SINGLE STEP RENAL ACCESS DILATATION IN PERCUTANEOUS NEPHROLITHOTOMY

THESIS

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Presented By

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بسم الله الرحمن الرحيم

قَالُوا سُبْحَانَكَ لاَ عِلْمَ لَنَا

إِلاَّ مَا عَلَّمْتَنَا إِنَّكَ أَنتَ الْعَلِيمُ الْحَكِيمُ

صدق الله العظيم

سورة البقرة الآية (32)

DEDICATION

I am dedicating this work with great honour to my dear parents
Dr.Sayed Al-Gharabawy & Dr.Mona temerek

for whom I hope god blessing all time ever

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Ahmed Sayed Ahmed Aly Al Gharabawy

Abstract

This is a prospective study conducted on patients for whom percutaneous nephrolithotomy (PCNL) was done for the management of kidney stone disease. The study was conducted at The Urology Department, AL Demerdash Hospitals, Ain Shams University & Nasser Institute Hospital during the period between April 2014 and May 2015. All cases undergoing PCNL during this period and fulfilling the inclusion criteria were included in our study.

This will be a prospective randomised study, our patients will be classified into (2) groups, each group will be (twenty patients) according to the type of renal access dilatation:

1. Group (A) = AMPLATZ = Single Amplatz 30 Fr dilator over Central Alken.
2. = Group (B) = Balloon = Balloon Access dilatation

Regarding stone characteristics, Stones were unilateral in 35 patients (87.5 %), bilateral in 5 patients (12.5 %), In 7 patients (17.5 %) stones were located in pelvi-calyceal, in 11 patients (27.5%) stones were located in the renal pelvis, and 22 patients (55 %) were calyceal stones, The stones were multiple in 16 patients (40 %) and single in 24 patients (60 %), The stones were radiopaque in 35 patients (87.5%) and radiolucent in 5 patients (12.5%).All patients were performed under general anesthesia, were placed in the prone position. The most used puncture access the most used access was lower calyceal access which was done in 33 patients (82.5%). In 7 patient (17.5 %) middle access was used.The mean operative time in our study was **106.88 minutes ± 13.14**

Key words:

(Percutaneous nephrolithotomy (PNL), complications, outcome, risk factors)

List of Abbreviations

AUA	**American Urological Association**
CBC	**Complete blood count**
CI	**Confidence interval**
C.T	**Computed Tomography**
C/S	**Culture and sensitivity**
DJ	**Double-J catheter**
SWL	**Shockwave Lithotripsy**
EHL	**Electrohydraulic lithotripsy**
Fr	**French**
Hb	**Hemoglobin**
I.V	**Intravenous**
IVP	**Intravenous Pyelography**
K	**Potassium**
KUB	**Kidney, Ureter and bladder**
Na	**Sodium**
NCSCT	**Non-Contrast Spiral Computed Tomography**
NIH	**National institute of health**
OR	**Odds ratio**
PCN	**Percutaneous nephrostomy**
PNL	**Percutaneous nephrolithotomy**
PTFE	**Polytetrafluoroethylene**
PUT	**Plain urinary tract**
P Value	**Proppaplity value**
SGW	**Straight Guide wire**
U/S	**Ultrasonography**
UK	**United kingdom**

UPJO	**Ureteropelvic junction obstruction**
URS	**Ureterorenoscopy**
USA	**United State America**
UTI	**Urinary tract infection**
UUT	**Upper Urinary Tract**
UPJ	**Ureteropelvic Junction**
UVJ	**Ureterovesical junction**
YAG	**Yttrium-aluminum garnet**
1st	**First**
2nd	**Second**

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INTRODUCTION

Percutaneous nephrolithotomy (PCNL) is an effective treatment for renal stones which are larger than or equal (2 cm). This technique is associated with high success rates, decreased morbidity and fewer complications than conventional renal stones surgery [1]

An important and integral step in PCNL is renal puncture and Tract dilatation with insertion of the access sheath, but during these steps bleeding can occur, although it usually responds to the tamponading effect provided by the access sheath [2]

There are currently three standard methods for renal dilatation (RD), i.e., metal telescoping dilators (Alken), sequential fascial dilators (Amplatz), and the one-step balloon dilatation. Metal telescopic dilators are reusable and thus more economical, and they maintain a tamponading effect throughout the dilatation. Previous reports suggest no difference between metallic and sequential fascial dilatation in the terms of safety and efficiency [3]

Fascial dilators are disposable and it has been suggested that during sequential dilator exchanges, the tamponadin effect on the renal parenchymal tract is lost, which can lead to more blood loss during the exchange process [4].

Both metallic and sequential fascial dilators are time-consuming to use, with an increased incidence of kinking of the guidewire during tract development, thus hindering adequate

RD. In an attempt to reduce the blood loss from the repetitive passage of progressively larger dilators, the one-step balloon dilatation was developed. The reduced blood loss is thought to be due to the constant pressure applied on the renal parenchyma during dilatation before the sheath is advanced. The disadvantages of this method are its cost and that it is not reusable [5]

AIM OF THE STUDY

Our aim is To perform a single step renal access dilatation (RD) during percutaneous nephrolithotomy (PCNL) by using directly A 30-F Amplatz dilator over a central Alken dilator ,Comparing It to Balloon renal access dilatation in a trial to reduce the operative duration , financial costs , and blood loss during renal dilatation.