Percutaneous Cystolithotripsy in Pediatric Bladder Stone: Case Report

Pediatrik Mesane Taşı Olgusunda Perkütan Sistolitotripsi: Olgu Sunumu

Pediatrik Mesane Taşı Olgusunda Perkütan Sistolitotripsi Deneyimi / Percutaneous Cystolithotripsy Experience in a Pediatric Bladder Stone

Bayram Guner
Mus State Hospital, Department of Urology, Mus, Turkey

Özet

Gelişmiş ülkelerde pediatrik mesane taşı olguları tüm taş olgularının %1-5 kadarını oluşturmaktadır. Çalışmada çocukluk çağı hasta populasyonunda nispeten nadir uygulanan perkütan sistolitotripsi uygulamamızı sunmayı amaçladık. Perkütan sistolitotripsinin erişkinlerde olduğu gibi çocukluk yaş grubunda da etkili,uygulanabilir,minimal invaziv bir tedavi yöntemi olarak tedavi alternatifleri arasında yer alması gerektiğini düşünmekteyiz.

Anahtar Kelimeler

Mesane; Kalkül; Perkütan; Sistolitotripsi

Abstract

Pediatric urolithiasis cases are observed 1-5% in developed countries. We aim at sharing our percutaneous cystolithotripsy experiment which is scarcely applied on this case group observed rarely in childhood. We think that percutaneous cystolithotripsy is an alternative treatment which is effective, reliable and provides minimal morbidity and also has a high success rate in childhood bladder stones as in adults.

Keywords

Bladder; Calculi; Percutaneous; Cystolithotripsy

DOI: 10.4328/JCAM.1196 Received: 12.07.2012 Accepted: 05.08.2012 Printed: 01.11.2015 J Clin Anal Med 2015;6(6): 838-840
Corresponding Author: Bayram Guner, Mus State Hospital, Department of Urology, 49000, Mus, Turkey.
T.: +905325829016 F.: +90 2165709165 E-Mail: gunerbayram@yahoo.com

Introduction

Pediatric urolithiasis cases are observed 1-5% in developed countries, and 30% in developing countries due to reasons as malnutrition, diet with low protein and vitamin A deficiency. The management of this case is partially different from the adult stone diseases by its etiology and anatomic characteristics. Few of the childhood stone diseases are bladder stones [1-4]. We aim at sharing our percutaneous cystolithotripsy experiment which is scarcely applied in this case group in peripheral goverment hospital.

Case Report

12-year-old male patient consulted with suprapubic ache, hematuria and intermittent voiding. Obstructive urinary tract symptoms do not identify and there was a spontoneous passing stone history beforehand. Metabolic evaluation had not performed. Constipation and disfunctional mixion finding were not identifying. One year earlier he consulted to our urology clinic because of a left renal colic attack. In his physical examination glob vesicale and costovertebral pain with percution did not exist. There was not any systematic disease and familial kidney disease history. Leucocytosis did not exist in laboratory examination and in his urine culture occured 100.000cfu/ml e.coli reproduction. Creratin value was normal. There was 3 cm opacity within the pelvic area in kidney bladder urine (KUB) graphy (Figure 1). There was a stone sized 36X22 cm sized within the bladder in his ultrasonography and there was not any pathology in upper urinary system. In the uroflowmetry test, maximum urinary flow value was 22ml/sn (175cc). After sterile urine culture was obtained following appropriate antibiotic treatment, percutaneous cystolithotripcy was decided. Traction was applied to bladder neck by means of 14 F Foley catheter under general anesthesia. Bladder drainage was obstructed and isotonic given into bladder from foley continiously. Access to bladder occurred by means of 18 G percutaneous needle via suprapubic way and tract dilatation up to 24 F was applied by transmitting guide wire via amplatz dilatation set. Then, access to bladder was achieved wih Storz nephroscopy. There was no visualization problem. In bladder, almost 35 mm calculus was extracted with stone collecting forceps after fragmented by means of pneumatic lithotripsy (Figure 2). There was no residual calculus. The operation time was 20 minutes. Cystostomy was not applied and foley taken out postoperatively 3 days. There was no residual fragment found at postoperative control ultrasonography. No abnormality in urine and serum values were realized in the first postoperative during the metabolic evaluation. Stone composition was reported calcium oxalate monohydrate.



Figure 1. A large stone in small pelvis at KUB preoperatively.



Figure 2. Fragment of stone that fragmented with pneumatic lithotripsy.

Discussion

Recent technological developments had caused to popularize minimal invasive treatments in urology practice. Many popular minimal invasive treatment modalities which are performed with smaller equipment lead to less morbidity in childhood stone disease. Main treatment aim is not only to eradicate stones completely in childhood bladder stone cases but also to eliminate factors that cause recurrence. Equipment availability in relevant centre is quite important in the choice of treatment that will applied with patient and stone characteristics. Percutaneous cystolithotripsy eliminates stones rapidly, especially bigger bladder stone in childhood than transurethral approach and percutaneous approach has some advantages such as wide working channel, rapidly stone removing, better visualization, lower complication and smaller operation time [5-7]. Especially when trying to actively remove residual fragments, useful of

transurethral approach for large bladder stones can entail a prolonged and cumbersome procedure. Also this procedure have a potential risk of causing urethral injury and stricture because multıpl entries [8]. We think that percutaneous approach is more appropriate treatment option for pediatric bladder stones. We don't have enough equipment for transuretrale approach. Pneumatically lithotripsy is used as lithotripsy in our case. Also ultrasonic, electro hydraulic, laser and SWL equipments can be used in literature [7;9] .

In literature, success rate of the percutaneous cystolithotripsy is 85-100% [8;10]. In our case, complete stone clerance was achieved.

Some conditions like that previous abdominal surgery and urothelial carcinoma history which could lead to contraindication for percutaneous surgery. In the history of our case, there was no this kind of conditions and in our case vascular and intestinal injure did not occur.

In our case, calcium oxalate was reported as a result of stone analysis. When the literature data was examined, some contradictory data is seen. In addition, ammonium urate for bladder stone in developing countries is main component. Calcium oxalate stone is observed 45-65% in developed countries.

Conclusion

Percutaneous cystolithotripsy can be an alternative treatment which is effective, reliable with minimal morbidity and high success rate in childhood bladder stones as in adults. Principle superiorities of this method are lack of use of urethra and shorter time of operation.

Competing interests

The authors declare that they have no competing interests.

References

1. Hulbert JC. Percutaneous nephrolithotomy: an alternative approach to the management of pediatric calculus disease. Pediatrics 1985;76:610-3.
2. Bichler KH, Strohmaier WL, Korn S. Urolithiasis in childhood. Monatsschr Kinderheild 1985;133:256- 66.
3. Carvajal-Busslinger MI, Gygi C, Ackermann D, Kaiser G, Bianchetti M. Urolithiasis in childhood: when to do what? Eur J Pediatr Surg 1994;4:199 -200.
4. Kancha RK, Anasuya A. Contribution of vitamin A deficiency to calculogenic risk factors of urine: studies in children. Biochem Med Metabol Biol 1992;47:1- 9.
5. Aron M, Agarwal MS, and Goel A. Comparison of percutaneous with transurethral cystolithotripsy in patients with large prostates and large vesical calculi undergoing simultaneous transurethral prostatectomy. BJU Int 2003;91:293–5.
6. Bulow H, and Fromuller HGW: Electrohydraulic litho- tripsy with aspiration of fragments under vision 304 consec utive cases. J Urol 1981;126: 454 – 6.
7. Erbagci A, Erbagci AB, Yilmaz M, Yagci F, Tarakcioglu M, Yurtseven C, et al. Pediatric urolithiasis evaluation of risk factors in 95 children. Scand J Urol Nephrol 2003;37:129–33.
8. Wollin TA, Singal RK, Whelan T, Dicecco R, Razvi HA, Denstedt JD. Percutaneous suprapubic cystolithotripsy for treatment of large bladder calculi. J Endourol 1999;13:739- 44.
9. Rizvi SAH, Naqvi SAA, Hussain Z, Hashmi A, Hussain M, Zafar MN, et al. Pediatric urolithiasis: developing nation perspectives. J Urol 2002;168:1522–5.
10. Sofer M, Kaver I, Greenstein A, Bar Yosef Y, Mabjeesh NJ, Chen J, et al. Repnements in treatment of large bladder calculi: simultaneous percutaneous suprapubic and transurethral cystolithotripsy. Urology 2004;64:651-4.

How to cite this article:
Guner B. Percutaneous Cystolithotripsy in Pediatric Bladder Stone: Case Report. J Clin Anal Med 2015;6(6): 778-80.