

Peyronie's Disease: A Case of Calcified Plaque

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Received: January 12, 2022

Published: January 26, 2022

Abstract

Peyronie's Disease (PD) affects up to 10% of males and is characterized by penile scar tissue that can cause penile pain, shortening, curvature, and sexual dysfunction. Although there are genetic predispositions, PD is largely thought to occur due to poor wound healing after penile trauma. There are now a variety of treatment options ranging from medical to surgical. Plaque formation can be seen in patients with PD, and these plaques can form calcifications. We present a case with imaging evaluation of PD with a calcified plaque.

Keywords: Peyronie's disease; Plaque; Penis

Introduction

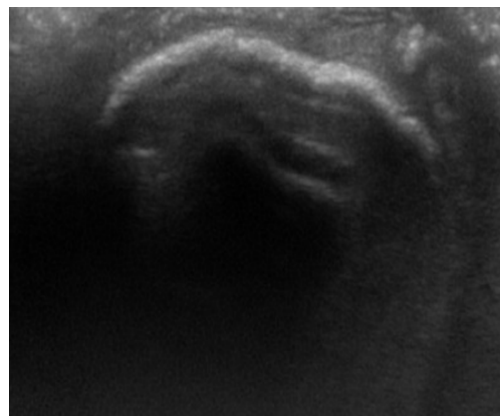
Peyronie's Disease (PD) is defined by the American Urological Association (AUA) as an acquired penile abnormality that is characterized by fibrosis of the tunica albuginea [1]. PD can be associated with penile pain, sexual dysfunction, psychological distress and penile deformity such as curvature, shortening, or narrowing. Approximately 10% of males have PD although the formal diagnosis rate is far lower [2].

Scarring of the tunica albuginea can lead to increased fibrosis and subsequent plaque formation [3,4]. Calcification of plaques can also occur in advanced PD [5]. We present a case of a patient with PD and calcified plaque. Additionally, we include ultrasound and CT imaging to enhance the description of the disease and specifically the calcification.

Case Report

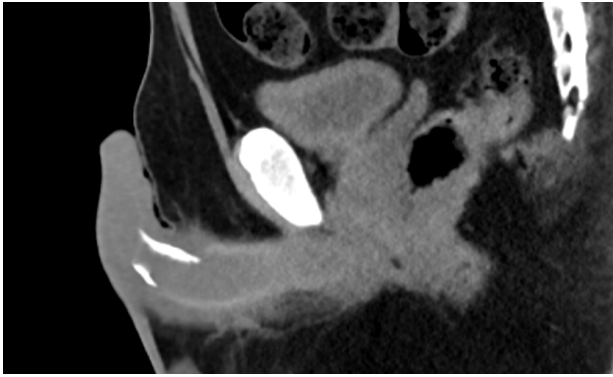
A 46-year-old male presented to our urology clinic with a history of type 2 diabetes mellitus, hypogonadism, hypertension, and Peyronie's disease. He described a dorsal curvature of approximately 45° which began approximately 1-2 years prior to this evaluation. The patient did not recall any specific trauma. His curvature was stable, and he had been pain-free for 12 months; however, his PD interfered with his ability to perform sexual intercourse despite otherwise adequate erectile function. He began treatment with collagenase Clostridium histolyticum (CCH) injections but did not continue after the second of eight doses as he felt no benefit from this therapy. On clinical exam, the patient had a palpable plaque approxi-

mately 3 cm long involving the mid shaft, mostly dorsally located. The penis had a 45° dorsal curvature and the plaque was measured as 2.3 cm wide and 3.0 cm long. Penile duplex ultrasound (PDU) identified a corresponding mid-shaft, dorsal hyperechoic area (Figure 1).

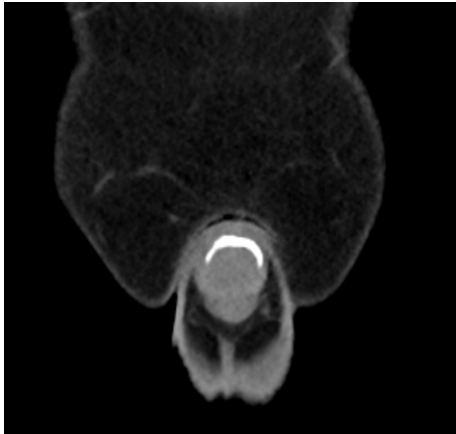


(Figure 1).

Due to the concerns for extensive calcification, a non-contrast pelvic computed tomography (CT) scan was ordered to evaluate the patient's PD further. The CT revealed thick, contiguous calcification in the area corresponding to physical exam and PDU (Figure 2, 3). On CT, the calcified plaque measured 3.0 x 8.0 x 0.3 cm and was 'C-shaped' and predominantly dorsal. This imaging demonstrated larger plaque extent than what was visible on PDU.



(Figure 2).



(Figure 3).

Based upon the severity of the patient's disease, he was recommended to consider plaque excision and grafting. In patients with good erectile function, PD plaques can be excised, and a graft used at the excision site. In patients with poor erectile function, a penile prosthesis typically needs to be placed, possibly in addition to plaque excision and grafting.

Discussion

While PD may be present in 10% of male patients, calcified plaques are not as commonly seen and have been identified in about 30% of patients with PD [6]. The epidemiology and pathophysiology of calcified PD is not well understood [7]. Wymer et al. showed that calcified plaques were seen in younger patients and in patients who had a longer duration of PD [6] similar to our patient.

Detailed characterization of PD plaque is important to provide the correct treatment plan since the options vary from medical to injections to surgery. In 2013 the United States Food and Drug Administration (FDA) approved CCH for the treatment of PD. Randomized control trials showed significant penile curvature reduction and improved symptomatology with the use of CCH compared to a placebo injection [8,9]. Importantly, patients who had $< 30^\circ$, $> 90^\circ$ or ventral penile curvature or who had plaque calcification were excluded from the trials. A recent study found patients with stippled calcification or calcification that did not prevent adequate CCH injection may still benefit from CCH injections [10]. More study of the features of calcified PD at PDU and CT is needed to plan appropriate therapy.

Plaque calcification has been shown to be a predictor of poor response to medical or injection therapies [6,11,12]. Increased plaque calcification has also been shown to have an increased need for surgical intervention in PD [13]. Our patient had a sig-

nificant amount of penile calcification associated with his PD. Therefore, he would not be a good candidate for CCH [14]. Instead, surgical intervention would be favored in a patient such as ours [15].

Conclusion

PD is a penile healing disorder that can consist of penile deformity and plaque formation. Plaques can develop calcifications. We present a case of penile plaque calcification with coinciding imaging in a patient with PD. Treatment can be expedited and better targeted with ultrasound as well as CT.

Author Contributions: BAB, AA, LG, GAB, JGC, LFA all participated in drafting and approval of the manuscript

Competing Interests: None

Grant Information: None

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