

The Use of Penile Computed Tomography Cavernosogram (CTC) in the Evaluation of Peyronie's Disease

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Introduction:

The evaluation of Peyronie's Disease (PD) relies on patient history and physical exam. The clinical assessment of plaque size and location on exam is qualitative, observer dependent, and has been shown to be unreliable. Current guidelines recommend an office intracorporal penile injection with or without penile color doppler ultrasound. Advanced imaging techniques play a limited role. Therapeutic success is highly dependent upon pre-treatment evaluation and patient selection. The use of Computed Tomography Cavernosography (CTC) in the anatomic evaluation of PD has not been investigated or reported.

Materials & Methods:

Men with documented PD underwent 3D CTC with concurrent intra-cavernosal injection. Patients were placed in the Philips IQon Spectral CT scanner and injected with papaverine, phentolamine, and prostaglandin into the base of the penis. The medication dose was determined by pre-existing erectile function. The dose was repeated until an erection adequate for penetration was achieved or the maximum dose had been administered. A 20-gauge angiocatheter was inserted into the left subcoronal corpora after injection of lidocaine. The penis was then manually inflated using a 50% mixture of iodinated contrast solution until maximum erection was achieved. 3D CT imaging was then obtained. Images were processed using Philips software v4.7.5.43524.

Results:

The procedure was uniformly well tolerated. Plaque size and location were underestimated by clinical assessment when compared to CTC. Extensive cavernosal disease exceeding previous clinical assessment was frequently identified. Corporal disease was identified in locations inaccessible on physical exam. Precise measurement of the penile angulation in multiple planes was possible through three-dimensional software manipulation of the images. CTC revealed extensive fibrosis and/or atrophy of the underlying corpora cavernosa, identifying patients unlikely to respond to localized collagenase. In these cases, advanced imaging offered benefit in the process patient counseling and therapeutic decision-making.

Conclusions:

CTC is a valuable tool in the evaluation of Peyronie's disease. CTC imaging provided enhanced pretreatment assessment of the location, size, and clinically unrecognized severity of disease. The procedure was well tolerated and demonstrated utility in clinical decision-making regarding disease management and patient education. Further prospective studies are needed to determine the role of CTC in the diagnosis and treatment of PD.