An Analysis of Case Logs From American Urologists in the Treatment of Peyronie's Disease

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OBJECTIVE To review recent trends in the treatment of Peyronie's disease (PD), we assess surgical practice patterns of urologists in the United States with emphasis on specialty training, demographics, and temporal changes.

METHODS Six-month case log data of American urologists between 2004 and 2013 were obtained from the American Board of Urology. Current Procedural Terminology (CPT) codes were used to identify surgical procedures, including plaque injection.

RESULTS A total of 6564 urologists were included in the surgical cohort, logging 8195 surgical procedures for PD. Only 15.4% of urologists (1012/6564) reported a surgical case for PD. Andrologists (urologist subspecialty designation) accounted for 5.3% of these urologists (54/1012) and performed 18.5% of PD procedures ($P = .0001$). The frequency of plaque injections increased from 499 in 2004 to 797 in 2013, a 59% increase, whereas surgical correction remained stable. Urologists performed four times as many injections as surgical procedures for PD ($P = .001$) with andrologists more likely to attempt injection than surgical correction ($P = .045$). Among surgeries performed, 73.2% were corrections of angulation without plaque excision, 20.5% were excisions of plaque (with possible grafting) up to 5 cm, and 6.2% were excisions of plaque (with possible grafting) >5 cm. There was a 313% increase in the ratio of plication to plaque manipulation (0.92 in 2004 to 2.91 in 2013).

CONCLUSION PD is treated by a minority of urologists and disproportionately by subspecialist in andrology. When compared with surgical interventions, excluding prosthesis implantation, most surgeons favor conservative treatment. The majority of surgical corrections were corrections of angulation without plaque manipulation. UROLOGY 87: 205–209, 2016. © 2015 Elsevier Inc.

Acquired penile curvature known as Peyronie's disease (PD) is a common condition impacting an estimated 3-9% of men.[1-4] The etiology of PD remains unknown; however, the most widely accepted hypothesis is that repeated microvascular injury secondary to trauma of the tunica albuginea along with a protracted inflammatory response results in remodeling of connective tissue into a dense plaque.[5,6] The sexual and psychological consequences of PD are well described, with a significant decline in sexual performance and self-confidence associated with PD.[2,7-9]

Several comorbid conditions have been linked to PD including hypertension, lipid abnormalities, diabetes, smoking, and erectile dysfunction (ED).[10] Unfortunately, the dearth of evidence-based outcome studies on the treatment of PD impedes the development of treatment pathways regarding the appropriate management of PD.[11,12] As a result, practice patterns vary widely regarding the management of PD.[13-15]

Because surgical practice patterns of PD in the United States are underreported, we sought to clarify the recent surgical trends in PD. We conducted a specific assessment of surgical technique adoption, surgeon-specific characteristics, treatment selection, and the association of surgical subspecialization with treatment patterns. We hypothesize that a growing trend toward more nonoperative and minimally invasive treatment patterns may exist, and that plication is more widely used than plaque manipulation to surgically correct curvature.

MATERIALS AND METHODS

The American Board of Urology (ABU) serves as a surgical specialty board for improving standards, promoting competency, and encouraging education in the practice of urology. Certification from the ABU requires the demonstration of a level of knowledge and expertise necessary for the care of patients with urological

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diseases. If certified prior to 1985, recertification is not mandatory; however, for all urologists certified after 1985, a mandatory recertification must be performed every 10 years. A major component of certification is the submission of candidates' surgical operative logs describing a 6-consecutive month period prior to application submission. These logs characterize patient demographics including patient age and gender. Surgeon characteristics including age, certification group, and location of clinical practice are included. In addition, surgeons report self-appointed subspecialization in 1 of 6 areas (endourology, oncology, andrology, infertility, pediatric urology, and female urology).

Diagnoses were logged according to International Classification of Diseases ninth revision (ICD-9) code, and surgical procedures are coded using the Current Procedural Terminology (CPT) coding system. The CPT code 54200 was used to identify "injection of Peyronie's plaque"; the codes 54110, 54111, 54112, and 54360 were used for surgical correction of PD, including surgical plication and plaque excision. Penile prosthesis surgery was excluded from review because of an inability to define if the prosthesis was placed for treatment of both ED and PD. We analyzed annualized case logs for trends and used Fischer's exact test to evaluate surgeon factors and practice factors. Results were considered statistically significant with two-sided α <0.05. This study was exempted from Institutional Review Board approval.

RESULTS

A total of 6564 urologists surgical case logs were reviewed from 2004 to 2013: 8195 surgical procedures were recorded for treatment of PD over this 10-year period. A minority of certifying urologists (1012/6564, 15.4%) reported performing a procedure for the correction of PD. Andrologists (urology subspecialty designation) accounted for 5.3% (54/1012) of all urologists in our study, but they performed a disproportionate percentage (18.5%) of all PD procedures (1516/8195, p <.001). Non-andrologists treating PD on average logged a total of 6.9 procedures, whereas andrologists averaged 28.0 procedures (P = .001).

The frequency of plaque injections increased annually from 499 in 2004 to 797 in 2013, a 59% increase (Fig. 1). Urologists performed four times as many injections as surgical corrections of PD. Injection therapies accounted for 82% (6957/8433) of procedures performed, whereas only 18% (1476/8433) of logged cases involved the surgical correction of PD (P = .001). Andrologists were significantly more likely to perform plaque injection than surgical correction when compared with all other urologists (P = .045). There was no statistically significant effect of surgeon age or certification group on treatment choice.

When treated surgically, 73.2% of all surgeries were corrections of angulation without plaque excision, 20.5% were excisions of plaque with and without grafting up to 5 cm in length, and 6.2% were excisions of plaque with grafting >5 cm (Table 1). There was a 313% increase in the performance of plication as compared with surgical procedures with plaque excision (with or without grafting) within the time frame of the study (0.92 in 2004 to 2.91 in 2013, Fig. 2). Although variability in practice patterns based on region exists, there were no significant differences among major geographic regions, practice types, or practice setting.

COMMENT

PD remains a poorly understood urologic condition lacking a clear understanding of etiology or optimal treatment. PD appears to be a condition with a low rate of spontaneous improvement with only 12-14% of men showing spontaneous improvement at time of last follow-up.[16-18] Practice

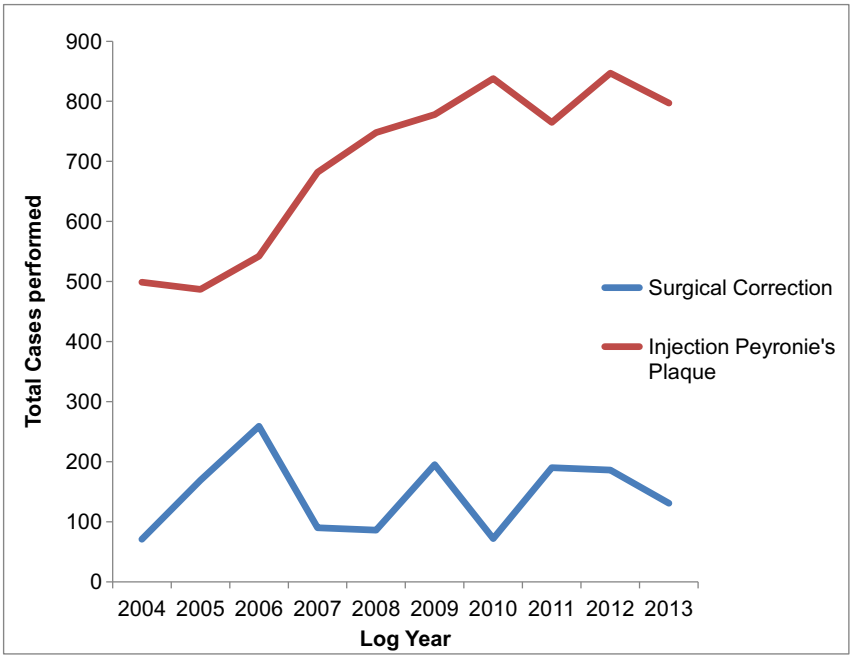

Figure 1. Temporal trend of surgical correction versus injection therapy for treatment of Peyronie's disease. (Color version available online.)