



Neurosyphilis, One Rarely Seen Cause of Neurogenic Bladder

Nörosifiliz, Nörojen Mesanenin Nadir Bir Sebebi

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ABSTRACT

With the exploration of penicillin, incidents of syphilis, which swept the Europe during the 16th century, decreased after 1940. Neurogen bladder arising from neurosyphilis was seen frequently before the penicillin period. We aimed to share a patient who has this rarely seen association. A 46-year-old male patient was admitted to a neurology clinic because of convulsion, dementia, and incontinence. No lesion determined in brain at magnetic resonance study. In the cerebrospinal fluid investigation, an increase in the number of leukocytes with lymphocytes and amount of protein was determined. Based on high positive treponema palladium hemagglutination assay (TPHA) test in the cerebrospinal fluid and blood, the presence of suspect sexual intercourse history, and occurrence of eruption on hands and feet that cleared up 10 years ago, a neurosyphilis diagnosis was made, and 6x4 M IU/d units iv penicillin treatment was applied for 21 days. After the completion of the patient's treatment in the neurology clinic, further examination was decided, because it was thought that neurogen bladder arising from neurosyphilis might develop because of the presence of urinary incontinence and pollakiuria complaints. At the beginning, uroflowmetry was worked to be done; however, the patient could not make enough (at least 150 mL) micturition. Thereupon, we decided to do filling cystometry and pressure-flow study. It was seen in the ultrasonography that bladder volume was 500 mL, thickness of the bladder wall was at normal level, prostate volume was 20 cc, and kidneys were bilaterally normal. It was seen that residual urine was approximately 400 cc after micturition. In filling cystometry, it was seen that maximum bladder capacity before the overflow incontinence was 490 mL. It was seen that the first urinary feeling occurred at 350 mL of volume and 26 cm H₂O of pressure; first urge to void feeling occurred at 460 mL volume and 35 cm pressure. It was seen that sense of bladder started to get damaged; however, the sense was not completely gone yet. It was seen that intra-vesicular pressure increased at 300 mL of volume and was more than 40 cm H₂O of pressure at end of study. It was decided that the bladder compliance was 12.4 mL/cm H₂O and that there was a medium-level loss of compliance. It was seen at the pressure-flow study that the patient who was encouraged to micturate for 2 minutes could only micturate by increasing intra-abdominal pressure, and detrusor pressure did not increase. As is, a hyposensitive and acontractile bladder diagnosis was made. It was thought that aseptic intermittent catheterization (AIC) and oral anticholinergic treatment were appropriate for the patient. Neurosyphilis is a rarely seen disease nowadays. Neurogen bladder arising from neurosyphilis is much rare in urology practices. When encountering a patient with this disease, urodynamic assessment should be done in order to have an idea about bladder functions; a choice should be made among bladder neck resection, urinary diversion and AIC. (JAREM 2014; 1: 38-40)

Key Words: Neurosyphilis, neurogenic bladder, urodynamic study in neurosyphilis

ÖZET

On altıncı yüzyılda Avrupa'yı kasıp kavuran sifilizin, penisilin keşfiyle 1940 yılından sonra insidansı hızla düşmüştür. Penisilin çağından sonra nadir görülen sifilizin dördüncü evresi olan nörosifiliz ve nörojen mesane gelişmiş bir hastayı paylaşmayı amaçladık. Kırk altı yaşında erkek hasta unutkanlık, nöbet geçirme ve idrar kaçırma şikayetiyle eşi tarafından acil servise getirildi. Nöroloji kliniğine yatırılan hastada yapılan incelemede beyin omurilik sıvısı ve kanda treponema pallidum hemagglutination (TPHA) değerinin yüksek titrede pozitif olması üzerine nörosifiliz tanısı kondu. Yapılan dolum sistometrisinde taşma inkontinansından önceki maksimum mesane kapasitesinin 490 mL olduğu görüldü. İlk idrar hissini 350 mL hacim ve 26 cm H₂O basınçta, idrara sıklık hissinin 460 mL hacim 35 cm H₂O basınçta ancak oluştuğu görüldü. Mesanenin duyu hissinde hasar oluşmaya başladığı; ancak halen hissin tamamen kaybolmadığı görüldü. 300 mL hacimde mesane içi basıncın arttığı ve işlemin sonun doğru 40 cm H₂O basıncını geçtiği görüldü. Mesane kompliansının 12,4 mL/cm H₂O olduğu ve orta düzeyde komplians kaybı olduğuna karar kılındı. Basınç akım çalışmasında 2 dakika boyunca miksiyon için teşvik edilen hastanın ancak karın içi basıncını artırarak miksiyon yapabildiği ve detrusör basıncının hiç artmadığı görüldü. Bu halyle hiposensitif ve akontraktıl mesane tanısı kondu. Günde dört kez temiz aralıklı kateterizasyon (TAK) ve oral antikolinergik tedavi başlandı. Nörosifiliz günümüzde nadir görülen bir hastalıktır. Nörosifilize bağlı gelişen nörojen mesaneyse üroloji pratiğinde çok daha nadir görülmektedir. Böyle bir hastayla karşılaşıldığında mesane fonksiyonları hakkında bilgi sahibi olunmak için ürodinamik değerlendirme yapılmalı; mesane boynu rezeksiyonu, üriner diversiyon ve TAK arasında bir seçim yapılmalıdır. (JAREM 2014; 1: 38-40)

Anahtar Sözcükler: Nörosifiliz, nörojen mesane, nörosifilizde ürodinami

INTRODUCTION

Despite Christopher Columbus's exploration of America, colonization and enslavement movement in the continent after exploration brought wealth to Europe; In return, this caused millions of people to die from a disease that came from the new world

(1, 2).With the exploration of penicillin, incidents of syphilis, which swept Europe during the 16th century, decreased after 1940, and it is noted that 12 million people all over the world were affected by syphilis in 1999; more than 90% of these people were from developing countries. The prevalence in Turkey was similar to developed countries, less than 35/100.000 in a year (3-5).



Approximately 4-25 years after the first infection, neurosyphilis occurs in 6.5% of patients who have non-treated primary syphilis. Balance disorder, burning pain, apathy, paralysis, dementia, and tabes dorsalis are seen in the lower extremity in patients (6, 7). Neurogen bladder arising from neurosyphilis was seen frequently before the penicillin period (8). We aimed to share a patient who has this rarely seen association.

CASE PRESENTATION

Fourty six years old male patient was admitted to the neurology clinic because of convulsion, dementia, and incontinence. No lesion determined in brain at magnetic resonance study. In the cerebrospinal fluid investigation, an increase in the number of leukocytes with lymphocytes and amount of protein was determined. Based on a high positive TPHA test in the cerebrospinal fluid and blood, the presence of suspect sexual intercourse history, and occurrence of eruption on hands and feet that cleared up 10 years ago, a neurosyphilis diagnosis was made, and 6x4 M IU/d iv penicillin treatment was applied for 21 days.

After completion of the patient’s treatment in the neurology clinic, further examination was decided, because it was thought that neurogen bladder arising from neurosyphilis might have developed because of the presence of urinary incontinence and pollakiuria complaints. At the beginning, uroflowmetry was worked to be done; however, the patient could not make enough (at least 150 mL) micturation. Thereupon, we decided to do filling cystometry and pressure-flow study. Also, urinary ultrasonography was done in order to eliminate bladder outlet obstruction, which was caused by the patient’s prostate hyperplasia.

It was seen in the ultrasonography that bladder volume was 500 mL, thickness of the bladder wall was at normal level, prostate volume was 20 cc, and kidneys were bilaterally normal. It was seen that residual urine was approximately 400 cc after micturition.

In the filling cystometry, it was seen that maximum bladder capacity before the overflow incontinence was 490 mL. It was seen that the first urinary feeling occurred at 350 mL of volume and 26 cm H₂O of pressure, first urge to void feeling occurred at 460 mL volume and 35 cm pressure. It was seen that sense of bladder started to get damaged; however, the sense was not completely lost yet. It was seen that intra-vesicular pressure increased at 300 mL of volume and was more than 40 cm H₂O of pressure at end of study. It was decided that the bladder compliance was 12.4 mL/cm H₂O and that there was a medium-level loss of compliance (Figure 1).

It was seen at the pressure-flow study that the patient, who was encouraged to micturate for 2 minutes, could only micturate by increasing intra-abdominal pressure, and detrusor pressure did not increase (Figure 2). As is, a hyposensitive and acontractile bladder diagnosis was made.

It was thought that aseptic intermittent catheterization (AIC) and oral anticholinergic treatment were appropriate for the patient. It was decided that the training would be provided to the patient’s wife by anticipating that the patient could not be able to do the process alone. After the training, the patient was told to do AIC four times a day and we have begun oral anticholinergic treatment. We have received written consent from the patient’s wife for publish this article.

DISCUSSION

Neurosyphilis has the following 3 patient group classifications, based on the dominant clinical manifestations. These are neuropsychiatric, meningovascular, and myelopathic (9). Six such diagnostic categories, as derived, could be outlined as follows: neuropsychiatric disorders, cerebrovascular accident, ocular, myelopathy, seizure, and brain stem/cranial nerves. Neurogenic bladder may seem all central nerve system involvement diseases (10).

Neurogenic bladder due to neurosyphilis is a rare clinical entity. We may be confused to do a differential diagnosis when we see these patients. Also, a neurology clinic may confuse this patient’s diagnosis, and they can define it as Alzheimer disease. We do not know a lot of informations about neurogenic bladder due to neurosyphilis, because we have not seen it before in our clinical practice. So, we have explored the literature and worked to share this knowledge.

Hadori et al. (11) published a series, including 8 patients who had neurogen bladder arising from neurosyphilis. They stated that the bladder was extremely active in 5 of these patients, maximum cystometric capacity increased in 6 of these patients, high compliance occurred in only one patient, and detrusor sphincter dyssynergia occurred in 2 patients (11). Fowler conducted bladder neck resection in 3 patients who had neurogen bladder arising from neurosyphilis. The results indicated that recovery was only seen in one patient, and it did not take long (12).

Garber et al. (13) reported 3 patients who had neurogen bladder arising from neurosyphilis. They stated that hypocompliance detrusor hyperreflexia, detrusor-sphincter dyssynergia, and high residual urine occurred in all 3 patients. They treated one patient with bladder neck incision, another patient with intermittent catheterization, and the other patient with urinary diversion (13).

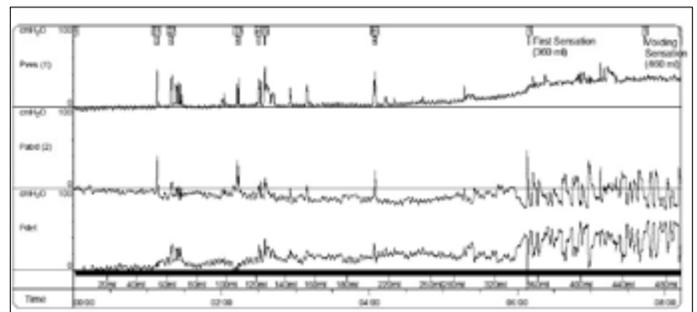


Figure 1. Patient’s filling cystometry study

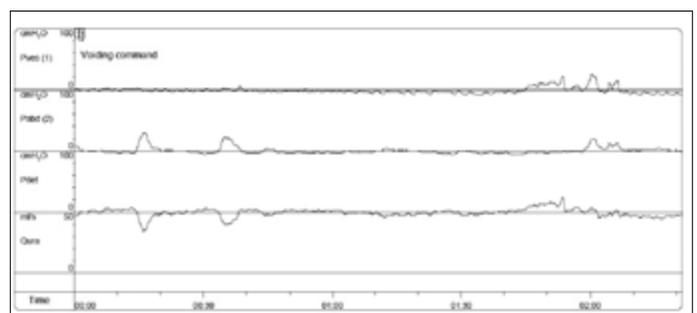


Figure 2. Patient’s pressure-flow urodynamic study

Bogash et al. (14) examined 41 patients who had neurosyphilis and found that 18 of them had sense defect and residual urine, 9 had other bladder dysfunction symptoms without sense defect, and 14 had no bladder pathology. When they compared these 3 groups with each other, they stated that both neurogen bladder and neural system pathology and prognosis were worse among patients who had sense defect (14).

CONCLUSION

In light of the limited literature, we thought that the sense defect started to occur in our patient and that he would not benefit from bladder neck resection because of acontractile bladder. Even though bladder pressure reached 40 cm of pressure at the maximum capacity, because the level of creatinine was normal and there was no hydronephrosis in the bilateral kidneys, no surgical attempt was done in order to decrease bladder pressure; only oral anticholinergic treatment was initiated.

Neurosyphilis is a rarely seen disease nowadays. Neurogen bladder arising from neurosyphilis is much rare in urology practice. When encountering a patient with this disease, urodynamic assessment should be done in order to have an idea about bladder functions; a choice should be made among bladder neck resection, urinary diversion, and AIC.

Informed Consent: Written informed consent was obtained from patients' wife who participated in this case.

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REFERENCES

1. Rothschild, BM. History of syphilis. *Clin Infect Dis* 2005; 40: 1454-63. [\[CrossRef\]](#)
2. Harper KN, Zuckerman MK, Harper ML, Kingston JD, Armelagos GJ. The origin and antiquity of syphilis revisited: An appraisal of Old World pre-Columbian evidence for treponemal infection. *Am J Phys Anthropol* 2011; 53: 99-133. [\[CrossRef\]](#)
3. Coffin LS, Newberry A, Hagan H, Cleland CM, Des Jarlais DC, Perlman DC. Syphilis in Drug Users in Low and Middle Income Countries. *Int J Drug Policy* 2011; 21: 20-7. [\[CrossRef\]](#)
4. Gao L, Zhang L, Jin Q. Meta-analysis: Prevalence of HIV infection and syphilis among MSM in China. *Sex Transm Infect* 2009; 85: 354-8. [\[CrossRef\]](#)
5. Eccleston K, Collins L, Higgins SP. Primary syphilis. *International journal of STD & AIDS* 2008; 19: 145-51. [\[CrossRef\]](#)
6. Kent ME, Romanelli F. Reexamining syphilis: An update on epidemiology, clinical manifestations, and management. *Ann Pharmacother* 2008; 42: 226-36. [\[CrossRef\]](#)
7. Stamm LV . Global Challenge of Antibiotic-Resistant Treponema pallidum. *Antimicrob Agents Chemother* 2010; 54: 583-9. [\[CrossRef\]](#)
8. Brodie EL, Helfert I, Phifer IA. Cystometric observations in asymptomatic neurosyphilis: II. *J Urol* 1940; 43: 496.
9. Nagappa M, Sinha S, Taly AB, Rao SL, Nagarathna S, Bindu PS, et al. Neurosyphilis: MRI features and their phenotypic correlation in a cohort of 35 patients from a tertiary care university hospital. *Neuroradiology* 2013 55: 379-88. [\[CrossRef\]](#)
10. Mitsonis CH, Kararizou E, Dimopoulos N, Triantafyllou N, Kapaki E, Mitropoulos P, et al. Incidence and clinical presentation of neurosyphilis: a retrospective study of 81 cases. *Int J Neurosci* 2008; 118: 1251-7. [\[CrossRef\]](#)
11. Hadori T, Yasuda K, Kita K, Hirayama K. Disorders of Micturition in Tabes Dorsalis. *Br J Urol* 1990; 65: 497-9. [\[CrossRef\]](#)
12. Fowler W. Management of vesical dysfunction of neurosyphilis by transurethral resection of the vesical neck. *Br J Vener Dis* 1952; 28: 201-4.
13. Garber SJ, Christmas TJ, Rickards D. Voiding Dysfunction due to Neurosyphilis. *Br J Urol* 1990; 66: 19-21. [\[CrossRef\]](#)
14. Bogash M, Figueroa-Colon J, Pegues JJ, Leberman PR, Murphy JJ. The lower urinary tract in treated neurosyphilis. *J Urol* 1956; 76: 70-3.