Hydronephrosis is a swelling of the kidney caused by the accumulation of urine in the renal pelvis and calyces [1]. The presence of stones in the urinary tract system is the most common cause of hydronephrosis, although it can also be caused by obstructions in the urinary tract system caused by Renal Calculi, or inflammation [2,3]. Urolithiasis is a condition in which calculus or stones build in various sections of the urinary tract system (kidney, ureter, and bladder) [4,5]. Urolithiasis is the most prevalent cause of renal colic pain and hematuria, or blood in the urine, in patients [6]. Renal tract stones might be detected by chance or develop suddenly, accompanied by symptoms such as flank discomfort or renal colic [7,8]. Urinary tract blockage causes renal colic. The most common clinical concern is underlying renal, and ureteric stones [9]. Stones in the urinary system are frequent, with a lifetime incidence of up to 12% and recurrent rates of up to 50% [10]. Early diagnosis of Urolithiasis for which non-contrast CT is considered the gold standard, is also useful in the treatment of this disease [11,12]. CT KUB is the preferred examination for evaluation of Urolithiasis because of its availability, ease of performance, and high sensitivity [13]. Because it is a more sensitive and non-invasive approach than IVU and most of the stones noted were radio-opaque

**INTRODUCTION**

Hydronephrosis is a swelling of the kidney caused by the accumulation of urine in the renal pelvis and calyces [1]. The presence of stones in the urinary tract system is the most common cause of hydronephrosis, although it can also be caused by obstructions in the urinary tract system caused by Renal Calculi, or inflammation [2,3]. Urolithiasis is a condition in which calculus or stones build in various sections of the urinary tract system (kidney, ureter, and bladder) [4,5]. Urolithiasis is the most prevalent cause of renal colic pain and hematuria, or blood in the urine, in patients [6]. Renal tract stones might be detected by chance or develop suddenly, accompanied by symptoms such as flank discomfort or renal colic [7,8]. Urinary tract blockage causes renal colic. The most common clinical concern is underlying renal, and ureteric stones [9]. Stones in the urinary system are frequent, with a lifetime incidence of up to 12% and recurrent rates of up to 50% [10]. Early diagnosis of Urolithiasis for which non-contrast CT is considered the gold standard, is also useful in the treatment of this disease [11,12]. CT KUB is the preferred examination for evaluation of Urolithiasis because of its availability, ease of performance, and high sensitivity [13]. Because it is a more sensitive and non-invasive approach than IVU and most of the stones noted were radio-opaque
M E T H O D S

The duration from January, 2022 to May, 2022 was considered and patients with renal colic having flank pain and hematuria have been referred to the Department of Radiology for CT-KUB at Tertiary Hospital in Lahore Pakistan. This was a cross-sectional study and the sample size of 166 patients was obtained using a non-probability convenient sampling technique based on the previously published articles. 126 were males and 40 were females. Both Male and Female patients were between the age ranges of 15 to 60 years. All patients with renal calculi who have been referred to the Department of Radiology for CT-KUB were included. While patients other than renal calculi have urinary Tract Infection (UTI), renal failure, and renal tumors were excluded. 64 Slices Aquillion CT Machine was used. Axial slices of 5 mm were obtained through the KUB area without the use of contrast media. SPSS version 22.0 was used for data entry and analysis.

R E S U L T S

A sample size of 166 patients was taken in the study. Table 1 shows the age of the patients categorized into different groups. 166 patients were in the age ranges of (15-25), (26-35), (36-45), (46-55), (56-65), and (66-75) were 27(16.3%), 32(19.3%), 37(22.3%), 22(13.3%), 9(5.4%) respectively.

Table 3 shows the categorization of hydronephrosis in kidney stones. 96 patients were diagnosed with Obstructing hydronephrosis 57.8% and 70 patients with Non-Obstructing hydronephrosis 42.2%.

D I S C U S S I O N

In the current study, non-contrast CT KUB (Kidney, Ureter, and Bladder) on 166 patients was performed. Patients came with complaints of flank pain and hematuria. Flank pain was present in 154(94%) patients. Hematuria was in 68(41%) patients. All of above mentioned previously published studies and the present study concluded that

Table 1: Age of the Patients

Table 2 shows the gender of the patient. There were 126(75.9%) males and 40(24.1%) females among 166 patients.

Table 2: Gender of the Patients

Table 3 shows symptoms of the patients most commonly flank pain and hematuria. Flank pain is present in 154(94%) patients, while hematuria in 68(41%) patients are noted.

Table 4 shows the location of the stones. Frequencies of the location of stones are kidney stones 102(46.6%), Proximal ureter 35(16%), Mid ureter 21(9.6%), distal ureter 51(23.3%), and Urinary Bladder 10(4.6%).

Table 5 shows the categorization of hydronephrosis in kidney stones. 96 patients were diagnosed with Obstructing hydronephrosis 57.8% and 70 patients with Non-Obstructing hydronephrosis 42.2%.

Table 6: Categorization of hydronephrosis kidney stones
Urinary tract stones are most common in males. The age ranges of (15-25), (26-35), (36-45), (46-55), (56-65), and (66-75). The minimum age was 15 years and the maximum age was 75 years. All patients with urinary tract stones who came with the complaint of flank pain and hematuria were included. While patients other than renal calculi had urinary tract infection, renal failure, and renal tumors were excluded. Calculi can be present in the pelvicalyceal system or other locations (proximal ureter, mid ureter, distal ureter) in ureters that were the majority cause of obstructing hydronephrosis. In literature, Parisa Fani et al. investigated in this study.

However, the present study also indicates a higher percentage of presence of the ureteric calculi at different locations. In the current study Obstructive hydronephrosis is more prevalent than non-obstructive hydronephrosis.

**Conclusion**

Urolithiasis is the most common condition in both men and women. Patients with stones in their urinary system have flank pain and hematuria. Urinary tract stones are most commonly seen in the kidneys and ureters. The presence of stones in the urinary tract system (Urolithiasis) is the most prevalent cause of hydronephrosis. Obstructive and non-obstructive hydronephrosis are caused by kidney stones. For patients with stones in the kidney, various regions of the ureters, and the urinary bladder, non-contrast CT KUB conducted outstanding imaging investigations. The role of CT-KUB in the diagnosis of urinary system calculi was also investigated in this study.

**References**


