

PCNL IN SUPINE POSITION – A CASE SERIES

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ABSTRACT : PCNL-Percutaneous nephrolithotripsy

The procedure of PCNL has evolved over time. Prone PCNL is the most widely practised position.

The present study is to ensure optimum access to renal collecting system through supine PCNL thereby reducing the complications encountered with prone PCNL. Such a study has not so far been conducted in any South Tamilnadu Institution. A case series on SUPINE PCNL has been conducted at a superspeciality hospital, Mithra Hospital, Madurai.

KEYWORDS: galdakao modified valdivia position, nephrostomy tube, supine, pcnl, urology, ureteric stent.

I. INTRODUCTION

PCNL-Percutaneous nephrolithotripsy.

INDICATIONS-

Stones more than 2.5cm

Multiple stones

Stones not responding to Extracorporeal Shock Wave Lithotripsy(ESWL)

The procedure of PCNL has evolved over time. Urologists have sought to improve upon patient positioning while ensuring optimum access to renal collecting system thus reducing the morbidities encountered with PCNL.

Prone PCNL is the most widely practiced position, the other positions being Prone flexed, lateral, split-leg, Supine and Modified Supine positions. The present study is about Supine PCNL and the position being Galdakao Modified Valdivia position. Supine PCNL is as effective as prone PCNL and noted to be significantly quicker.

HEADINGS

1. Introduction

2. Study

3. Results

4. Discussion

5. Figures and tables

6. Conclusion

7. References

II. STUDY

PROCEDURE:

In routine PCNL, initially cystoscopy is done and ureteric stent/catheter is placed and renal pelvicalyceal system is identified under C-arm guidance. Under the guidance of C-arm or U/S, needle puncture is made in the loin percutaneously. Through kidney, calyx and pelvis are approached. Guide wire is passed. Graduated dilators are passed and so track is widened. Then through that, a nephroscope is passed. After fragmentation, stone is removed using different methods[laser, pneumatic, ultrasonic or electrohydraulic].

Indicated in renal stones more than 2.5cm, Multiple stones, Stones not responding to ESWL.

Complications are hemorrhage, perforation of collecting duct, injury to colon or pleura.

In our study on supine PCNL, The position used is Galdakao Modified Valdivia position:

The ipsilateral arm is brought across the chest; the contralateral arm is abducted. A gentle break is placed in the table at the level of the flank. The patient is then tilted and an air filled 3Lbag is placed under the ipsilateral flank in order to raise the side being operated on. The air bag enhances the natural lordosis of the lumbar spine

and increases the surface area available for access. Upper pole punctures, which are often tricky in prone position are made much more achievable in the supine position. (Fig 1)

50 patients were selected presenting to Mithra Hospital, Madurai. The following parameters are analysed in each patient:

- (1)Age
- (2)Sex
- (3)Blood Urea
- (4)Serum Creatinine
- (5)Height
- (6)Weight
- (7)Associated procedure
- (8)Length of Procedure
- (9)Side operated
- (10)No. of Punctures
- (11)No. of Attempts
- (12)Use of Nephrostomy tube
- (13)Location of Stone
- (14)Amplatz size

III. RESULTS

- AGE- Out of 50 patients, 30 were above 45 years and 20 below 45years. (TABLE 1)
- SEX- Out of 50 patients, 30 were male and 20 female . (TABLE 2)
- BLOOD UREA- Out of 50 patients , 46 had normal urea value while 4 had abnormal values. (TABLE 3)
- SERUM CREATININE- Out of 50 patients, 41 had normal creatinine values while 9 had abnormal values. (TABLE 4)
- HEIGHT- Out of 50 patients, 42 were >150cms and 8 were <150cms. (TABLE 5)
- WEIGHT- Out of 50 patients, 41 were >50 kg and 9 were <50kgs. (TABLE 6)
- ASSOCIATED PROCEDURE- Out of 50 patients, 2 patients underwent associated procedures. (TABLE 7) . The procedures were a simultaneous laparoscopic appendicectomy and a TURP.
- LENGTH OF PROCEDURE- Out of 50 patients, the procedure took >30 min for 13 patients and less than/equal to 30 min for 37 patients. (TABLE 8)
- SIDE OPERATED- Out of 50 patients, 32 were operated on right side and 18 on left side. (TABLE 9)
- NO. OF PUNCTURES- Out of 50 patients, 5 patients were punctured more than once. (TABLE 10)
- NO OF ATTEMPTS- Out of 50 patients, 31 patients were successfully operated in a single attempt. (TABLE 11)
- NEPHROSTOMY TUBE- Out of 50 patients, no one was put on nephrostomy tube. (TABLE 12)
- LOCATION OF STONE- Out of 50 patients, 2 patients had stone in upper pole, 3 on mid pole, 3 on mid lower pole and 42 on lower pole. (TABLE 13)
- AMPLATZ SIZE- Out of 50 patients, 28 size wire was used on 30 patients, 26 size wire was used on 18 patients and 30 size wire was used on 2 patients. (TABLE 14)

IV. DISCUSSION

In a case study of 50 patients on supine PCNL, most of them were aged above 45 years, thus implying renal stones being more common among elderly. It is found to be more common among men . Majority of them were obese.

The intervention is better tolerated in supine position by old and obese patients as the venacave is not compressed and diaphragm is not pulled up. The procedure length for majority of patients was less than 30minutes, thus proving the procedure to be time saving. In our study, renal stones were found to occur commonly on right side. It is formed commonly in lower pole of kidney. Most of the cases were operated successfully in a single attempt and puncture proving the procedure to be easier as well as efficient. The anesthetic complications such as ventilatory and circulatory compromise are reduced in this position

V. FIGURES AND TABLES

Table 1 - Age

Age>45years	30
Age <45years	20

Table 2 - Sex

Male	30
Female	20

Table 3 - Blood urea

No.of.patients with normal urea values	46
No.of patients with abnormal urea values	4

Table4 - Serum creatinine

No.of.patients with normal creatinine values	41
No.of.patients with abnormal creatinine values	9

Table 5 - Height

Height >150cms	42
Height <150cms	8

Table 6 - Weight

Weight >50kg	41
Weight <50kg	9

Table 7 - Associated procedures

With associated procedures	2
Without associated procedures	47

Table 8 – Procedure length

Time >30minutes	13
Time <30minutes	37

Table 9 - Side operated

Patients with Right renal stone	32
Patients with Left renal stone	18

Table 10 - No. of. Punctures

Punctures >1	5
Punctures <1	45

Table 11 - No. of. attempts

Attempts >1	19
Attempts <1	31

Table 12 - Nephrostomy tube

No. of. patients with nephrostomy tube	nil
No.of.patients without nephrostomy tube	50

Table 13 - Location of Stone

Upper pole	2
Mid pole	3
Mid-lower pole	3
Lower pole	42

Table 14 - Amplatz size

Size 26	18
Size 28	30
Size 30	2

VI. CONCLUSION

Supine PCNL is advantageous in many ways like having short procedure length, less anaesthetic complications, ease of performing Endoscopic Combined Retrograde Intrarenal Surgery (ECRIS), obviates the need of redraping and repositioning of the patient, and improves access for upper pole punctures. Additional advantages include low radiation dose and it can be performed in patients with spinal deformity without much complications. Supine PCNL is worth a try.

REFERENCES

Books:

- [1]. Schwartz's principles of surgery 10th edition
- [2]. Bailey and Love's short practice of surgery 28th edition
- [3]. SRB's manual of surgery 5th edition
- [4]. Campbell walsh's urology 11th edition

Journal papers:

- [5]. Griffin Mahimairaj, Neel shah, Kamraj, Muthulatha , Supine Pcnl- a case series, International journal of scientific research
- [6]. Darren Beiko MD , FRCSC, Supine versus Prone Pcnl, Canadian Urological Association Journal
- [7]. Siavesh Falahatkar, Aliakbar Allahkhan, Soheil Soltanipour Supine PCNL, Urology journal 2011 This heading is not assigned a number.

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