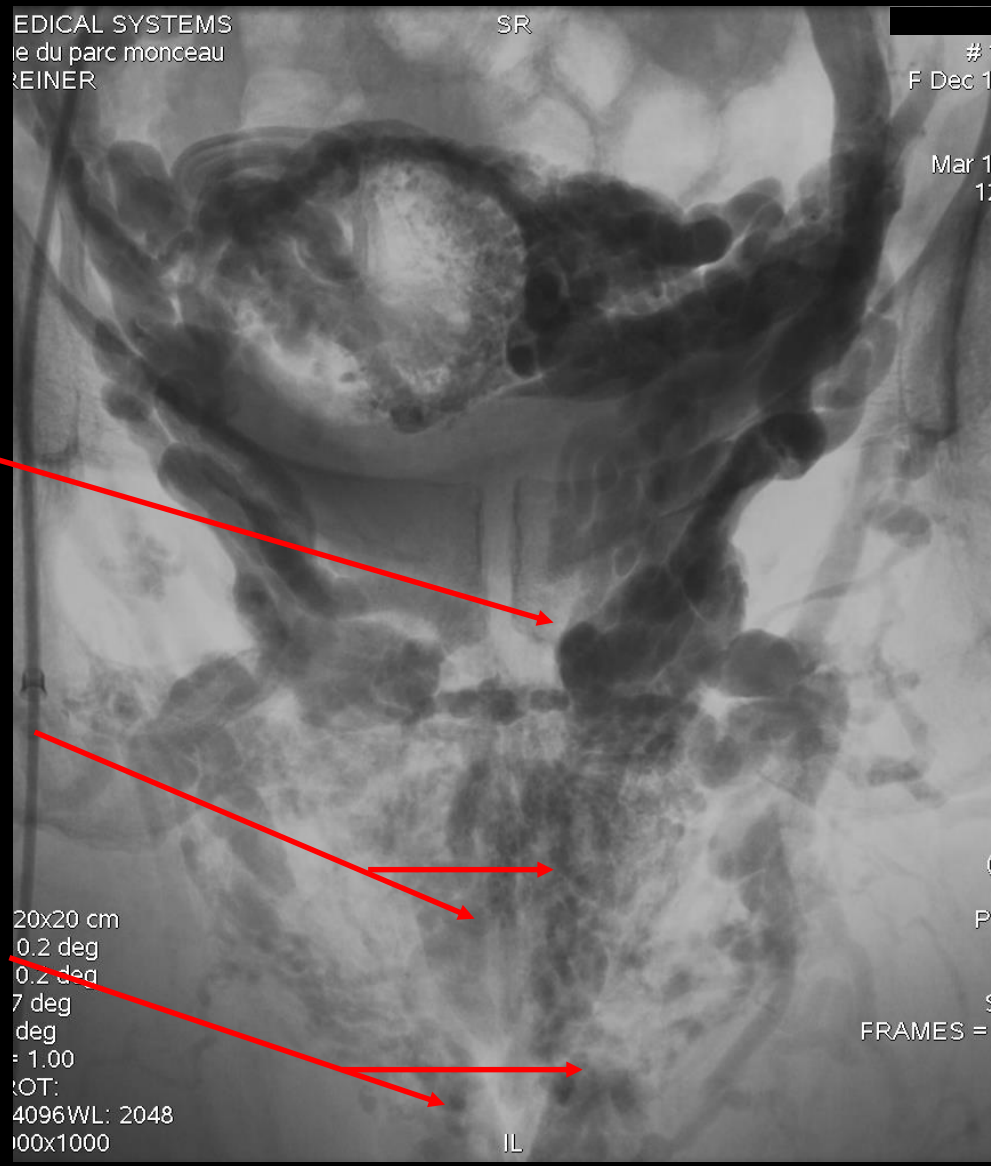
Cliché M.Greiner

Clinical coincidence

haemorrhoidal prolapse

Vulvar varicose veins

Thigh varicoses veins



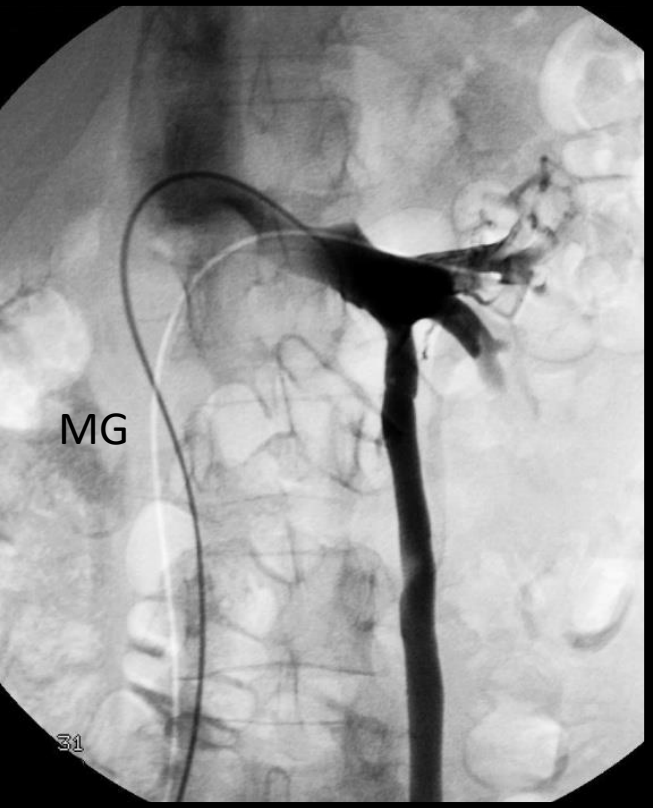
and phlebological evidence (same patient)

Phlebological evidence

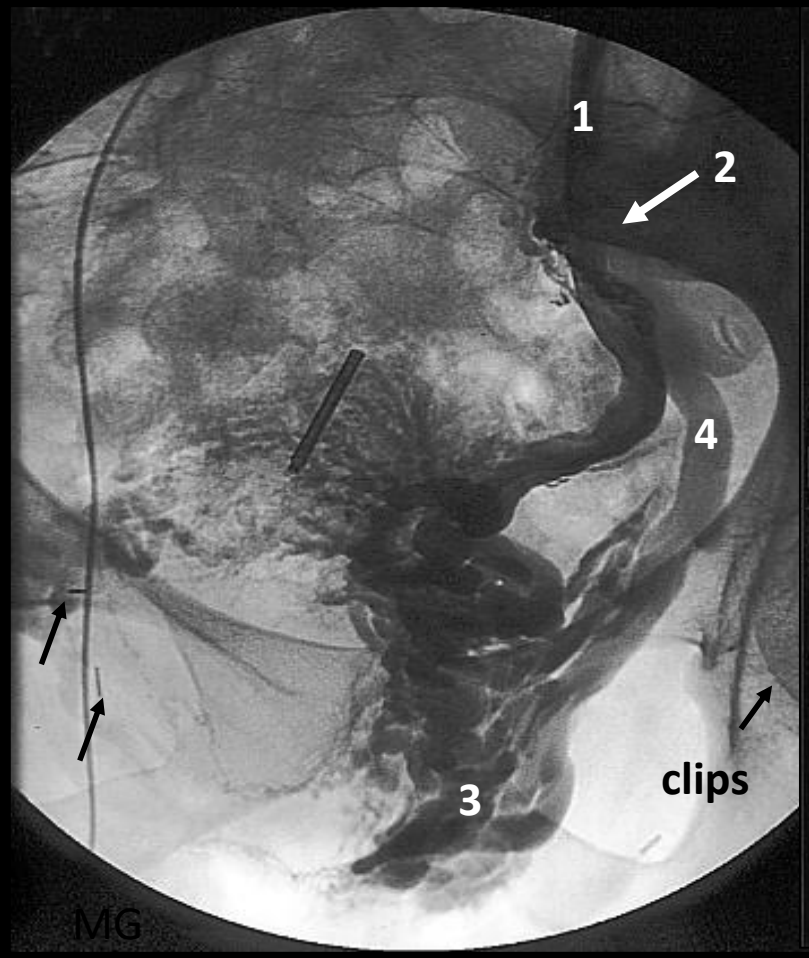
- 37-year-old female patient
- Left oophorectomy
- Three venous surgeries on each lower limbs for varicose veins + sclerotherapy without prior pelvic venous assessement
- Two sessions of sclerotherapy of vulvar varicose veins without prior pelvic venous assessement
- Consultation in emergency for debilitating and impressive hemorrhoids (degree 4)

→ Abdomino-pelvic phlebography (supine position)

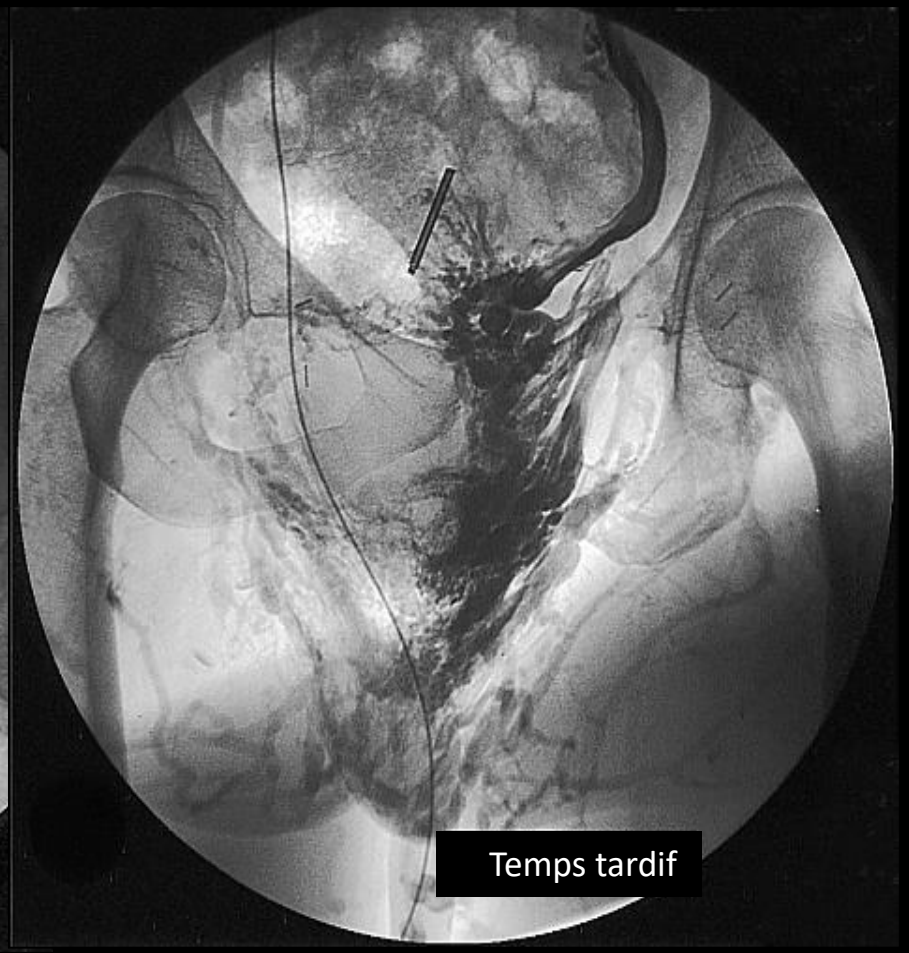
Phlebological evidence



Abdominal level
1 Left ovarian reflux (without Valsalva manoeuvre)



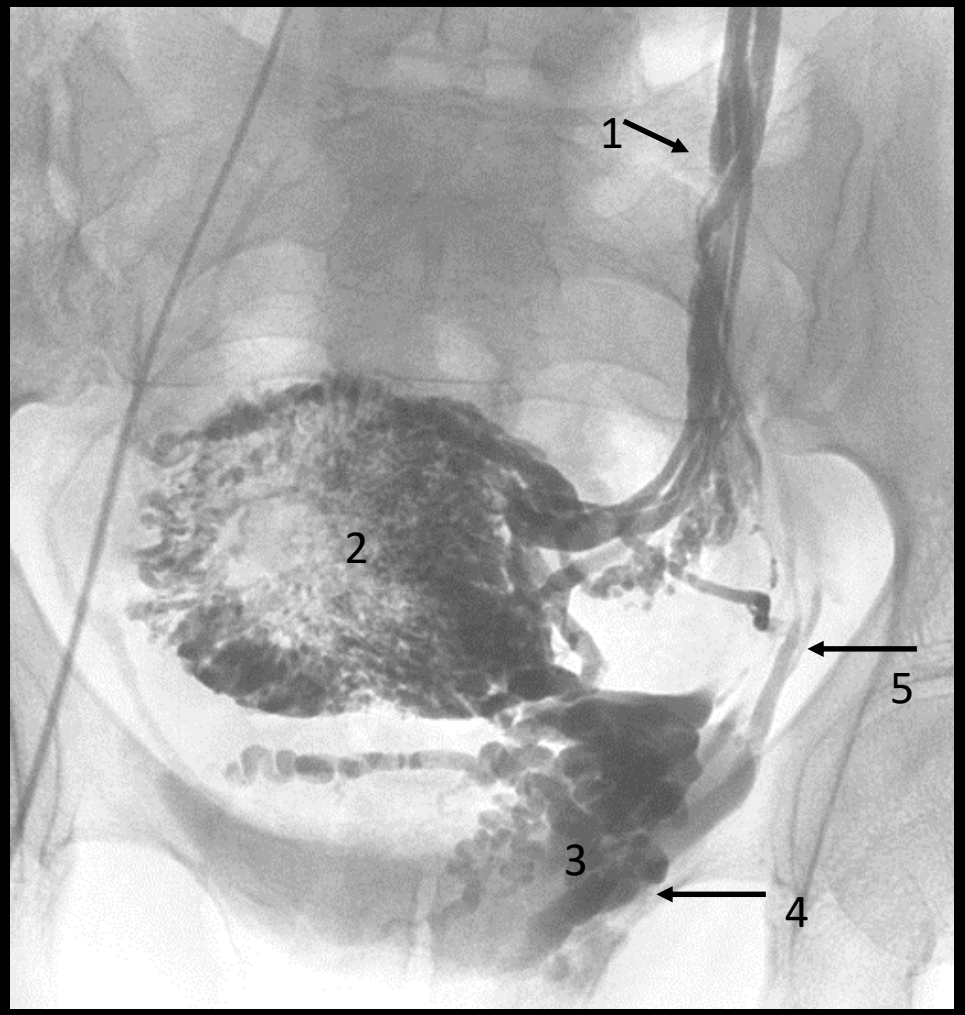
1 left ovarian vein;
2 surgical ligation of left ovarian vein;
3 hemorrhoidal prolapse
4 left medial pudendal vein (antegrade flow)



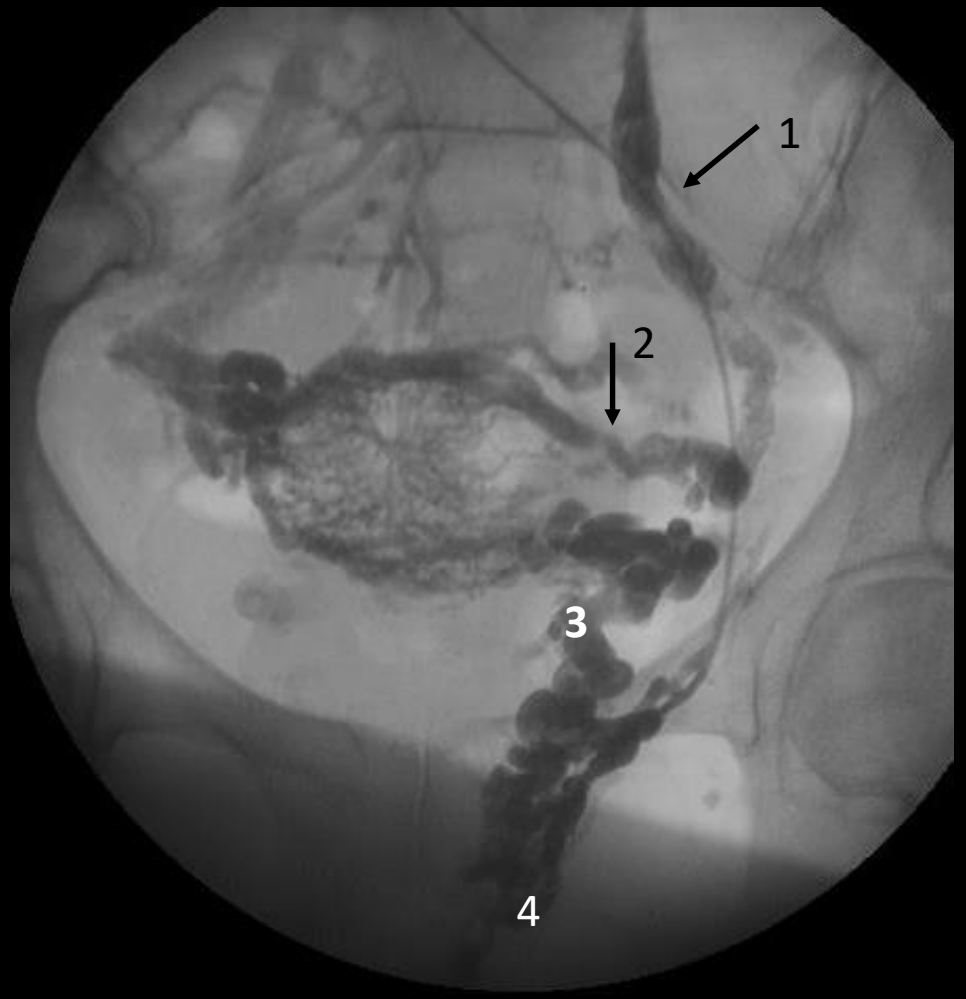
late time

The most frequent pelvic venous origins of hemorrhoids (personal experience)

1) Hemorrhoids originating from venous genital pathology by links between parametrial varicose veins and tributaries of the homolateral medial pudendal vein (utero-pudendal communications)

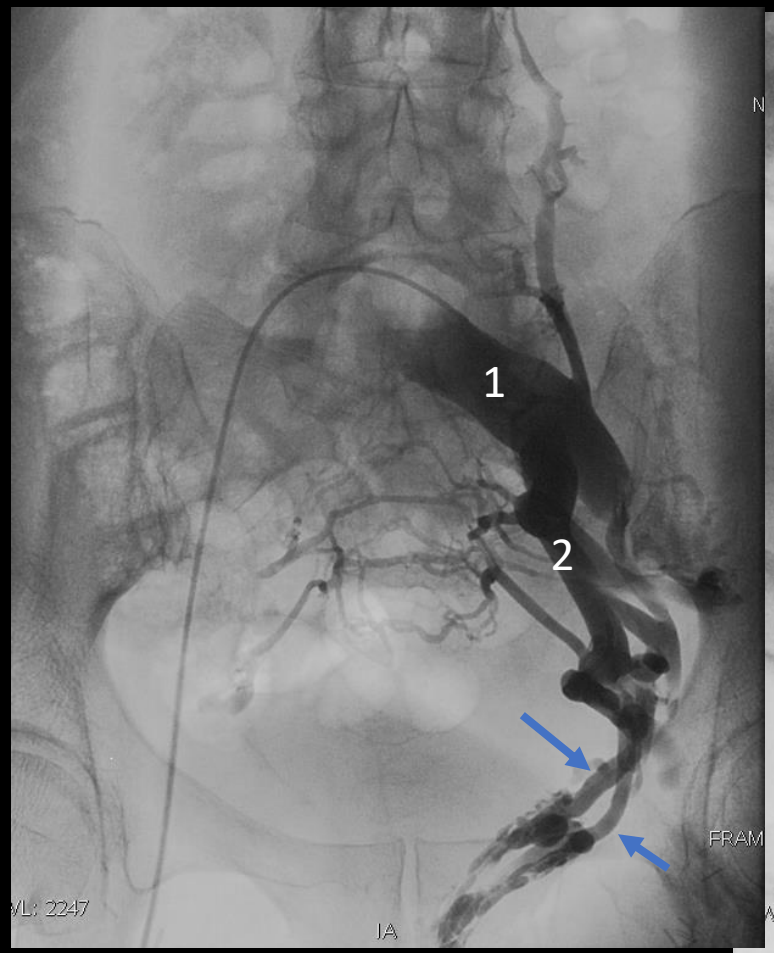


1: L ovarian reflux.; 2: uterus; 3:**utero-pudendal communications**; 4:refluxing pudendal tributaries; 5: left medial pudendal vein

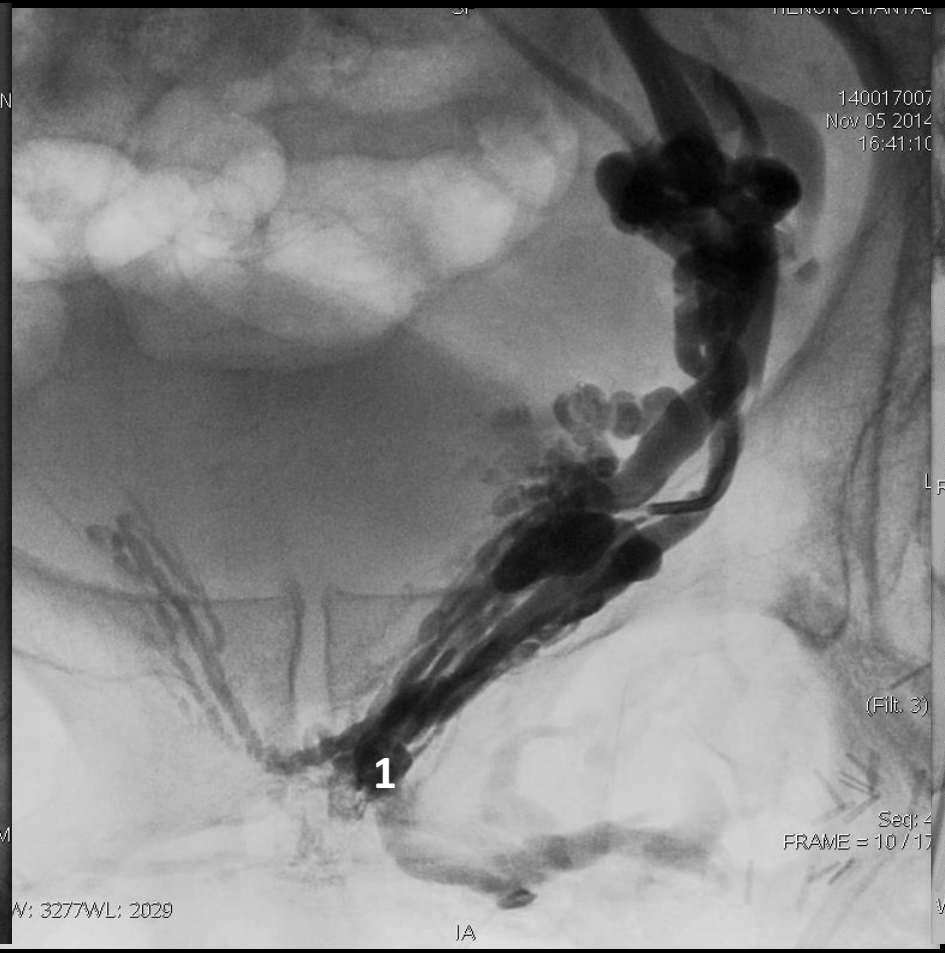


Other patient with hemorroids worsening after ovarian reflux embolization. Second session: 1: glued left ovarian vein; 2: glue stop; **3:utero-pudendal communications**; 4: refluxing pudendal tributaries.

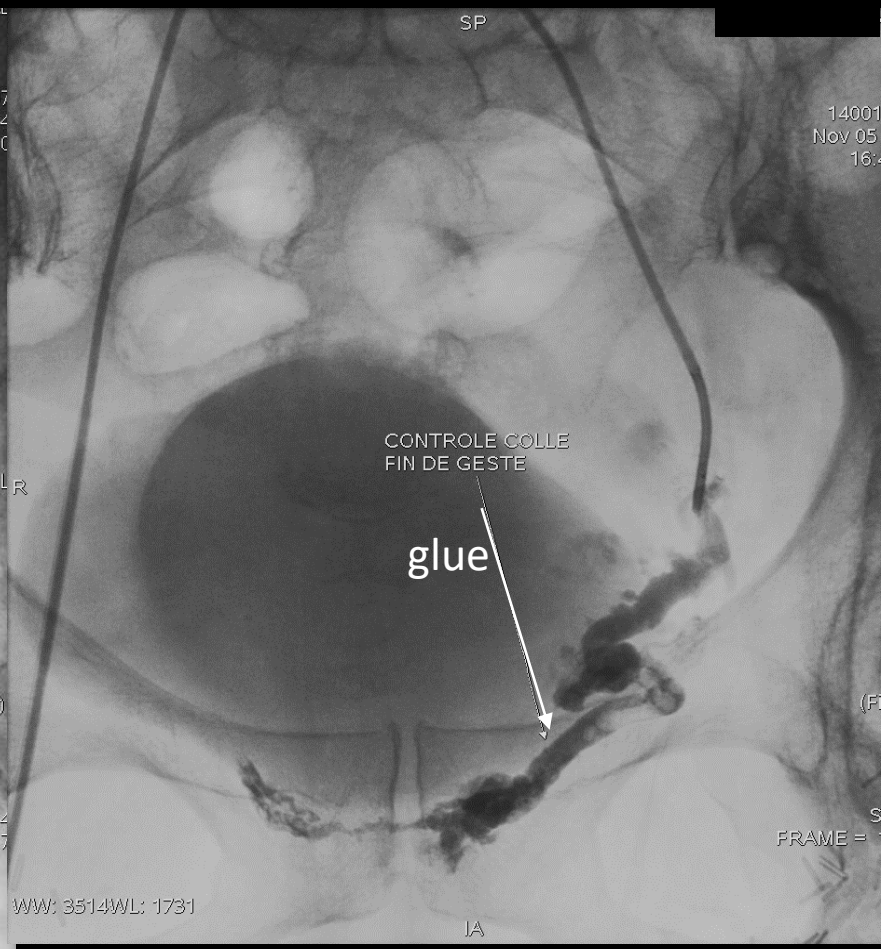
2) Hemorroids originating from the medial pudendal vein : by truncal incompetence of the medial pudendal vein (sometimes valveless: congenital variation) and/or incompetence of its tributaries



left incontinent medial pudendal veins (blue arrows). 1: common iliac vein; 2: left posterior collector.

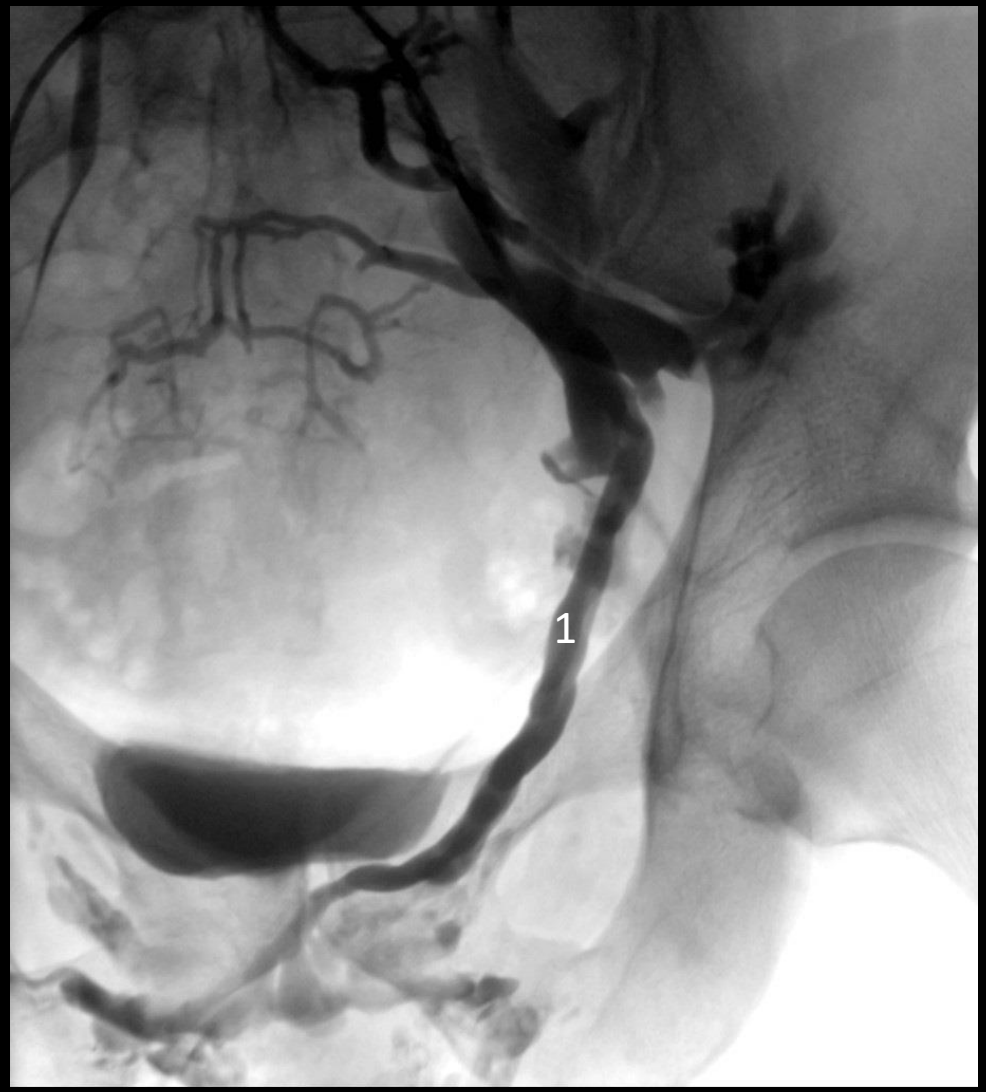


Selective catheterization of the left medial pudendal vein. 1:hemorroids

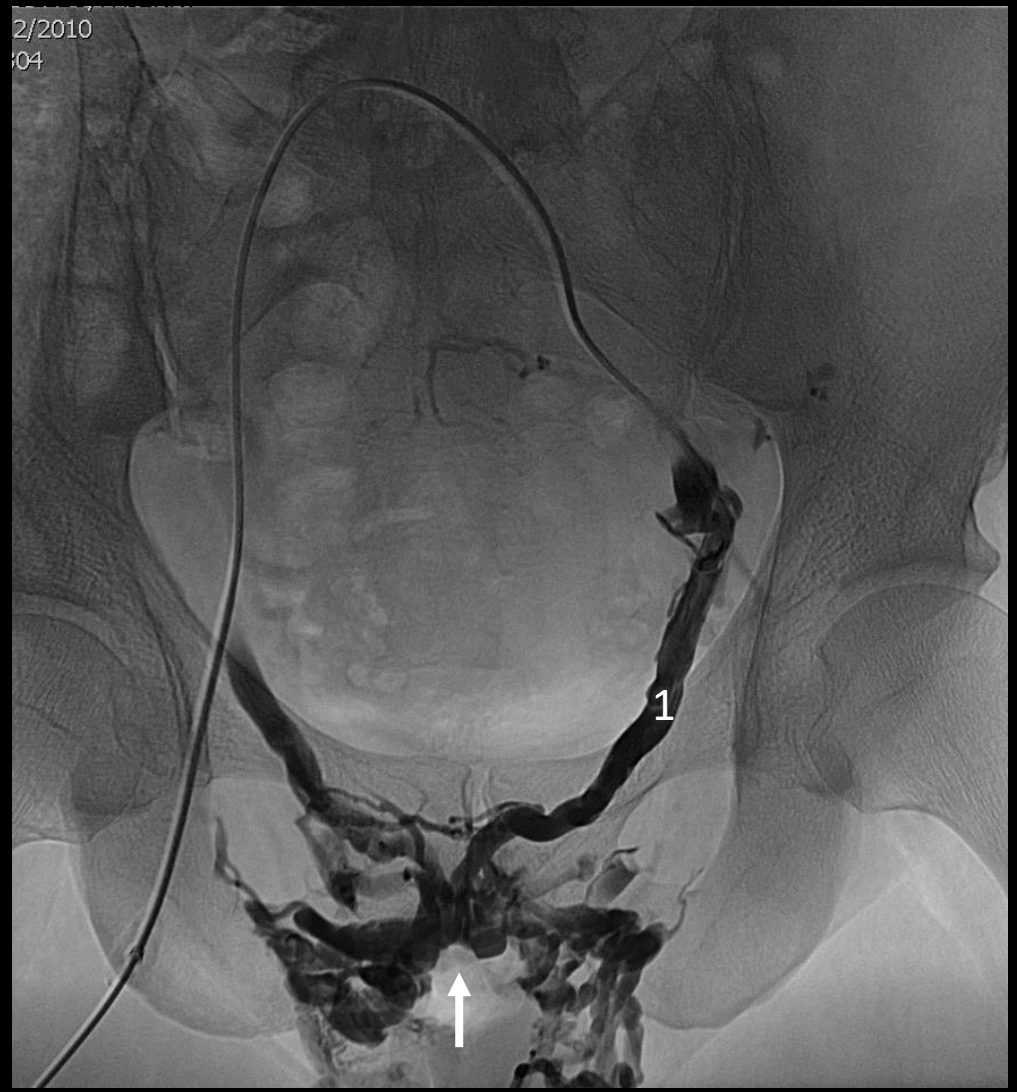


Same patient: treatment by glue

46-year-old male patient. Recurrence of hemorrhoids after surgery. Constant anal itching; 2 episodes of acute haemorrhoidal thrombosis. Clinical examination: hemorroids grade 3; perineal varices. Phlebography and treatment (2010)



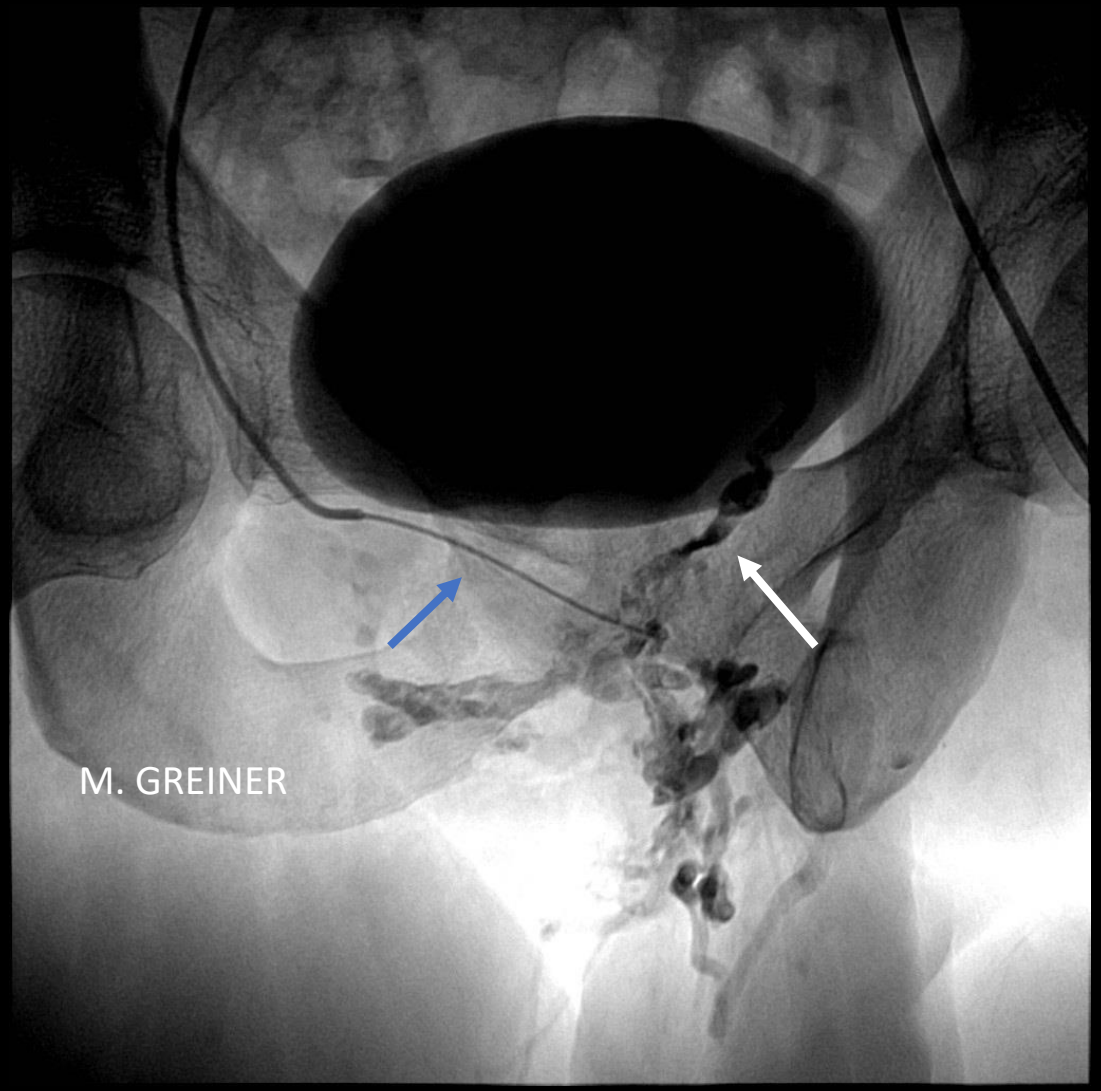
Injection of contrast agent in internal iliac vein.
Refluxing left pudendal medial vein (1) which is **valveless**



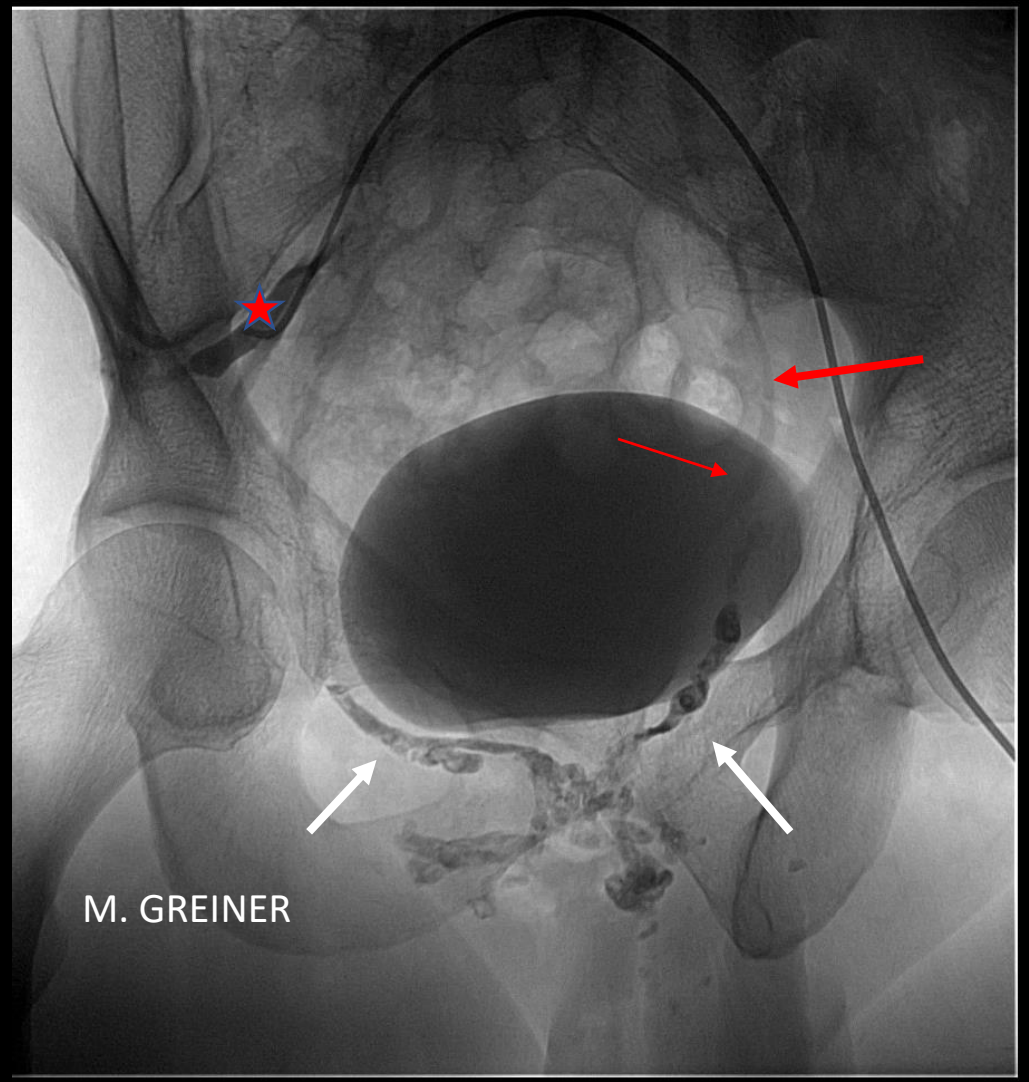
Selective catherisation of the left medial pudendal v. (1). White arrow: hemorrhoids

Same patient. Treatment by glue (white arrows) of the left and right medial pudendal v. in the same session.

➡ **Collapse of hemorrhoids , no recurrence of thrombosis, disappearance of anal itching**



Blue arrow: position of the micro catheter and injection of contrast medium immediately before glue injection.



Final control by contrast agent (red star) (first image). Red arrows: left ureter.

Conclusion 1

Is pelvic venous embolization efficient and sufficient for treating hemorroids?

- **It depends on the origin of hemorrhoids**

  Efficient only if the origin is venous related and sufficient at the only one condition of a proper management of pelvic venous pathology by supra selective embolization(s) (*treatment of inferior uterine varicose veins, refluxing medial pudendal veins, ovarian reflux)*

Conclusion 2

- **Before treating hemorrhoids**

in a woman:

If they are PCS symptoms, clinical perineal and/or vulvar varices, lower limbs varicose veins: look for pelvic varices/ pelvic reflux by duplex US; and then phlebography and treatment if necessary

in a man:

if the hemorrhoids are external:

look for perineal varices, lower limbs varicose veins; order for a trans perineal duplex US to identify pudendal leaks which have to be treated by supra selective embolization(s)

- Interest of venous treatment of hemorroids which is the less invasive among surgical hemorroids treatments //