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ORIGINAL ARTICLE

Characterization of percutaneous nephrolithotomy. Pinar del Río.2015-2018

Caracterización de la nefrolitotomía percutánea. Pinar del Río. 2015-2018

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ABSTRACT

Introduction: renal lithiasis is one of the first causes of urological consultations. Percutaneous nephrolithotomy as a definitive surgical treatment has been gaining ground in this entity.
Objective: to characterize percutaneous nephrolithotomy in Pinar del Río from 2015 to 2018.
Methods: an observational, descriptive, cross-sectional research was carried out, constituted by a universe of 136 patients (sample of 85), all registered in the Statistics Department of the General Teaching University Hospital Abel Santamaría Cuadrado 2015-2018 in Pinar del Rio Province. The information was collected through the clinical history (general data (age, gender), imaging (affected kidney and form of lithiasis), therapeutic (surgical position, number of interventions for each patient, trans and post-operative complications), as post-operative stay, a database was made where the qualitative variables were expressed in absolute frequencies and the relative ones in percentages.
Results: male sex predominated with 56 patients (65,9 %) between the ages of 20-49 years, the most used surgical position was supine decubitus with 83 cases (97,6 %), trans and postoperative complications corresponded to bleeding in 3 (3,5 %) and complicated urosepsis in nine patients (10,5 %) with a hospital stay of three to five days.
Conclusions: percutaneous nephrolithotomy constitutes a step forward in the treatment of renal lithiasis, so its study establishes a link for its understanding and application at present for the resolution of this pathology in patients, with the minimum of complications.

Keywords: Nephrolithiasis; Medical Records; Nephrolithotomy, Percutaneous.

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RESUMEN

Introducción: la litiasis renal constituye una de las primeras causas de asistencia a las consultas de urología. La nefrolitotomía percutánea como tratamiento quirúrgico definitivo ha ido ganando campo en esta entidad.
Objetivo: caracterizar la nefrolitotomía percutánea en Pinar del Río desde el 2015 al 2018.
Métodos: se realizó una investigación observacional, descriptiva, trasversal, constituido por un universo de 136 pacientes (muestra de 85), todos registrados en el departamento de Estadística Hospital General Docente Universitario Abel Santamaría Cuadrado 2015-2018 de la Provincia de Pinar del Rio. Se recolecta la información a través de la historia clínica (Datos generales (edad, genero), imagenológicos (riñón afecto y forma de la litiasis), terapéuticos (posición quirúrgica, número de intervenciones por cada paciente, complicaciones trans y post-operatorias), como estadía post-operatoria se confecciono una base de datos donde las variables cualitativas se expresaron en frecuencias absolutas y las relativas en porcientos.
Resultados: predomino el sexo masculino con 56 pacientes (65,9 %) entre las edades de 20-49 años, la posición quirúrgica más usada fue la de decúbito supino con 83 casos (97,6 %), las complicaciones trans y postoperatorias, correspondieron al sangramiento en 3 (3,5 %) y la urosepsis complicada con nueve pacientes (10,5 %) con una estadía hospitalaria de tres a cinco días.
Conclusiones: la nefrolitotomía percutánea constituye un paso de avance en el tratamiento de la litiasis renal, por lo que su estudio establece un eslabón para su comprensión y aplicación en la actualidad para la resolución de esta patología en los pacientes, con el mínimo de complicaciones.

Palabras clave: Nefrolitiasis; Registros Médicos; Nefrolitotomía Percutánea.

INTRODUCTION

Urinary lithiasis is the presence of stones in the urinary tract due to the formation or retention of organic or inorganic substances. Its prevalence varies from 1 to 20 % of the general population and recurrence can be greater than 50 % depending on geographical, climatic, ethnic, dietary and genetic factors.[1,2] 11 to 13 % of males and 7 to 9 % of females will develop a kidney stone at some time in their lives.[3]

It is estimated that in the United States, one in eleven people will have at least one symptomatic urolithiasis in their lifetime. In Cuba, chronic kidney disease (CKD) of obstructive origin, mostly caused by urolithiasis, is the fifth leading cause of entry into renal function replacement therapy with 4,5 % in 2014.[4]

It is the third most common urological pathology, after infections and prostate pathology, and the third cause of chronic renal failure in adults.[5] The recurrence rate is between 26 and 53 % at 10 years,[1] and between 60 and 80 % throughout life, and is related to the presence of family history and risk factors.[5]

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Currently, as a result of the technological development achieved by advances in engineering, computer science and other branches of knowledge, instruments and techniques have been created that make it possible to establish minimally invasive surgical methods. These have been very well accepted by the surgical community in general and by urologists in particular. Such has been the importance of these techniques that more than 90 % of cases with indications for surgical treatment of renal lithiasis are treated using these techniques.[6] Compared to classic lumbotomy, percutaneous nephrolithotomy (PNL) is a less aggressive technique that facilitates the treatment of lithiasis.[5]

According to the American Confederation of Urology (CAU), 473 professionals from Brazil, Mexico, Argentina, Spain, Colombia, Chile and others were surveyed. That they practiced some type of treatment for RL from the endoscopic point of view: 98,5 % corresponded to semi-rigid ureteroscopy (URS), 83,8 % to PNL, 78,2 % to flexible URS and 67,2 % to extracorporeal lithotripsy (ESWL).[7] As reported by the Canadian Urological Association.[8] There is also an increasing number of such procedures among urologists on the Asian continent,[9,10]

The increasing prevalence of RL is associated with significant costs to healthcare systems worldwide. These include the costs associated with the disease itself: including acute treatment, surgical treatment and medical treatment.[10]

PNL constitutes the current gold standard for the treatment of complicated kidney disease.[11,12] hence with this work we propose to characterize PNL in the General Teaching Hospital Abel Santamaría Cuadrado, in the years 2015-2018.

METHODS

An observational, descriptive, retrospective study was carried out at the General Teaching Hospital Abel Santamaría Cuadrado, in the province of Pinar del Río from January 1, 2015 to December 31, 2018.

The universe was constituted by the total number of patients diagnosed and operated on for LR residing in the area of said province, registered in the statistics department of said hospital in the same period of time, which was a total of 136 patients and the sample included all patients who were registered in the aforementioned unit, in the same period of time who underwent minimal access surgery (LNP) and continued their follow-up in urology consultations, which were a total of 85 patients.

General data (age, gender), imaging data (affected kidney and form of lithiasis), therapeutic data (surgical position, transoperative and postoperative complications) and hospital stay after surgical treatment were collected and subsequently a database was created which was processed on a microcomputer. All qualitative variables were summarized in absolute and relative percentage frequencies. Quantitative variables were summarized by means of measures of central position and variability, with their confidence interval at 95 % certainty.

The study was proposed and approved by the Scientific and Medical Ethics Committee for Health Research of the institution, and therefore it is in accordance with the ethical principles for research, established in the Declaration of Helsinki as amended by the 59th General Assembly in Seoul, Korea, and accepted by Cuba; therefore, none of the principles of research ethics were violated. Due reliability was maintained in the personal cases studied. The information obtained was not used for purposes other than those of the research conducted.

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RESULTS

The NLP was performed more frequently in the male sex with a total of 56 patients for 65,9 %, predominantly between the ages of 20-39 years with 60 patients representing 70,6 % of the total. (Table 1).

Table 1. Distribution of nephrolithotomy according to age group and sex.

Age	Sex				Total	
	Female		Male		No	%
	No.	%	No.	%		
20-39	22	25,9	38	74,1	60	70,6
40-59	3	17,6	14	82,4	17	20
60-79	4	50	4	50	8	9,4
Total	29	34,1	56	65,9	85	100

Source: Medical history.

There was no predominance of the affected kidney, with the right kidney accounting for 52,9 % with 45 patients and the left kidney 40 (47,1 %), the majority of the stones were non- coralliform with 51 patients, representing 60 % (Table 2).

Table 2. Relationship between affected kidney and form of lithiasis in percutaneous nephrolithotomy.

Shape of lithiasis	Kidney affected				Total	
	Right		Left		No.	%
	No.	%	No.	%		
No coralliform	26	30,5	25	29,5	51	60
Partial coralliform	11	12,9	10	12,1	21	25
Total coralliform	8	9,4	5	5.6	13	15
Total	45	52,9	40	47,1	85	100

Source: Medical history.

The most frequently used surgical position was the supine position with a total of 83 cases for 97,6 %, the most frequent trans-operative and post-operative complications were bleeding in three cases (3,5 %) and complicated urosepsis in nine patients (10,5 %) followed by hematomas in four (4,7 %). (Table 3).

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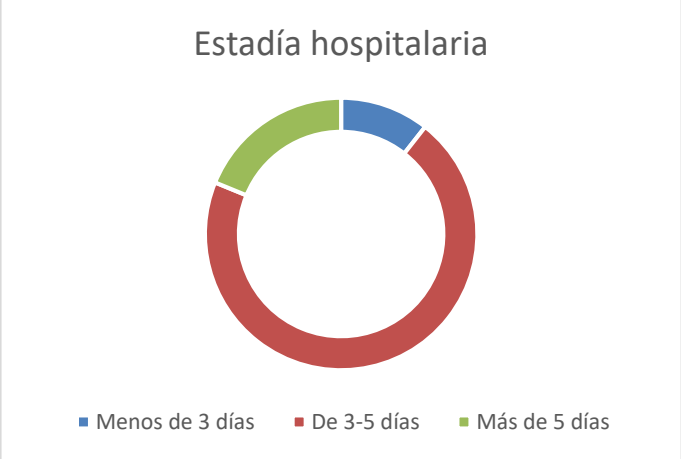
Table 3. Relationship between surgical position and complications in percutaneous nephrolithotomy.

Complications of percutaneous nephrolithotomy	Surgical Position			
	Prone decubitus		Supine decubitus	
	No.	%	No.	%
Postoperative complications				
Bleeding	1	4,5	2	9
Infragmentable calculus	0	0	1	4,5
Post-operative complications				
Complicated urethrosis	4	18,1	5	22,7
Hematoma	2	9	2	9
Bleeding	1	4,5	1	4,5
Reno cutaneous fistula	1	4,5	1	4,5
Anuria	1	4,5	0	0

Source: Medical history.

Graph I shows the hospital stay of the NLP where 60 patients had a stay of three to five days, representing 70 % of the total.



Source: Medical records.

Graph 1. Hospital stays in percutaneous nephrolithotomy. General Teaching Hospital Abel Santamaría Cuadrado 2015-2018.

DISCUSSION

Waldo Taype-Huamaní et al.,[1] found that urinary lithiasis predominates in males similar to international reports, but in a lower proportion than the 4:1 found in Spain. Age was also similar to the average of 42 years reported for the first clinical manifestation, recalling that the presence of renal colic or hematuria in those over 60 years of age makes it necessary to look for other diagnoses.

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Núñez M,[13] and Aquilar Reinoso,[14] in both epidemiological investigations on urinary lithiasis, identified a higher frequency of kidney stones in men, although the male/female ratio has been very variable in the different studies.

Timely treatment of urinary lithiasis disease is part of the preventive measures for progressive loss of renal function. Sometimes the complexity of the surgical approach is a challenge for the surgeons involved.[15]

As in the current study, several authors use PNL for the treatment of calculi larger than 2 cm and with a density greater than 1000 HU according to the recommendations of international urological guidelines.[15]

The resolution of complex stone masses, even before the advent of minimal access surgery, requires greater medical expertise and adequate surgical planning. Lithiasis-free rates by LNL are achieved when treating partial and total chorionic stones. The journal Renal Failureen 2018 reports stone clearance rates of 98,5 % and 71 % for partial and complete staghorn calculi, respectively, also reporting the effective use of percutaneous renal access as part of the well-known sandwich therapies. The use of more than one approach is associated with the use of rigid and semi-rigid instruments when treating complex calculi. In the literature reviewed, the use of a single access route prevails over multi-paths, as in the present investigation.[14,16]

The use of more than one access is justified depending on the availability of instruments, the patient's anatomy and the characteristics of the stone. The official journal of the American Urological Association publishes a study that reports a total of 74 patients (673 %) with single access versus 36 (327 %) with multiple accesses with no significant impact on renal function after PNL.[15]

Other studies report lower percentages of antegrade endopyelotomies and percutaneous treatment of renal cysts in the same surgical time as PNL. The health benefits and the convenience of eliminating two conditions in one surgical procedure are elements that are taken into account when deciding to perform more than one surgery simultaneously.[17,18]

The effectiveness of PNL in the treatment of renal lithiasis does not exclude it from the presence of unfavorable effects and knowledge of its risks reduces the occurrence of preventable injuries.[15]

Although PNL is considered a complication-free procedure, with a reported complication rate of up to 83 %, most complications are clinically insignificant. Serious complications such as pleural injury, colonic injury or sepsis occur infrequently. Post-PLN infectious complications are more common in patients with renal insufficiency, diabetes mellitus, preoperative percutaneous nephrostomy placement, chorionic stones, moderate to severe hydronephrosis, multiple punctures and prolonged duration of surgery.

CONCLUSIONS

Percutaneous nephrolithotomy constitutes a step forward in the treatment of renal lithiasis, so its study establishes a link for its understanding and application at present for the resolution of this pathology in patients, with the minimum of complications.

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Conflict of interest
The authors declare that they have no conflict of interest in relation to the research presented.

Authors' contribution
PRHC: Methodology, review, supervision, writing the original draft.
AMFL: Research.
TMFV, CLE: Conceptualization (ideas, formulation or evolution of objectives).
JCOM: Project management and research.

Additional material
Additional material to this article can be consulted in its electronic version available at: www.revcmpinar.sld.cu/index.php/publicaciones/rt/suppFiles/6310

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