**Original Article**

Open Ureteric Exploration in Aminu Kano Teaching Hospital: Indications and Outcome

## Auwal Sani, Muzzammil Abdullahi, Bashir Yunusa,

**Abstract**

**Background:** Open ureteric exploration is an important procedure in urology employed in the management of ureteric obstruction from various causes. Ureteric obstruction is a common urological problem leading to significant morbidity and may lead to obstructive nephropathy in patient with bilateral obstruction or obstruction in a solitary kidney. **Objective:** The study aims to determine the demographics of patients who underwent open ureteric exploration, indications, and complications associated with open ureteric exploration. **Materials and Methods:** This is a retrospective review of all patients who had open ureteric exploration between January 2012 and September 2015. A total of 41 patients had the procedure within this period. Their case notes were retrieved; relevant information was collected with a structured proforma and analyzed with SPSS version 17. **Result:** In the 41 patients reviewed, the age range was 3 to 70 years with mean age of 33.1 ± 12.14. The commonest age group was 21 – 30years accounting for about 32% (*n* = 13). Male patients account for 68% (*n* = 28) while females 32% (*n* = 13). The indications were ureteric stone 58%, ureteric stricture 23% and external compression 19%. The commonest site of obstruction was the distal ureter 84% (*n* = 36). Ureterolithotomy was the predominant definitive procedure performed in 58% (*n* = 24). About 24% (*n* = 9) of patients developed complications, which includes urinary tract infections (UTI), post-operative intestinal obstruction and surgical site infections. **Conclusion:** The distal ureter was the commonest site of obstruction while the commonest procedure was ureterolithotomy. Open ureteric exploration is still an important option in the management of ureteric obstruction especially in resource constrain areas.

**Keywords:** *Indication, open ureteric exploration, outcome*

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# Introduction

Open ureteric exploration is an important procedure in urology employed in the management of ureteric obstruction from various causes. The obstructive processes may be congenital or acquired, intrinsic or extrinsic, and it can affect the proximal middle or distal part of the ureter. Stone is the commonest cause of acquired ureteric obstruction followed by ureteral stricture and external compression like fibrosis adhesion and pelvic or abdominal masses.[1,2] Ureteral stricture is common in schistosomiasis endemic area and usually affect the distal ureter in about 66% of cases and mostly bilateral.[3]

The treatments for upper tract obstruction range from ureteral stent placement to complex procedures involving ileal interposition or autotransplantation.[1]

In case of distal ureteric lesions in adults, surgical repair and reconstruction with primary

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uretero-ureterostomy is seldom possible. Thus, excision of the diseased segment followed by re-implantation of the distal ureter is often necessary. Depending on the length of the distal ureteric defect, various reconstructive options are available, including direct uretero- neocystostomy, and psoas hitch either alone or combined with Boari flap. This allows bridging of ureteric defects of 4–5, 6–10 and 12–15 cm, respectively.[4,5] Ureterolysis can be done to release fibrosis and adhesion causing ureteral obstruction.[6]

In the management of ureteral calculi, stones of 4-5 mm in size may pass spontaneously in 80 – 90% of cases; however larger stones usually require treatment.[3,7]

There is a shift toward minimally invasive surgery for ureteric stone which include extracorporeal shock wave lithotripsy (ESWL), ureteroscopy and percutaneous stone removal which markedly decreases morbidity for patients with ureteral calculi.[8,9] Nevertheless, some patients may still require open ureteral stone

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External Compression

Ureteric Stricture

Ureteric Stone

0

10

20

30

40

50

60

70

**Figure 1: Showing the indications for ureteric exploration**

surgery,[8,10] especially in developing countries where there is lack of facility and high cost to the patient. Other indication for open surgery includes failure of endoscopic procedure, anatomical renal abnormalities requiring open correction of the anatomical defect, late presentation and therefore more complex cases with increase stone burden, and patient preference.[8,11,12]

The study aims to review the open surgeries (ureteric exploration) of various causes of ureteric obstruction at Aminu Kano Teaching Hospital.

# Patients and Methods

A retrospective review of open ureteric exploration for various causes of ureteric obstruction from January 2012 to September 2015 was done and socio-demographics, causes of obstruction, level of obstruction, type of definitive procedure and complications of surgeries were analyzed.

The records of patients who had open ureteric exploration for ureteric obstruction at Aminu Kano Teaching Hospital from January 2012 to September 2015 were reviewed. The operation register was first access to obtain the detail of patients who had open ureteric exploration within the stated period, subsequently the files of the patients were retrieved. The clinical history, examination findings, investigations and operation notes of all the patients were reviewed. Patient characteristics assessed included age, gender and relevant medical history. The cause of ureteric obstruction, site of obstruction, risk factors, definitive treatment and complications of the surgery were analyzed.

Relevant information was collected with a structured proforma and analyzed with SPSS version 17.

# Result

In the 41 patients reviewed, the age range was 3 to 70 years with mean age of 33.1 ± 12.14. The commonest age group was

**SITE OF OBSTRUCTION**

100

80 84%

60

40

20

0

6%

PROXIMAL

10%

MIDDLE

DISTAL

**Figure 2: Showing the site of ureteric exploration**

### Table 1: Definitive procedures

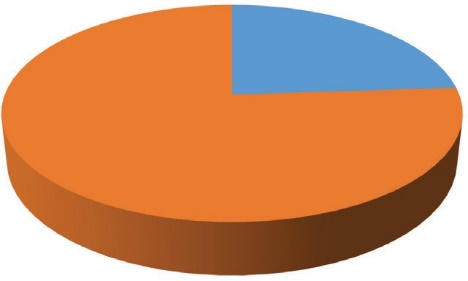
|  |  |  |
| --- | --- | --- |
| **Procedure** | **No. of patients** | **Percentages** |
| Ureterolithotomy | 24 | 58 |
| Ureteroneocystostomy | 5 | 12 |
| Ureteroureterostomy | 1 | 2 |
| Ureteral stenting alone | 8 | 20 |
| Ureterolysis | 3 | 8 |

21 – 30years accounting for about 32% (*n* = 13). Male patients accounted for 68% (*n* = 28) while females 32% (*n* = 13) with male to female ratio M: F 2:1. The indications were Ureteric stone 58%, ureteric stricture 23% and external compression 19% [Figure 1]. The commonest site of obstruction was the distal ureter 84% (*n* = 36) [Figure 2]. Ureterolithotomy was the predominant definitive procedure performed in about 58% (*n* = 24) [Table 1]. About 24% (*n* = 9) of patients developed complications, which includes urinary tract infections (UTI), post- operative intestinal obstruction and surgical site infections.

# Discussion

In developed countries due to the availability of the equipment, experience and expertise rate of open ureteric exploration for

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**COMPLICATION RATE**

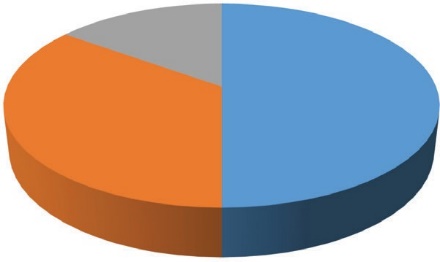
24

Complication

No Complication

76

**Figure 3: Showing the overall complication rates**



**COMPLICATIONS**

15

50

35

UTI

AIO SSI

**Figure 4: Showing the complications after exploration**

**UTI = Urinary tract infection, AIO = Adhesive intestinal obstruction (Post- operative), SSI = Surgical site infection.**

ureteric obstruction especially for stone is very low compared to developing countries where it is found to be higher.[13,14]

Our study reveals that the age range was 3 to 70 years with mean age of 33.1 ± 12.14 and the commonest age group was 21 – 30years. This is similar to a study by Shuaibu *et al.* in Jos and closely similar to studies in Turkey and Egypt.[10,11,15]

Ureteric stone is the commonest indication for open ureteric exploration in about 58% of cases, followed by ureteric stricture and external compression.

This is also in keeping with a study by Nakada *et al*.[1] The commonest presenting symptom was recurrent flank pain about 61.9% and this finding is in agreement with studies in Jos (Nigeria) Egypt and Germany.[1,6,11,16]

Distal ureteric obstruction is found in about 84% cases which is also similar with a study in Maiduguri by Bakari *et al.*[3] However Oranusi *et al.* in Nnewi, Nigeria found mid and distal ureteric obstruction to be the commonest.[13] This is likely because in his study the most common reason for ureteric exploration was ureteric stricture secondary to Schistosomiasis which affect distal and mid ureter commonly as shown in Figures 3 and 4.

Twenty four percent of our patients developed complications which is slightly lower than the finding from a study conducted

in Jos by Shuaibu *et al.* (31.9%)[11] and higher than a study from Singapore (8%).[17]

UTI being the commonest morbidity in all the three studies.

Due to availability of equipment, expertise and experience in the surgical treatment of ureteric obstruction most urological centers worldwide report low rate for open ureteric surgery. However, in the developing countries open ureteric surgery rate is considerably higher due to lack of equipment and expertise, high cost to the patients and late presentation as a result of ignorance and poor socioeconomic conditions.

# Conclusion

The distal ureter was the commonest site of obstruction while the commonest procedure was ureterolithotomy Although open ureteric exploration is associated with some morbidities it is still an option in the treatment of ureteric obstruction, especially in resource constrain areas.

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### Conflicts of interest

There are no conflicts of interest.

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