weeks 24 and 48. Patients, clinical neurologists, research staff and radiologists reporting MRIs were all blinded.

**Results:** 104 participants were randomized at week 0 and 100 continued in the cross over at week 48 (49/49 venoplasty to sham cohort, 51/55 sham to venoplasty cohort). For sham and venoplasty respectively, the mean improvement from baseline to week 48 post second procedure in MSQOL-54 physical score was +1.3 and +1.4 (p=0.95); MSQOL-54 mental score +1.2 and -0.8 (p=0.55); fatigue score +0.2 and +0.1 (p=0.65); pain score +0.1 and -0.2 (p=0.19). 3 participants developed asymptomatic IJV thrombosis post venoplasty detected with ultrasound, 1 resolved by week 96.

**Conclusions:** Both sham and venoplasty groups had a transient improvement in patient reported outcomes that was not sustained. As was seen in the analysis prior to cross-over, there were no significant differences in patient-reported outcomes, chronic MS symptoms, or the disease course of MS between patients receiving sham or balloon venoplasty of extra cranial veins.

## 03:18 PM Abstract No. 95

### May-Thurner and beyond: subclassification of iliac vein compression related to overlying arterial vasculature

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**Purpose:** To evaluate our experience with stenting of iliac vein compression lesions related to vascular etiologies and proposed subclassification.

**Materials:** A retrospective review of 169 consecutive patients (196 limbs) with iliac vein obstruction treated with self-expanding nitinol stents between July 2011 and June 2017 was performed. Intra-procedural venography, intra-procedural intravascular ultrasound, pre-procedure CT/MRI, and post-procedure CT/MRI examinations were evaluated to identify patients with iliac vein compression from overlying iliac arteries. Patients with non-vascular compression or intrinsic iliac vein stricture were excluded. Patients with vascular iliac vein compression were subcategorized as follows: Type 1 – May-Thurner compression of left common iliac vein by right common iliac artery, Type 2 – Compression of left common or external iliac vein by left common or external iliac artery, Type 3 – Compression of right common or external iliac vein by right common or external iliac artery.

**Results:** Of the 169 patients, stented lesions were associated with identifiable etiologies of extrinsic compression in 109 (64.5%) patients. Nineteen patients were found to have nonvascular compression. Ninety were identified as having been treated for iliac artery-mediated iliac vein compression, including 55 (61.1%) with isolated Type 1 compression, 8 (8.9%) with isolated Type 2 compression, and 10 (11.1%) with isolated Type 3 compression. There were 12 (13.3%) patients with combined Type 1 and 2, 4 (4.4%) patients with Type 1 and 3, and 1 (1.1%) patient with Type 1, 2, and 3 compression.

**Conclusions:** In this cohort of patients with arterial compression of iliac veins, only 61% demonstrated classic May-Thurner syndrome with compression of the left common iliac vein by the right common iliac artery. The presence of types 2 and 3 compression was associated with an increased chance of stent extension into the external iliac artery. The presence of type 3 compression in combination with types 1 and/or 2 is associated with an increased total number of stents.

## 03:27 PM Abstract No. 96

### Prevalence of May-Thurner variants in patients with symptomatic May-Thurner syndrome

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**Purpose:** May-Thurner syndrome (MTS) is typically characterized by the compression of the left common iliac vein (LCIV) between the right common iliac artery (RCIA) and the fifth vertebra. Various types of May-Thurner variants (MTV) have been sporadically documented in case reports. This study aimed to identify the prevalence of MTV among the subset of symptomatic MTS.

**Materials and Methods:** Single-center data of 173 consecutive patients presented with symptomatic MTS were reviewed from October 2004 to April 2018. MTS was diagnosed by computed tomographic venography. MTV was defined as (i) compression of the LCIV by other structures than the RCIA or (ii) compression of other pelvic veins than the LCIV. MTV was categorized as (i) LCIV compression group if the LCIV is compressed by other structures than the RCIA and (ii) non-LCIV compression group if the LCIV is not involved.

**Results:** Ten MTV were identified (5.8%), including 5 LCIV compression (category 1) and 5 non-LCIV compression (category 2). Patients' median age was 76 years (range, 51-94 years), male/female: 1/1, median follow-up was 388 days (range, 12-4694 days). All patients presented with deep vein thrombosis of the corresponding limbs. In category 1, the LCIVs were compressed by the left common iliac artery (LCIA) (n=2), huge myoma (n=1), LCIA aneurysm (n=1) and RCIA aneurysm (n=1). In category 2, the right common iliac veins (RCIVs) were compressed by RCIA (n=4) and L5 osteophyte (n=1). Inferior vena cava filters were inserted in 4 patients. Endovascular management with balloon angioplasty and stent insertion were performed in 6 patients, 3 of each category. One patient underwent endovascular aneurysm repair for RCIA aneurysm. The rest 3 patients received conservative treatment due to advanced age and comorbidities. Follow-up images were available for 6 patients and all of them had patent venous outflow.

**Conclusions:** This study brings attention to the relatively high variant of symptomatic MTS population. Vigilance of different anatomical MTV is essential for correct diagnosis and treatment. Endovascular management is safe and effective and should tailor the lesion anatomy.