Is Stenting The Best Treatment Option For The Nutcracker Syndrome?
J. Leonel Villavicencio MD, FACS

Objective:
To review the pathophysiology of the meso-aortic compression of the left renal vein (Nutcracker syndrome) and analyze its management options.

Background:
The nutcracker syndrome is an important part of the pelvic venous syndromes. Four hemodynamic sources have been recognized for the symptoms of chronic, dull, pelvic and left flank pain, dysmenorrhea, dysuria, dyspareunia that may produce frigidity and anxiety. Vulval and lower extremity varices characteristically located on the posteromedial aspect of the thigh are often present. Hematuria micro or macroscopic and proteinuria are part of the symptomatology. Varicocele in men lead patients to seek urological consult. The four identified causes are: gonadal venous insufficiency, internal iliac vein insufficiency, insufficiency of both, the gonadal and the internal iliac vein (pelvic dumping syndrome) and meso-aortic compression of the left renal vein or nutcracker syndrome.

Patients And Methods:
We reviewed the medical literature from 2005 to 2012 and analyzed 18 representative series including ours with a total of 148 patients with documented nutcracker syndrome. There were 22 children in our review. Mean follow-up range was 5 years. Procedures performed were: left kidney auto-transplantation (3), external stenting of left renal vein (wrapped renal vein) (1), gonado-caval saphenous bypass (3), left renal vein transposition (26), and spleno-renal bypass (1). Forty patients including the 22 children, were treated conservatively by observation. The remainder 52 patients had endovascular left renal vein stenting. There were more than twice the number of females to males in the series reviewed.

Results:
Among the 52 patients who received renal vein stenting (35%), the symptoms of hematuria, proteinuria and pain either disappeared or significantly improved in 95% of the patients within one to 12 weeks into the postoperative period. The most common complication was stent migration to the right atrium (2), to the inferior vena cava (3), to the hilar left renal vein branches, postoperative left lumbar area pain lasting up to 2 months (15%). Autotransplantation of the renal vein was successful in all cases, the external renal vein stent become displaced and an endovascular stent was placed instead. Transposition of the left renal vein was successful in all patients as well as spleno-renal bypass. The 22 children were managed conservatively using fludrocortisone or midodrine in those with more severe symptoms such as dizziness, malaise, orthostasis. Mean follow up ranged from 3 to 5 years.

Conclusions:
1. The nutcracker syndrome may be encountered by different types of medical specialists. Its symptoms may be severe, its diagnosis is often difficult and for this reason, treatment often is delayed.
2. Once diagnosis is established, laparoscopic renal vein transposition to a lower site of the inferior vena cava is the preferred technique in children and young patients. Children grow and stents don’t.

3. Reports of intraluminal stenting of the left renal vein have appeared with increasing frequency. The relatively long follow-up observation period revealed the safety and effectiveness of the procedure. This technique has become a valuable therapeutic alternative to more invasive procedures.