

Calculus Nephrectomy: Dilemma of Developing Countries

Shoukat Ali Mughal, Shafique-ur-Rehman Memon, Jai Pal Paryani, Noshad Ahmed Shaikh

ABSTRACT

OBJECTIVES: To determine the frequency of simple nephrectomy in patients presenting with urolithiasis.

MATERIAL & METHODS: This is a retrospective study of patients presented at University hospital with urolithiasis during January 2007 to December 2010. The data were collected for patients who underwent nephrectomy for stone disease.

RESULTS: Total number of patients admitted with urolithiasis was 2600. Out of these, 88 (3.38%) patients underwent simple nephrectomy for non-functioning kidney. Mean age of patients was 32.5 years, males were 62 (70.45%) and females were 26 (29.55%). Flank pain was predominated symptom in 88% of patients. Mean duration of symptoms was 2.4 years. Mean size of stone was 4.1cm. Seventy patients had stones in renal pelvis.

CONCLUSION: Percentage of calculus nephrectomy among patients of urolithiasis is 3.38%.

KEY WORDS: Nephrectomy, Urolithiasis, Nonfunctioning kidney.

INTRODUCTION

Stone disease has haunted mankind since its inception. From Scandinavia to Egypt historical evidence has been found about the prevalence of renal and vesical stones¹⁻³. Throughout the history, humanity has invested its scientific and intellectual wisdom to find cure of this disease. Fear of cut, bleeding and high mortality kept people away from acquiring treatment, they rather preferred to die of unbearable pain¹⁻³. But the advancement in urological armamentarium and improvement in anesthesia has led to not only cure from stones but also minimum pain and less treatment time. Large number of patients are currently reporting for management of even small stone(s) probably due to the popularity of Extracorporeal Shock Wave Lithotripsy (ESWL) and other endoscopic procedures. In fact availability of these less invasive procedures for renal stones disease has significantly decreased the role of open surgery⁸. Pakistan lies in the stone belt area. It is the most prevalent urological disease in this country, it is estimated that 10-15% of its population is suffering from renal stone disease⁴⁻⁶. Although the facilities for urological patients have improved over time, yet they are still inadequate for a population of 180 million. Rate of complications of neglected urolithiasis is higher in this part of world when compared to other countries⁴. It is commonly observed that people seek help from Hakims and other faith healers to get rid of stone disease. Due to long standing obstruction, the affected renal unit becomes non-functioning and ultimately these patients end up into nephrectomies. In this study we determined the percentage of nephrectomy secondary to stone disease.

Objective: To determine the frequency of simple

nephrectomy in patients presented with urolithiasis.

MATERIAL & METHODS

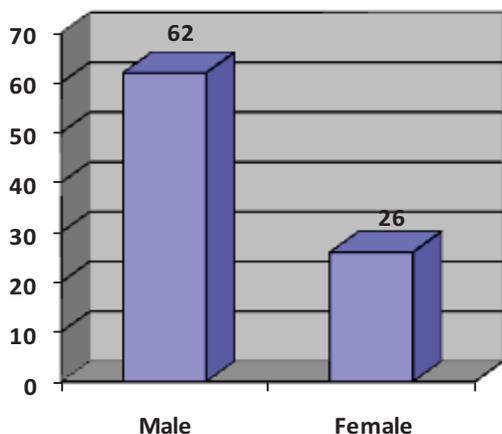
This is retrospective study of patients presented at University Hospital with urolithiasis during January 2007 to December 2010. All patients who developed non-functioning kidney secondary to stone disease and underwent nephrectomy were included in the study. Data of patients including age, sex, mode of presentation, duration of symptoms, stone burden, site of stone, presence of urinary tract infection and history of previous surgery was noted. Once patients were diagnosed having urinary stone disease and contrast imaging studies revealed no uptake and excretion of contrast, these patients underwent radionuclide study known as DTPA scan for determination of split function of both kidneys. Data were analyzed on SPSS version 16.

RESULTS

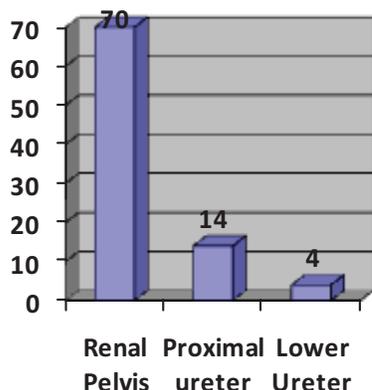
Total no. of patients admitted with urolithiasis from January 2007 to January 2010 was 2600. In these patients of nephrolithiasis nephrectomy was performed when DTPA scan revealed non-functioning kidney secondary to stone disease. Simple nephrectomy was performed in 88 (3.38%) patients during this period. Mean age of patients was 32.5 years (range 17.3 to 58.6 years). Majority of patients (66%) were in their 4th decade. Males were 62 (70.45%) and females 26 (29.55%) (**Graph I**). Mean duration of symptoms was 2.4 years (range 3 weeks to 21 years). Flank pain was present in 77(88%), lower urinary tract symptoms in 4(5%), hematuria in 3(3%) and renal failure in 1 (1.14%) patients. Mean size of stones was 4.1cm (range 1.8cm to 7.9 cm). Seventy patients had stones

in renal pelvis, 20 patients had staghorn calculi, 14 patients had stones in proximal ureter and 4 patients had stones in lower ureter (**Graph II**). Ten patients had documented urinary tract infection; E coli was found as causative organism in 9 patients. Eight patients had history of renal surgery on ipsilateral side.

GRAPH I: MALE-FEMALE RATIO OF PATIENTS (n=88)



GRAPH II: LOCATION OF STONES



DISCUSSION

The incidence of nephrectomy after unrolithiasis is reported to be highly variable in different part of the world. The results of this study showed an incidence of 3.38% in urolithiasis patients having median aged 32. 5 years. This is very high when compared to a study from Singapore, where only 11(0.414%) nephrectomies were performed out of 2075 patients treated for urolithiasis; mean age of patients in this study was 48 years¹⁰. However a study from Thailand showed an incidence of 10.9% (119 nephrectomies) out of 1097 patients treated for urolithiasis, 96% patients were older than 15 years¹¹. Almost identical results are shown in a Bulgarian study where 53 (13.66%) nephrectomies were performed out of 388

nephrolithiasis¹². However in USA 29(1%) nephrectomies were performed out of 3170 pediatric patients of urolithiasis¹³. In our study most people who underwent calculus nephrectomy were young and bread winners of family, their disease affected the socio-economic status of family, community and country as a whole. Patients are presenting for treatment after years of neglect and maltreatment. Social taboos, economic constraints, ignorance, lack of proper guidance could have led people to bear the pain and misery which could have been treated easily.

CONCLUSION

All patients having urinary symptoms must be underwent invasive investigations for early diagnosis of nephrolithiasis, and appropriate intervention, as this may help to decrease the incidence of nephrectomy.

REFERENCES

- Herr HW. "Cutting for the stone": the ancient art of lithotomy". *BJU Int.* 2008 May;101:1214-6
- Herr HW. Crushing the stone: a brief history of lithotripsy, the first minimally invasive surgery. *BJU Int* 2008;102; 432-5.
- Riches E. History of lithotomy and lithotripsy. *Ann R Coll Surg Engl* 1968; 43; 185-99.
- Rizvi Syed AH, Sultan S, Zafar MN, Ahmed B, Faiq SM, Kehkhshan ZH et al. Evaluation of children with urolithiasis, *Indian J Urol* 2007;23;420-7.
- Rizvi SA, Sultan S, Ijaz H, Mirza ZN, Ahmed B, Saulat S, et al. Open surgical management of pediatric urolithiasis: A developing country perspective. *Indian J Urol.* 2010;26(4):573-576.
- Jamal A, Ramzan A. Renal and post renal causes of acute renal failure in children *J Coll Physicians Surg Pak* 2004;14; 411-5
- Honeck P, Wendt-Nordahl G, Krombach P, Bach T, Hacker A, Alken P et al. Does open surgery still play a role in the treatment of urolithiasis? Data of a primary urolithiasis center. *J Endourol.* 2009;23 (7):1209-12.
- Ansari MS, Gupta NP, Impact of socioeconomic status in etiology and management of urinary stone disease. *Urol Int.* 2003;70; 255-61.
- Penniston KL, Nakada SY, Health related quality of life differs between male and female stone farmers. *J Urol.*2007; 178;2435-40.
- Fy S, Wong MY, Foo KT. Current indications for open stone surgery in Singapore. *Ann Acad Med Singapore*,1999;28;241-4.

11. Aegukkatajit S, Nagaphant A, Nuhung R, Sinturat R, Nugoonsawat P, Mungmai. Epidemiological study of urinary stones based on operative theatre data at regional hospitals and general hospitals of public health region-5. J Med Assoc Thai 1994;77: 484-7.
12. Al-Halil N, Panchev P, Kumanov K. Kidney disease most often considered as indication for nephrectomy. Khirurgia (sofia) 1999;55;19-21.
13. Bush NC, Brown BJ, Holzer MS, Gingrich A, Schular B, Tong L et al. Hospitalizations for pediatric stone disease in United States 2002-2007. J Urol 2010;183; 1151-6.



AUTHOR AFFILIATION:

Dr. Shoukat Ali Mughal (*Corresponding Author*)

Postgraduate MS Urology
Liaquat University of Medical & Health Sciences
(LUMHS), Jamshoro, Sindh-Pakistan.
Email: sindh_mehran@yahoo.com

Dr. Shafique-ur-Rehman Memon

Professor, Department of Urology
LUMHS, Jamshoro, Sindh-Pakistan.

Dr. Jai Pal Paryani

Assistant Professor, Department of Urology
LUMHS, Jamshoro, Sindh-Pakistan.

Dr. Noshad Ahmed Shaikh

Professor of Surgery and Vice Chancellor
LUMHS, Jamshoro, Sindh-Pakistan.