Penile Mondor Disease and its Effect on Erectile Function: Results of 30 Patients

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OBJECTIVE To investigate the treatment outcomes among patients diagnosed with penile Mondor disease and to evaluate the effect of the disease on erectile function.

METHODS A total of 30 patients diagnosed with penile Mondor disease were enrolled in the study. All patients underwent physical examination and penile Doppler ultrasonography and filled in the International Index of Erectile Function (IIEF-5) questionnaire at regular intervals. Pharmacotherapy was started when penile Mondor disease was diagnosed. After the data were confirmed to be normally distributed using Kolmogorov-Smirnov test, the differences between the 3 IIEF-5 scores were evaluated using repeated measures analysis of variance and post hoc Bonferroni tests.

RESULTS The mean age of the patients was 34.3 years (range, 25-48 years). Ten patients had prolonged sexual intercourse, 4 had recent intestinal infection history, 2 had recent long-haul flights, 1 had sickle cell anemia, and 2 had penile trauma caused by sexual intercourse. Nine patients were considered idiopathic. Mean IIEF-5 scores at the baseline and at 1- and 2-month follow-ups were 20.87, 20.07, and 20.93, respectively. Although no significant difference was found between the baseline and the 2-month follow-up IIEF-5 scores, significant differences between the baseline and the 1-month ($P = .004$) and the 1- and 2-month follow-up IIEF-5 scores ($P = .0001$) were detected.

CONCLUSION Penile Mondor disease is a rare complication that can be successfully treated with medical therapy and conservative approach. Our series showed that penile Mondor's disease does not lead to permanent deformation of the penis or erectile dysfunction. UROLOGY 85: 113–117, 2015.

Penile Mondor disease is a rare condition characterized by thrombosis or thrombophlebitis of the superficial dorsal vein of the penis.[1] Henry Mondor described a sclerosing thrombophlebitis in the superficial veins of the chest wall first; Braun Falco then described a generalized form of the disease involving penis in 1955, and an isolated thrombosis of the superficial vein of the penis was first reported by Helm and Hodge in 1958.[2-4]

Penile Mondor's disease has a prevalence of approximately 1.4% and is usually seen in sexually active men aged between 21 to 70 years.[5] It is an under-reported and underdiagnosed medical condition owing to patients' fear and reluctance to consult a physician and insufficient description of the complaints.[6]

The exact etiology of the disease remains unclear; however, it is generally believed to involve enteroviral infection, contact with menstrual blood (due to irritation), tuberculosis, circumcisional scar tissues, prolonged sexual activity (sexual intercourse or masturbation), prolonged sexual abstinence, trauma to the pelvis or external genitalia, surgical intervention on the pelvis or external genitalia, and tumors located in the pelvis.[1,7] There are also case reports of penile Mondor's disease after inguinal hernia repair and subinguinal varicocelectomy.[8,9] Penile Mondor's disease is considered idiopathic if none of these etiologic factors are present in a patient. Deficiencies of antithrombin 3, protein-C, and protein-S are thought to be involved in these idiopathic cases.[10] A main etiologic cause of the disease is considered to be mechanical trauma, and the patients generally report prolonged sexual activity in the past 24-48 hours.

Penile Mondor's disease can usually be diagnosed by medical history and physical examination. There are no specific laboratory tests or markers for the diagnosis. Penile Doppler ultrasonography (USG) can be performed for exact or differential diagnosis. Patients usually admit with pain and discomfort during erection and palpable swelling and hardness on the dorsal surface of the penis. Thrombosed dorsal vein of the penis often extends to the suprapubic region, with associated swelling, erythema,

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and edema of the penile skin. Thus, penile angioedema should also be considered in the differential diagnosis.[10] In this study, we aim to investigate the treatment outcomes among our patients diagnosed with penile Mondor's disease and to evaluate the effect of the disease on erectile function.

METHODS

A total of 30 consecutive patients diagnosed with penile Mondor's disease at our outpatient urology clinic between 2009 and 2013 were enrolled in the study. On admission, all patients were evaluated with a detailed medical history and physical examination. Additionally, patients aged >40 years had prostate examination, and their serum prostate-specific antigen levels were checked. Depending on the patients' accompanying symptoms, laboratory investigations (such as urinalysis, hemogram, C-reactive protein levels) were conducted. Penile Doppler ultrasonography was performed by a radiologist who was informed about the possible diagnosis. In addition, to assess their erectile function, all patients were asked to complete the International Index of Erectile Function (IIEF-5) questionnaire (IIEF-5-1) as a baseline value. After being informed about the diagnosis and the treatment method, patients were prescribed oral antibiotic (cefuroxime axetil), acetylsalicylic acid, and topical heparinoid treatment. Follow-up evaluations were done at 2 weeks, 1 month and 2 months of treatment. Patients filled in the IIEF-5 questionnaires again during the follow-up visits at 1 month (IIEF-5-2) and 2 months (IIEF-5-3), and had a repeat penile Doppler USG performed by the same radiologist at the 2-month follow-up.

Descriptive statistics were expressed as means and standard deviations. Correlation between the quantitative variables was analyzed using the Pearson correlation coefficient. The Kolmogorov-Smirnov test was used to verify the normal distribution of the data. The differences between the 3 IIEF-5 scores (IIEF-5-1, IIEF-5-2, and IIEF-5-3) were evaluated using repeated measures analysis of variance and post hoc Bonferroni tests. A P value of $<.005$ was considered statistically significant.

RESULTS

The mean age of the patients diagnosed with penile Mondor disease at our clinic was 34.3 years (range, 25-48 years). They admitted to our outpatient clinic with the complaints of palpable hardness at the dorsum of the penis, pain during erection, and redness and tenderness of the penile dorsal surface lasting for an average of 5 days (ranged from 4 to 9 days). Six patients had a history of admission to another hospital with the same complaints, but a diagnosis could not have been made. On physical examination, a hard venous structure suggestive of a thrombus was palpated in all patients (Fig. 1). In 20 patients, the above described structure was on the dorsal surface of the penis extending parallel to the bottom of the glans penis, whereas in the remaining 10 patients, it extended from the dorsal penis into the suprapubic region. In 10 patients (33%), redness of the tissue over the venous structure and a subcutaneous edema of the glans penis were also observed. A digital rectal examination was performed in patients aged >40 years (7 patients) and revealed no pathologic finding.

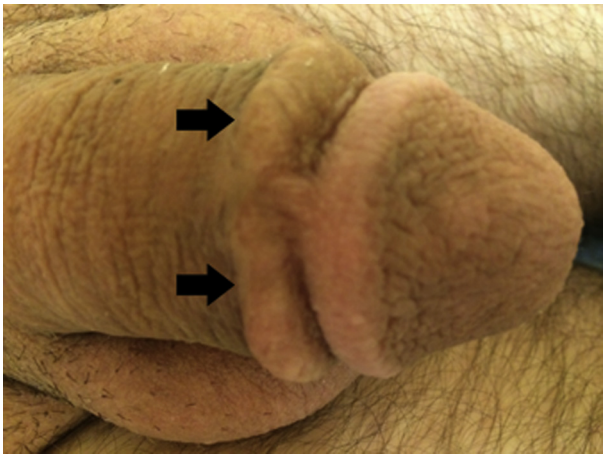

Figure 1. The black arrows show the hard, venous structure suggestive of thrombus extending parallel to the bottom of the glans penis. (Color version available online.)

Table 1. The distribution of penile Mondor patients according to etiology

Etiology	Number of Patients
Prolonged sexual activity	10
Recent infectious disease	4
Long distance flight	4
Sickle cell anemia	1
Trauma	2
Idiopathic	9

Laboratory findings showed no abnormality except for leukocytosis (12.000-14.000) in 4 patients. The distribution of the patients according to their medical history regarding possible etiologies was as follows: prolonged sexual activity in 10 (33%), recent intestinal infection and consequent difficulty in defecation in 4 (13%), long-haul flight of 10-12 hours in 4 (13%), penile trauma caused during sexual intercourse 3 days before the emergence of clinical symptoms in 2 (6%), and diagnosis of sickle cell anemia in 1 (3%) patient(s). In 9 patients (30%), no etiologic factors could be identified. Eight of the 10 patients who had prolonged sexual intercourse as the etiologic factor reported using phosphodiesterase type 5 (PDE5) inhibitors in different doses without a prescription. Patients expressed that, despite having no problem, they occasionally used such drugs to enhance their sexual fantasies and performance. The distribution of the patients according to etiologic factors is summarized in Table 1.

Thirty patients reported no prior significant problems related to erection. To evaluate the erectile function before the development of the disease, all patients completed IIEF-5 questionnaires, and the mean score was found to be 20.87 ± 2.24 (range, 15-25). Penile Doppler USG examination showed absence of or decreased flow signal in a thrombosed venous segment, which was noncompressible or difficult to compress in all patients (Fig. 2).

After the diagnosis was established, the patients were informed in detail about the benign character of the