

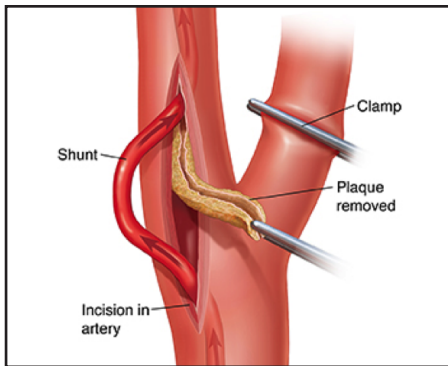
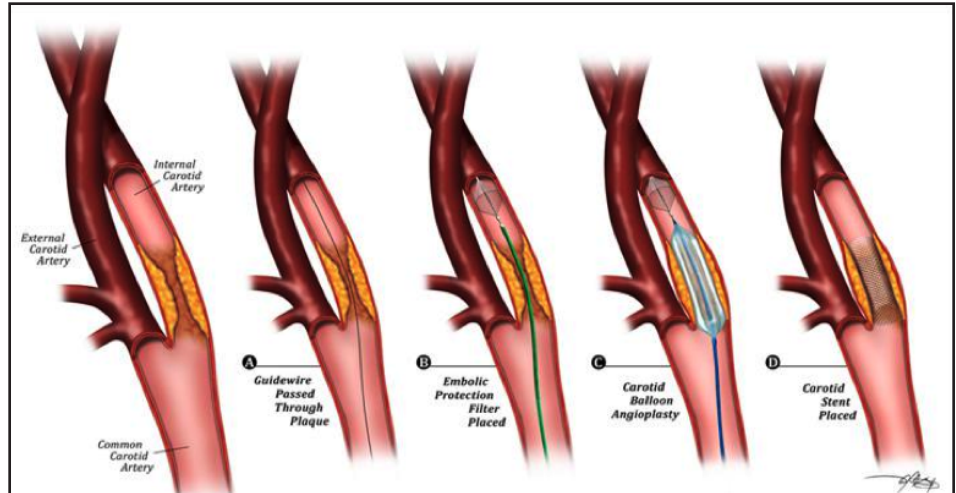


Image demonstrates carotid arteriotomy in the ICA with a shunt in place. This shunt provides adequate cerebral perfusion while the vessels are clamped. The atherosclerotic plaque is being carefully removed.



Images of Carotid Stenting Procedure: Note cerebral protection device in place

Carotid Artery Disease remains a significant cause for Stroke in patients today. A recent study demonstrates that **there are 750,000 strokes per year.** The incidence of stroke is the leading cause of disability. Treatment and the sequelae of stroke is the third leading cause of nursing home admissions.

In one study of prevalence and determination of carotid atherosclerosis in the general

population, the **prevalence of carotid atherosclerosis was 25.4% in men and 26.4% in women.** In this study, 630 men and 718 women were evaluated for the presence of carotid disease in the age range of 18-99 years old. In this study, intimal-medial thickening was found in 9.4% of men and 11.7% of women. Plaque prevalence was 13.3% in men and 13.4% in women. The presence of stenotic plaques was 2.7 % in men and 1.5% in women. From this study, the presence of atherosclerotic were significantly decreased in patients less than 39 years old. There was also a positive association between the se-

verity of carotid disease with age, presence of hypertension, elevated cholesterol and smoking.

With this newer information, it has revolutionized the treatment algorithm used to treat these challenging patients. Current stroke prevention guidelines advise that evaluation and management of patients with TIA should occur within 1-2 weeks of a TIA to reduce the risk of a future stroke.

RESEARCH BRIEFS

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PELVIC CONGESTION SYNDROME (PCS) OR PELVIC VENOUS INSUFFICIENCY WAS RECOGNIZED IN THE GYNECOLOGIC LITERATURE IN DECADES PAST.

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Every gynecologist in practice has encountered patients with **chronic pelvic pain, that is, pain that has persisted for over 6 months**. With **15-20% of women aged 18-50 experiencing pelvic pain** that lasts for at least a year, it represents a frequent cause for visits to both gynecologists and primary care physicians. There are many causes for this sort of pain, including endometriosis, uterine fibroids, ovarian cysts, as well as disorders of the musculoskeletal, gastrointestinal or urinary systems. **In up to 60% of patients, the cause remains uncovered.**

Pelvic Congestion Syndrome (PCS) or pelvic venous insufficiency was recognized in the gynecologic literature in decades past, but the lack of findings on routine pelvic exam and its association with mental health and relationship issues has led many gynecologists to be unfamiliar with the condition or suspect that it does not exist. The association of symptoms with menses and with prolonged standing or sitting, further complicates the diagnosis for gynecologists, who most frequently examine their patients between periods and in a reclining or low-lithotomy position.

Still, most gynecologists have encountered patients with prominent or tortuous peritoneal vessels, either intraoperatively or on ultrasound evaluation. A few may have encountered patients who complained of mysterious one-sided leg swelling associated with their menstrual periods. A search of the current gynecologic literature results in a recommendation for trial of oral contraceptives or other hormonal therapies to reduce progesterone levels or decrease the frequency of menses.

By contrast, a review of the vascular surgery and radiology literature on pelvic congestion syndrome presents an entirely different picture. The use of foam sclerosant with or without embolization coils to occlude dilated and refluxing segments of the pelvic vasculature has been reported frequently in the past 10 years, with **excellent clinical efficacy (generally >85%)** and with marked

improvement in patient reported pelvic pain and dyspareunia.

The pathophysiology of the development of sluggish drainage of the utero-ovarian and ovarian veins is also well described. Ovarian vein reflux and pelvic varicosities result from congenital absence of venous valves in the pelvis or from acquired dilation of the pelvic veins, commonly resulting from pregnancy. Pelvic venous insufficiency can also be secondary to upstream obstruction, such as nutcracker syndrome (left renal vein compression by the superior mesenteric artery) or May-Thurner syndrome (left iliac vein compression by the right internal iliac artery).



In experienced hands, transabdominal or translabial venous ultrasound can demonstrate pelvic varicosities and indicate ovarian vein insufficiency. Ovarian veins greater than 6mm with reversed blood flow, the presence of pelvic varicoceles or dilated arcuate veins (>5mm) are considered strongly suggestive of PCS in symptomatic patients. Examining the patient in an upright position or with Valsalva maneuver can aid in the evaluation. Compression of the left iliac vein can also be assessed by venous ultrasound.

The gold standard for diagnosis of PCS or pelvic venous insufficiency is venography.



Reflux of contrast from the renal vein into dilated ovarian veins, stagnation of contrast in the pelvic veins, reflux across the midline are diagnostic. Treatment with embolization of unilateral or bilateral ovarian veins has resulted in **significant relief in 70-100% of patients** in multiple reports with lasting improvement in the vast majority with follow up as long as 5 years. Sclerosis of the pelvic veins directly has also been extensively reported with similarly high rates of lasting improvement. In patients with upstream obstruction, endovascular stent placement to relieve compression is more limited but growing. Following the procedure, anti-inflammatory medications are used to control pain; narcotics are rarely necessary. The first menstrual period following treatment is often heavier than normal and warning patients to expect this greatly improves patient satisfaction. Major complications of these procedures are rare.

In 2003 Chung reported a prospective comparison of endovascular and surgical therapies. One-hundred eighteen women with chronic pelvic pain diagnosed with PCS after laparoscopy and venography who failed a 4 to 6 month trial of hormonal therapy, randomized to ovarian vein embolization, hysterectomy with bilateral salpingoophorectomy, and hysterectomy with unilateral oophorectomy. Pain was assessed using a visual analog scale at presentation and at 3, 6, and 12 months after treatment. **Embolization was significantly more effective at reducing pain** compared to surgery, and hysterectomy with unilateral oophorectomy had the least effect.

For patients with chronic pelvic pain without evidence of endometriosis, or other pelvic pathology, who report symptoms suggestive of PCS such as **post-coital pelvic pain, pain that worsens with prolonged standing, or associated findings such as vulvar varicosities or unexplained leg swelling**, referral to a vascular specialist can facilitate a focused evaluation, and, if evidence of pelvic venous insufficiency is identified, highly effective treatment for pelvic pain.