



MANAGEMENT of
LEFT RENAL VEIN COMPRESSION
in PATIENTS PRESENTING
LEFT GONADAL VEIN REFLUX

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CONTROVERSIES & UPDATES IN VASCULAR SURGERY

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NO CONFLICT OF INTERESTS

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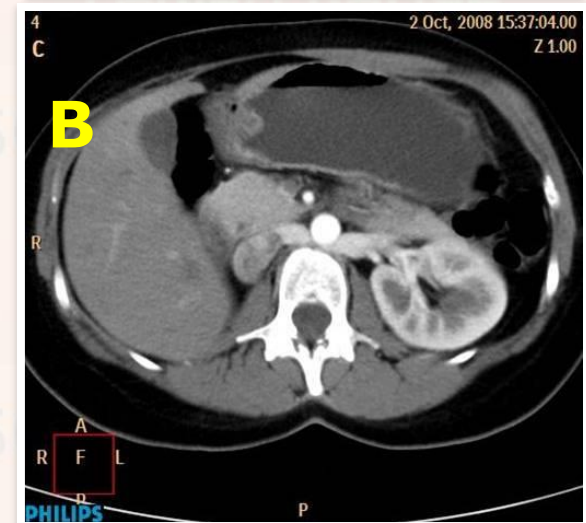
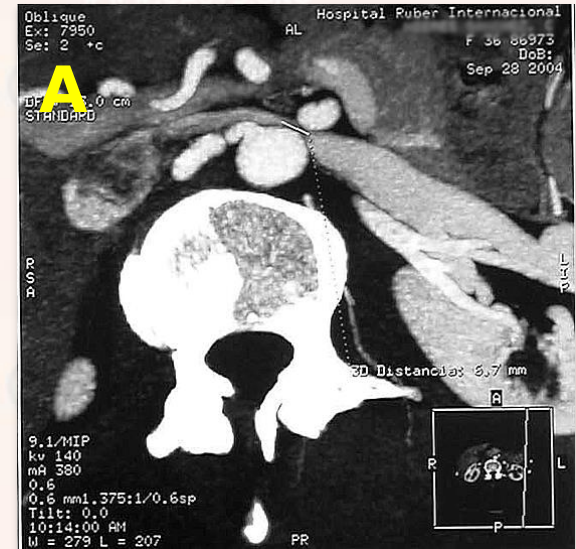
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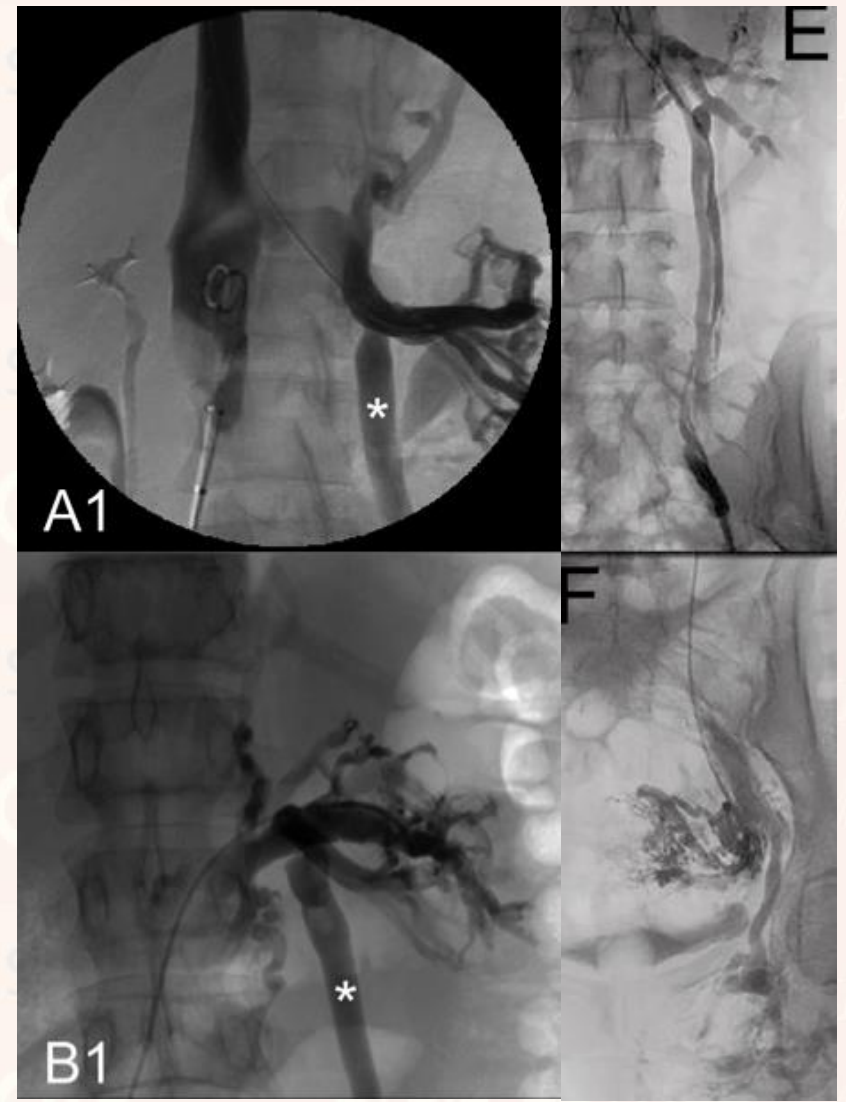
NUTCRACKER SYNDROME: DEFINITION

It is caused by the compression of the left renal vein (LRV) between the aorta and the superior mesenteric artery in the aorto-mesenteric fork (type A), or by compression of the left renal vein between the aorta and the lumbar spine (type B), causing an increment in the pressure gradient between distal LRV and inferior vena cava.



NUTCRACKER SYNDROME: HAEMODYNAMICS

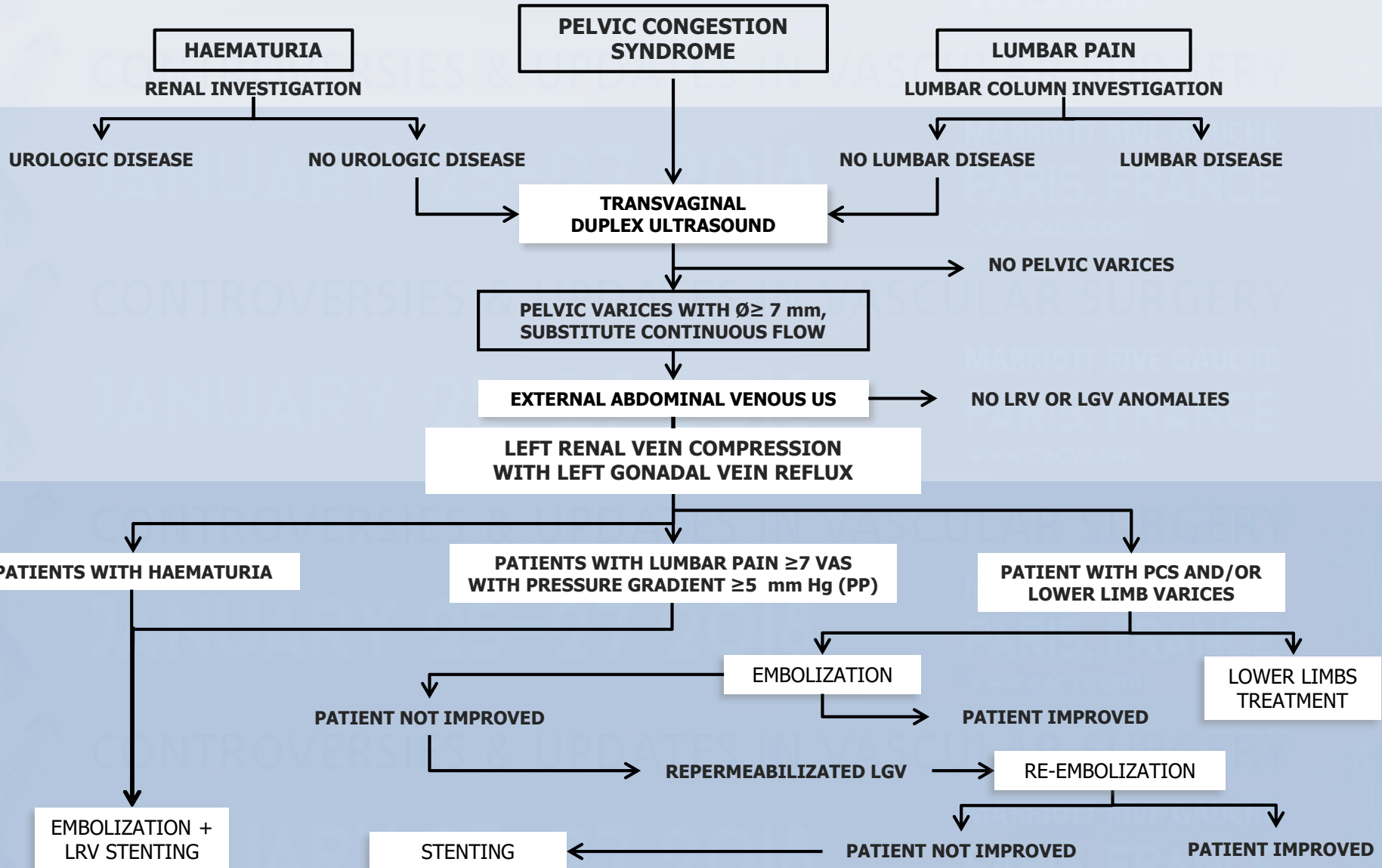
The compression induces venous obstruction of the LRV and fathers a collateral compensatory circulatory in the left gonadal vein, that becomes refluxive and in turn generates pelvic and/or lower limb varices.



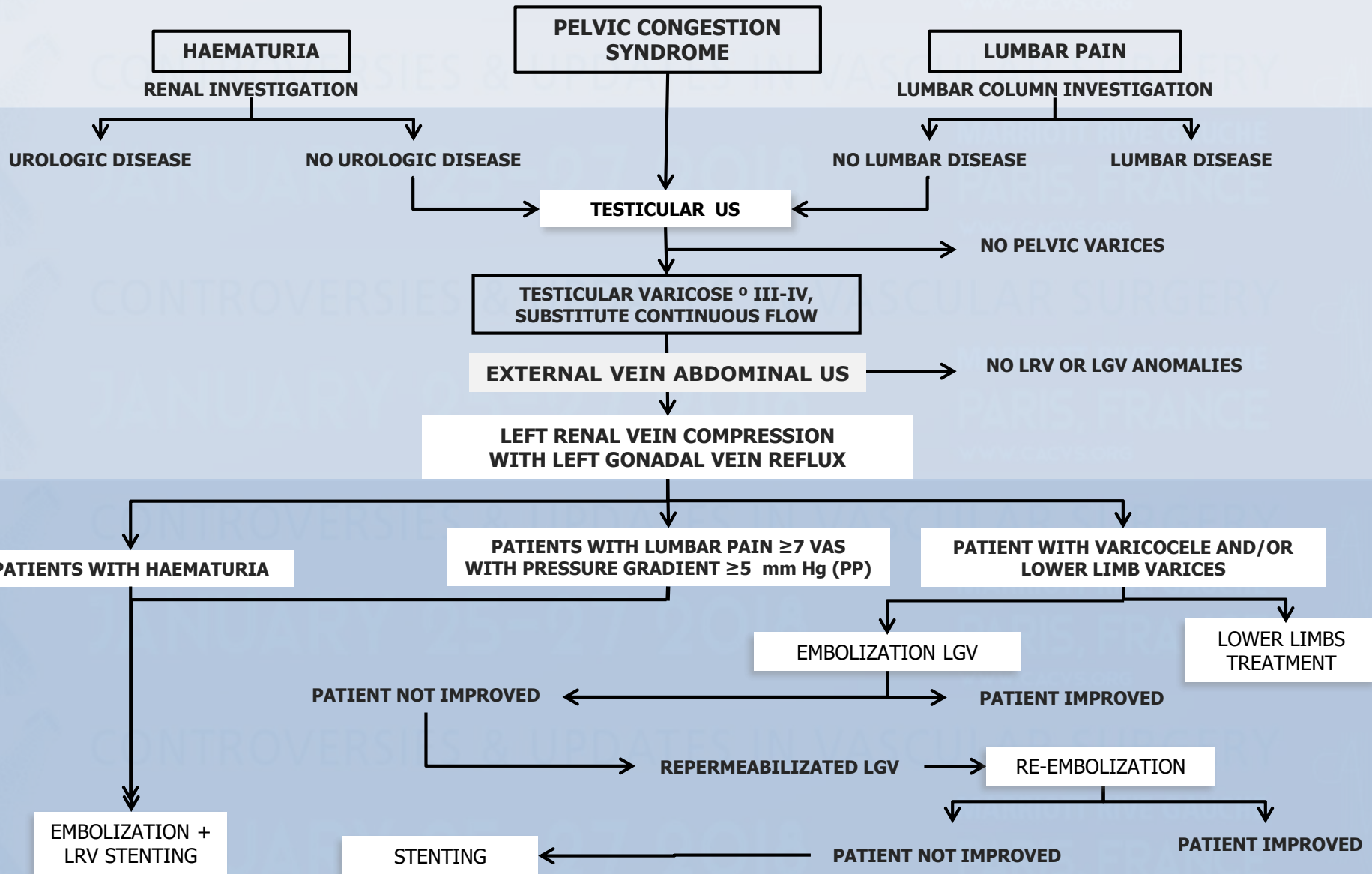
MATERIALS AND METHODS

- From January, 2005 to January, 2009, we evaluated 19.080 patients (15.983 ♀ and 3097 ♂), with an average age of 47 (25 to 69 range), presenting either lower limbs venous problems or pelvic congestion syndrome/varicocele.
- Among them, 1596 ♀ (9,98%) presented symptoms evoking a possible pelvic congestion syndrome. 140 ♂ (4,52%) presented varicocele, symptomatic or not.
- We undertake a consecutive prospective non-randomized study, finding 462 patients (450 ♀ and 12 ♂) with **LRV Compression**.

Schematic diagram of the investigation and treatment protocol in women

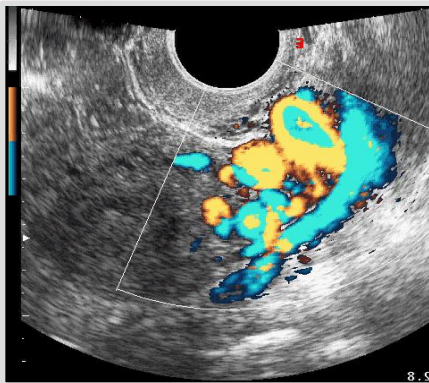


Schematic diagram of the investigation and treatment protocol in men

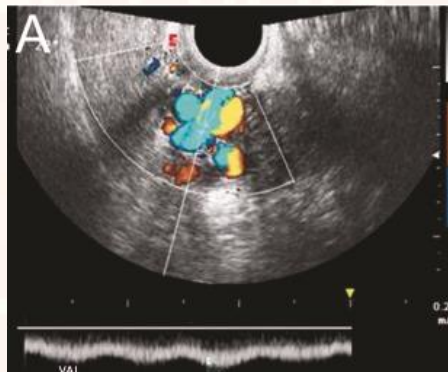


DUPLEX ULTRASOUND

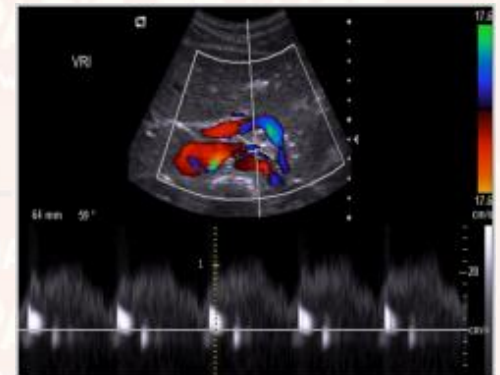
TRANSVAGINAL ECHO-DOPPLER n= 450 ♀	DILATED PELVIC VEINS ≥ 7 mm.	450 (100%)
	DERIVATIVE	415 (92.31%)
	MIXED	35 (7.69%)



DILATED PELVIC VEINS ≥ 7 mm.



DERIVATIVE FLOW = COMPRESSION



REFLUX - VALSALVA

SELECTIVE RENAL VEIN PHLEBOGRAPHY

(PATIENTS N=462: 450 ♀ , 12 ♂)

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LEFT RENAL VEIN COMPRESSION	MORPHOLOGY	TYPE A	401 (86.82%)
		TYPE B	61 (13.18%)
	GRADIENT PRESSURE	≥ 5 mm Hg	50 (10,88%)

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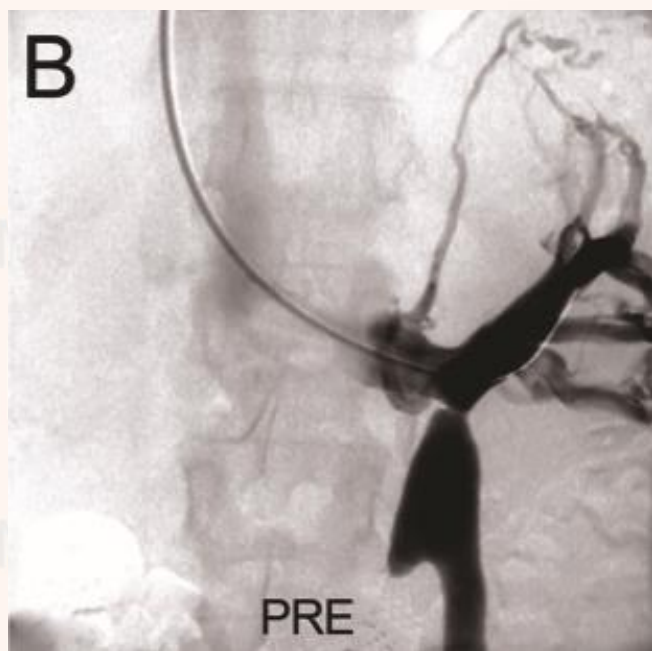
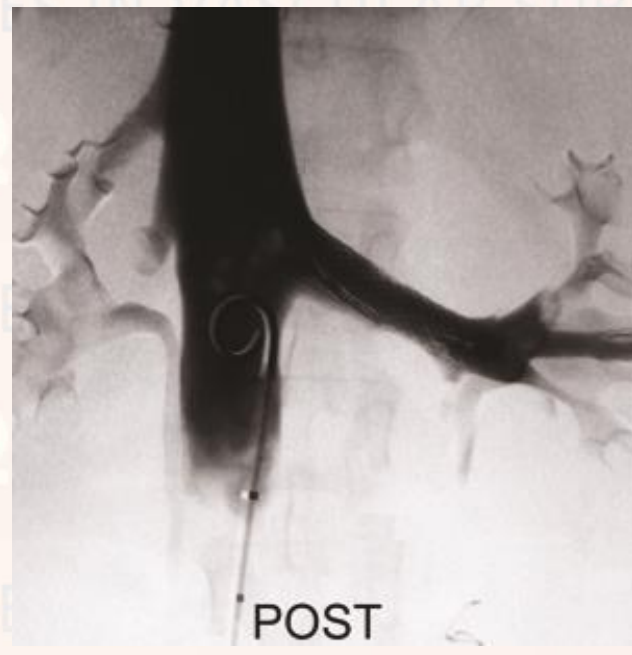
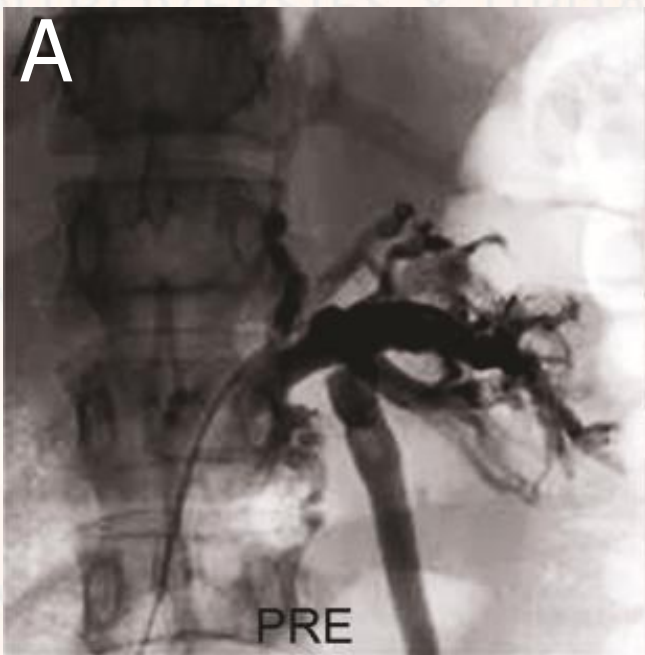
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INDICATIONS FOR STENTING

Patients (n=55)	Women (n=49)	Men (n=6)	Symptoms and signs
9	8	1	Haematuria
23	22	1	Severe Low Back Pain (≥ 7VAS)
8	6	2	Haematuria and Severe low Back Pain
7	7	0	Persistent PCS and pelvic varices related to left gonadal vein recanalization after embolization (Gradient pressure ≥ 5 mm Hg)
8	6	2	Persistent or recurrent lower limb varices after dedicated treatment (Gradient pressure ≥ 5 mm Hg)



COMPLICATIONS

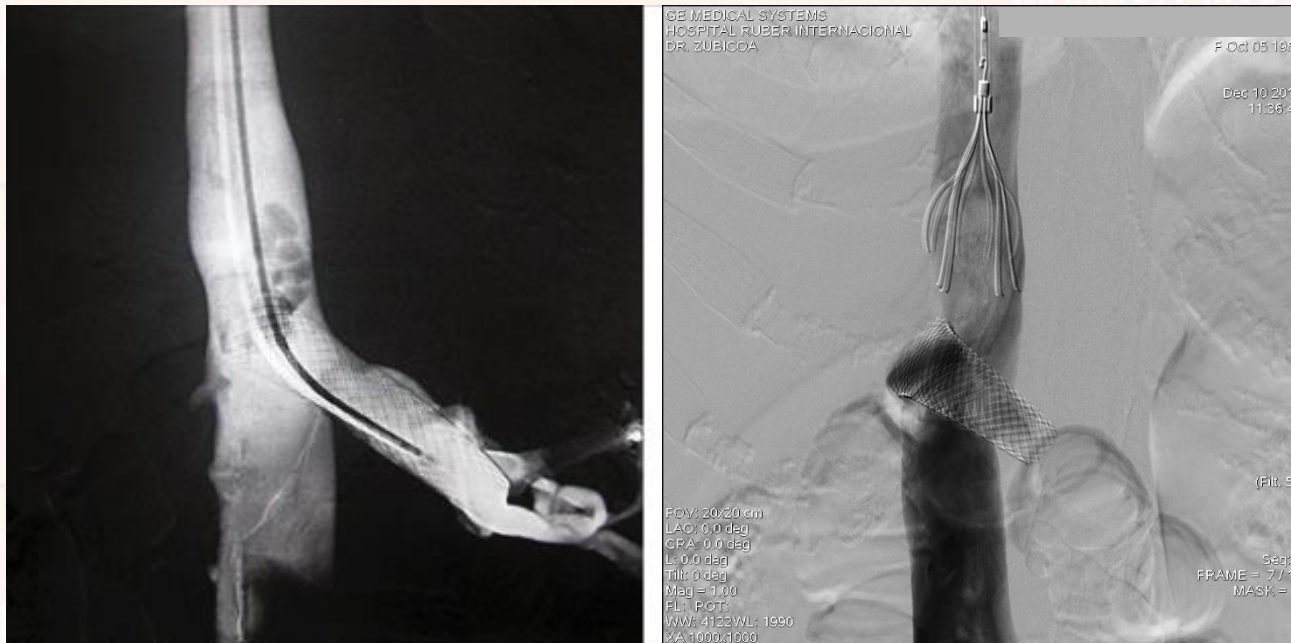
(PATIENTS N=55)

IMMEDIATE AFTER ANGIOPLASTY	POST-ANGIOPLASTY PAIN	55 (100%)
	PUNCTIONAL HAEMATOMA	5 (8,9%)
	STENT MIGRATION	2 (3.63%)
LATE TO ANGIOPLASTY	RE-STENOSIS	0

In our series, we had two cases of **STENT MIGRATION**.

One distal stent migration was treated by **complementary stenting** in the proximal LRV overlapping the previous stent, with satisfactory result in terms of clinical and venography outcomes.

In the other case, a proximal stent migration was approached by bilateral femoral access in order to try to **retrieve the stent**, without success. The stent was firmly inserted in the caval vein and was impossible to retrieve. As the patient presented only moderate left lumbar pain no further intervention was considered.



Clinical and instrumental outcome after left renal vein stenting

FOLLOW UP	PATIENTS (%)	CLINICAL Number / Total (%)	HEMATURIA RESEARCH	PHLEBOGRAPHY	ABDOMINAL/TVUE
PREOPERATIVE	55 (100%)	Severe back Pain (>7/10 VAS). 31 (56.4%)	17 (31%)	LRV compression 55 (100%)	LRV compression 40 (80%)
IMMEDIATE POSTOPERATIVE	55 (100%)	Mild post-operative left back pain frequent	0	Normal morphology and hemodynamics 55 (100%)	0
1 YEAR	55 (100%)	Persistent low back pain (>7/10 VAS). 5/31 (16.1%)	0	No	Normal morphology and hemodynamics. 55 (100%) except 1 proximal stent migration
5 YEARS	48 (87.3%)	Persistent low back pain (5/ 10 VAS). 5/27 (18.5%)	0	No	Normal morphology and hemodynamics. 48 (100%) except 1 proximal stent migration

CONCLUSIONS

- Left renal vein compression may be responsible of pelvic congestion syndrome or varicocele and, sometimes, nutcracker syndrome.
- Embolization and LRV stenting are done in the same session in presence of severe clinical nutcracker syndrome.
- In few cases, stenting is performed after embolization failure for persistent pelvic congestion syndrome or/and lower limb varices related to pelvic reflux.
- In our experience, LRV stenting was an **effective** and **safe** procedure with **demonstrated durable efficacy**.