RESEARCH PAPER

"A STUDY ON POSTNATAL EVALUATION AND OUTCOME OF INFANTS WITH ANTENATALLY DETECTED HYDRONEPHROSIS."

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ABSTRACT:

Background: Antenatal hydronephrosis is one of the most commonly detected fetal renal abnormalities on routine prenatal ultrasonography. With increasing use of antenatal screening, early detection has improved; however, the postnatal significance and optimal management remain areas of ongoing debate.

Objectives: To determine the prevalence, postnatal outcome, and clinical significance of antenatally detected hydronephrosis, and to evaluate the association between antenatal renal pelvic diameter and postnatal uropathy.

Methods: This prospective observational study was conducted over one year in Department of Pediatrics, Apollo Institute of Medical Sciences & Research, Hyderabad, Telangana and included 85 neonates diagnosed with antenatal hydronephrosis. Antenatal findings were recorded from second and third trimester scans. Postnatal ultrasonography was performed at birth, 4–6 weeks, and 4–6 months. Hydronephrosis was graded according to standardized criteria, and infants were followed for resolution, persistence, or progression. Statistical analysis was performed using SPSS, with p-value <0.05 considered significant.

Results: The prevalence of antenatal hydronephrosis was 3.6%, decreasing to 1.6% postnatally. Most cases (70%) were detected in the second trimester. Mild hydronephrosis constituted 75% of cases, while moderate and severe forms accounted for 21% and 4%, respectively. Spontaneous resolution occurred in 58% during the first postnatal scan and overall in 75% by 4–6 months. Transient hydronephrosis was the most common etiology (58%), followed by vesicoureteric reflux (7.05%) and pelviureteric junction obstruction (3.5%). Surgical intervention was required in 23.8% of persistent cases, predominantly in moderate to severe hydronephrosis. A statistically significant association was observed between increased antenatal renal pelvic diameter and postnatal uropathy ($p < 0.0001$).

Conclusion: Most cases of antenatal hydronephrosis, particularly mild forms, resolve spontaneously with favorable outcomes. However, moderate to severe hydronephrosis is associated with a higher risk of significant postnatal pathology and need for intervention. Antenatal renal pelvic diameter serves as an important predictor for postnatal outcomes, emphasizing the need for risk-based follow-up strategies.

Keywords: Antenatal hydronephrosis**,** Postnatal outcome**,** Renal pelvic diameter**,** Vesicoureteric reflux**,** Pelviureteric junction obstruction**,** Neonatal uropathy

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INTRODUCTION:

Antenatal renal malformations identified by ultrasound were initially described by Garrett et al in 1970 (1). Since then, due to regular screening during pregnancy and the advancement of sophisticated technology, the occurrence of antenatal renal malformations has risen, particularly fetal hydronephrosis, which affects up to 4.5% of expectant mothers (2). This condition is among the primary causes of kidney failure in childhood and contributes significantly to health issues in young adults. The most frequently observed anomaly discovered through antenatal ultrasound is urinary tract dilation (3). Early identification of renal malformations enables the obstetrician to make informed decisions about delivery, especially in cases where oligohydramnios is present.

The approach to managing antenatal renal anomalies has experienced a significant transformation in two phases over the last 30 years. Initially, there was a strong inclination to perform surgeries on many asymptomatic infants in order to decrease potential long-term complications. However, recent insights over the past 15 years have highlighted those certain anomalies (such as PUJO, VUR, megaureter, and MCDK) have the potential to resolve on their own, leading to a reduction in the need for surgical or medical treatments to only a select number of infants.

Early assessment and management of newborns can help prevent long-term issues like recurrent urinary tract infections, hypertension, and kidney failure. Conversely, the drawbacks of identifying renal anomalies early include unnecessary medical procedures and increased anxiety for parents, considering that approximately 70% of these conditions are benign and typically resolve on their own. With advancements in prenatal screening, many cases are now identified through antenatal ultrasounds conducted between 18 and 20 weeks of pregnancy. Prior to the widespread use of prenatal ultrasound, children with hydronephrosis often showed symptoms such as infections, pain, blood in urine, or noticeable masses, and surgical intervention was primarily required to relieve these symptoms. Regular prenatal ultrasonography use has resulted in an earlier diagnosis of the asymptomatic patient and a change in treatment from symptomatic alleviation to kidney preservation. When treating renal abnormalities found during pregnancy, two dangers should be avoided: 1) postponing treatment and 2) overtreating. Therefore, understanding the relationship between prenatal renal USG anomalies and the outcome is crucial for appropriate counseling.

Without subjecting the larger proportion (~75% detected antenatally) to needless investigations, antibiotic prophylaxis, or surgery, the aim for babies with antenatal detected renal anomalies is to identify the smaller proportion (<25%) who have significant nephrouropathies that require later surgery or long-term follow-up.

Posterior urethral valves (PUV), pelvi-ureteric junction obstruction (PUJO), vesico-ureteral reflux (VUR), vesico-ureteral junction obstruction (VUJO), polycystic kidney disease, multicystic dysplastic kidneys (MCDK), renal agenesis, and duplex systems with ureterocele are some of these major nephrouropathies.

Parents have worry due to anomalies, and postnatal follow-up counseling is necessary. Parents should be notified of the results whenever a diagnosis is made. Mothers with conditions like diabetes mellitus, hypothyroidism, and renal illness are more likely to suffer antenatal urinary tract dilatations. Prenatal counseling and the treatment of women who have these risk factors should address it (4). In order to recommend potential interventions and guarantee birth in an appropriate facility for additional baby assessment, early prenatal diagnosis is essential.

There are few prior research on postnatal monitoring of hydronephrosis identified during pregnancy. The postnatal approach to fetal renal pelvis enlargement is still debatable because there is less agreement on how to evaluate and monitor these infants.

The purpose of this study was to assess the anteroposterior renal pelvic diameter in newborns with antenatally diagnosed hydronephrosis. Clarifying the role of prenatal intervention, the frequency of follow-up tests, and the justifications for surgery in these patients will require more research.

Aim: The aim is to study the prevalence and postnatal outcome in infants with antenatally detected hydronephrosis during a 6-month period follow-up.

OBJECTIVES:

• To study the relationship between anteroposterior diameter (APD) of fetal and postnatal renal pelvis.

• Postnatal monitoring as per protocol with ultrasonography to look for spontaneous resolution, structural anomalies and complications.

MATERIAL & METHODS:

Study Design: Prospective observational study.

Study area: Study was conducted in the pediatric department of Apollo Institute of Medical Sciences and Research, Hyderabad, Telangana, India.

Study Period: 1 year.

Study population: The study population comprised of all the neonates who are prenatally diagnosed with hydronephrosis and delivered in AIMSR.

Sample size: The study consisted of a total of 85 subjects.

Sampling Technique: Convenient sampling method.

Inclusion Criteria: All neonates whose antenatal scans- TIFFA, second trimester or third trimester showed hydronephrosis in fetus.

Exclusion criteria:

1. Neonates who are prenatally diagnosed with other congenital anomalies.
2. Who refused to give consent.

Ethical consideration: Institutional Ethical committee permission was taken before the commencement of the study.

Study tools and Data collection procedure:

Following a written informed parental consent, all women attending the antenatal clinic of the Obstetrics & Gynecology department have an antenatal ultrasound during the second trimester (between 20-24 weeks) and third trimester above 30 weeks of gestation.

All those who were detected to have antenatal hydronephrosis either during the second or third trimester Ultrasound scan were included in the

study, provided they delivered in this hospital. Scan was done by the consultant radiologist trained in sonology, during the antenatal period. All antenatal data were recorded.

The antenatal anomalies were classified based on the Society for fetal urology grading and renal pelvis APD classification (29). Written informed consent was obtained from the parents after the baby was born. Both term and preterm babies were included in the study.

The first post-natal scan was done before 7 days of life, the second between 46 weeks and the third between 4 – 6 months of age. Post natal ultrasound scan was done by machine Philips IU 22 with matrix and done by the consultant radiologist. Postnatal classification was done as per SFU grading (29). To minimize the inter observer variation all the post-natal USG images were analyzed by single person expertized in USG. All patients were followed up in consultation with the pediatric surgeon. Urine cultures, investigations and management were done at the discretion of the attending surgeon.

Data Analysis:

The information collected regarding all the selected cases were recorded in a Master Chart. Data analysis was done using descriptive statistical methods. Categorical variables such as antenatal and postnatal laterality of hydronephrosis were presented as frequencies and percentages. Continuous variables, including renal pelvic diameters, were summarized using measures of central tendency such as mean and median. Trends over time were depicted using tables and charts to illustrate changes in postnatal hydronephrosis patterns at 3 days, 1 month, and 6 months. Data analysis was done with the help of computer using" SPSS v16 software. Using this software, frequencies, percentages, means, standard deviations, chi square and p values were calculated. Kruskal Wallis chi square test was used to test the significance of difference between quantitative variables. A p value less than 0.05 is taken to denote significant relationship.

OBSERVATIONS & RESULTS:

TABLE 1-GENDER DISTRIBUTION OF STUDY POPULATION

Sex	Frequency	Percent
Male	54	63.52 %
Female	31	36.48 %
Total	85	100 %

There was a significant male preponderance in our study with 54 males and 31 females, giving a ratio of 1.7:1.

The prevalence of antenatal hydronephrosis in our study is 3.6 %, 35 / 964 live births.

In our study, the prevalence of antenatal hydronephrosis in postnatal period was 1.6%, 16/964 live births.

Table 2: Prevalence of second trimester anomalies

2nd trimester anomalies	Frequency	Percentage
Bilateral HN	**22**	**37 %**
Unilateral HN	**34**	**57%**
Bilateral HUN	**2**	**3.3%**
Unilateral HUN	**1**	**1.7%**
Total	**59**	**100 %**

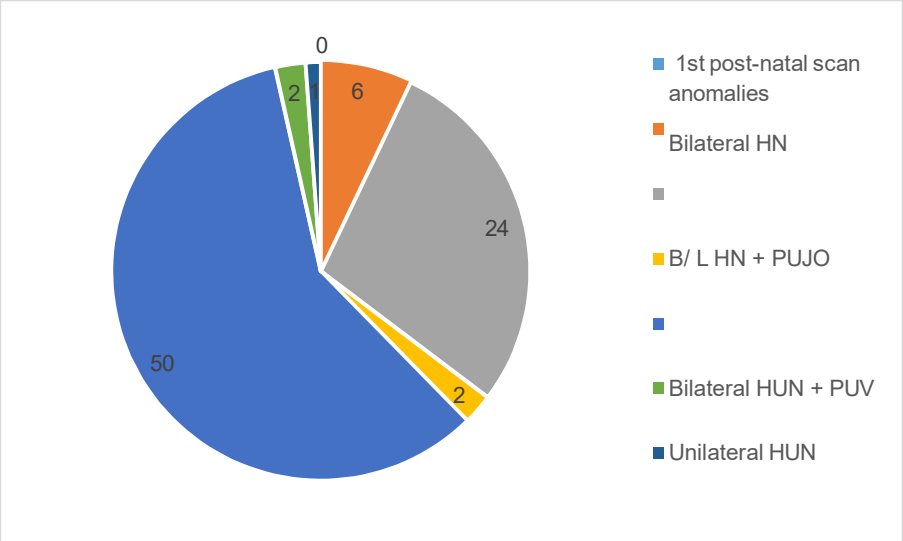
In second trimester scan 59 out of 85 cases were detected, nearly 70% of the study population had hydronephrosis during 2nd trimester, of 59 cases which (34/59)57 % have unilateral hydronephrosis and (22/59) 17 % have bilateral HN, (2/59) 3.3% have bilateral HUN, (1/59) 1.6% has unilateral HUN.

Table 3: 2nd trimester anomalies and their fate in 3rd trimester

		Fate of these anomalies in 3rd trimester scan						
2nd trimester anomalies	**Total Number**	**Normal**	**U/I HN**	**B/I HN**	**U/I HUN**	**B/I HUN**	**MCDK**	**PUV**
U/I HN	34	0	34	0	0	0	0	0
B/I HN	22	1	0	21	0	0	0	0
U/I HUN	1	0	0	0	1	0	0	0
B/I HUN	2	0	0	0	0	0	0	2
MCDK	0	0	0	0	0	0	0	0
TOTAL	59	1	34	21	1	0	0	2

1 case out of 59 (1.7 %) had a normal scan at third trimester, but had abnormal record in second trimester were followed up postnatally.

Table 4: Prevalence of 3rd trimester anomalies



3rd trimester anomalies	Frequency	Percentage
Bilateral HN	**13**	**50%**
Unilateral HN	**13**	**50%**
Bilateral HUN	**0**	**-**
Unilateral HUN	**0**	**-**
Total	**26**	**100%**

In our study hydronephrosis detected in third trimester scan were -26 cases, 30 % of study population, of which 50% were unilateral hydronephrosis and 50 % were bilateral hydronephrosis.

Table 5: ANTENATAL DIAGNOSIS

AN diagnosis	Frequency	Percentage
B/L Antenatal hydronephrosis	35	41 %
U/L antenatal hydronephrosis	47	55 %
B/L antenatal hydroureteronephrosis	0	0 %
U/L antenatal hydroureteronephrosis	1	1.2%
B/L HUN with PUV	2	2.3%
Total	85	100 %

Out of 85 cases, 41% were bilateral HN cases, 47% cases had unilateral hydronephrosis,2.3% had B/L HUN with PUV,1.2 % had unilateral hydroureteronephrosis.

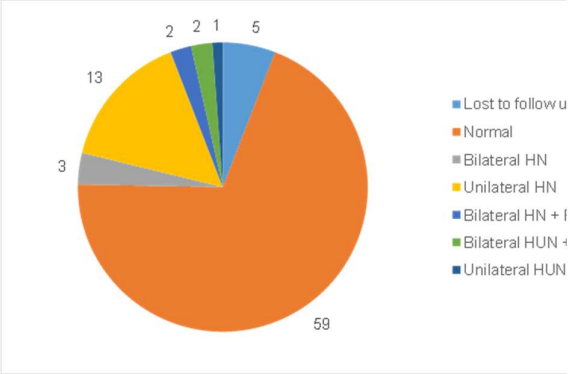
Out of the 85 cases, 64 (75%) had mild hydronephrosis, 18 (21%) had moderate and 3 (4%) cases had severe grades of hydronephrosis.

Figure 1: Distribution of 1st postnatal USG – renal anomalies

In our study during the 1st postnatal scan out of the 85 cases, 50 were normalized (58%) that is transient hydronephrosis was seen in 58 % of study population, of which 48 (96%) had mild hydronephrosis and 2 (4%) had moderate grades of hydronephrosis. 50 cases of transient hydronephrosis, 3 cases of posterior urethral valve, 8 cases of bilateral hydronephrosis of which 2 cases had PUJ obstruction, 24 cases of unilateral hydronephrosis, 1 case of unilateral hydroureteronephrosis, 1 case of bulky kidney.

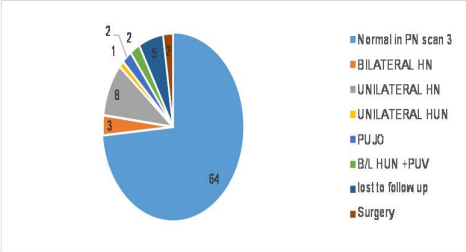
Out of 85 cases, 35 babies had persisting problems with mild, moderate and severe type of hydronephrosis after 1st postnatal scan. The prevalence of antenatal hydronephrosis in our study is 3.6 %, 35 / 964 live births.

Figure 2: ANOMALIES PERSISTED DURING 2nd POSTNATAL SCAN



Out of 85 cases, 35 babies had persisting problems with mild, moderate and severe type of hydronephrosis after 1st postnatal scan. In those cases, during 2nd postnatal scan we found 9 of them normalized, 21 (24.7%) had same findings and 2 (2.3%) had worsening findings and the rest 5.88 % were lost to follow-up. None of the babies in the severe group had normalization of the findings. There were no cases of in utero resolution in the severe group.

FINAL ANALYSIS OF 85 SAMPLES



In our study total 64 out of 85 were normalized in our study (75.2 %) in the follow up period of up to 6 months. During the follow up period infants did not have any urinary tract problems. Issues for infections, hypertension, weight gain were all noted. MCUG is done for babies who had unilateral / bilateral hydronephrosis having renal pelvic AP diameter more than 10 mm, grade 3-4 SFU and ureterohydronephrosis. VUR was present in 6 babies, of which 4 babies had grade 3 reflux, 2 babies had grade 2 reflux.

In the follow up period subsequently 9 (10%) normalized in 2nd PN scan and 5 (5.8%) in 3rd PN scan, 5 were lost to follow up (5.8 % of the study population) during the study period.

2 babies had surgery; one extra renal pelvis was a variant in study. The others were in follow-up. Their follow up status had no issues of renal problems and thriving well. 2 had pyeloplasty and 3 had cystoscopy with fulgration.

1 baby with bilateral moderate hydronephrosis on follow up was admitted for UTI, DMSA was done with smaller left kidney with significant parenchymal dysfunction, LK – 5 %; RK – 95%, is started on antibiotic prophylaxis on follow up and baby is thriving well.

TABLE 7: ASSOCIATION BETWEEN RPD (RENAL PELVIC DIAMETER) AND POSTNATAL PROVISIONAL DIAGNOSIS IN UNILATERAL HYDRONEPHROSIS

DIAGNOSIS	RENAL PELVIC DIAMETER (MEDIAN)	RENAL PELVIC DIAMETER (MEAN)	STD	RENAL PELVIC DIAMETER (IQR)	CHI SQUARE	P VALUE
Transient hydronephrosis	5.44	5.44	0.5	0.45	36.59	0.01
PUJO	16.25	16.33	1.05	1.15		
VUR	9	8.99	0.28	0.35		
Extrarenal pelvis	7.05	7.04	0.35	0.45		

This table summarizes the renal pelvic diameter (RPD) characteristics across different postnatal diagnoses among infants with unilateral hydronephrosis.

PUJO (Pelviureteric Junction Obstruction) cases exhibited the highest RPD values, with a median of 16.25 mm, mean of 16.33 mm, and a wider variability (IQR = 1.15 mm), indicating significantly dilated systems.

Extrarenal Pelvis showed a median RPD of 7.05 mm, which was more modest, with a narrow range and lower variability (std = 0.35 mm, IQR = 0.45 mm), suggesting a more stable and less severe dilation.

Transient Hydronephrosis had a lower median RPD of 5.4 mm, closely clustered around the mean of 5.44 mm, suggesting mild and potentially resolving dilation.

VUR (Vesicoureteric reflux) was characterized by a median of 9 mm, with minimal dispersion (std = 0.28 mm), indicating consistent moderate dilation.

A Kruskal-Wallis test was used to compare median RPD values across these diagnostic groups. The test yielded a Chi-square statistic of 36.59 and a p-value of 0.01, indicating a statistically significant difference in antenatal renal pelvic diameters among the various postnatal diagnosis categories.

TABLE 12 - ASSOCIATION BETWEEN ANTENATAL RENAL PELVIC DIAMETER AND POSTNATAL SIGNIFICANT UROPATHY

SIGNIFICANT UROPATHY	N	MEAN	STD.DEVIATION	STATISTIC	P VALUE
PRESENT	16	12.5	6.25	6.31	0.004
ABSENT	64	5.44	2.62		

A statistically significant association was found between antenatal renal pelvic diameter and development of significant postnatal uropathy. (p value < 0.004).

DISCUSSION:

In recent years, there has been an increase in the number of infants diagnosed with hydronephrosis on fetal ultrasound scans. This study analyses the clinical outcome in a group of infants with antenatal hydronephrosis. Thus, to validate the role of prenatal sonography in recognition of urological abnormalities that otherwise would not be identified until later in life, when the symptoms of chronic renal disease sets in.

The prevalence of antenatal hydronephrosis in our study is 3.6 %, 35 / 964 live births. The study conducted in a tertiary care centre, by Sinha et al, reported that prevalence of antenatal hydronephrosis ranges from 0.6 % to 5.4 % (5). To the best of our knowledge, there is no comparable study published from India. One of the first studies reported by Sanghvi et al found (0.2%) incidence of congenital renal anomalies (65 of 31,217 pregnant women over 3-year period) (6). Of these 65, urinary tract dilatation was the most common renal anomaly and found in 39 neonates.

In a recent article by Saha et al, antenatal renal malformations were detected in 35 of 6682 antenatal scans (0.4%) with 50% showing hydronephrosis. Significant nephro-uropathies were found in 40% babies with PUJO in 18%, VUR in ~ 10%, PUV in 10%, and MCDK in 2%. The Indian Society of Pediatric Nephrology had published in 2001 a Consensus Statement on management of antenatal detected hydronephrosis to aid practicing pediatrician in appropriate management of these babies (7).

There was a significant male preponderance in our study with 54 males and 31 females, giving a ratio of 1.7:1. In study done by Gokce et al (8), the antenatal renal abnormalities appeared to be primarily a problem of boys (187 males, 69 females; with a M:F ratio of 2.71: 1. In a study done in Iran done by Sadhegji Bojd et al, they screened 200 patients of post-natal hydronephrosis, the male to female ratio is 3.5:1 (9). Majority of the cases were diagnosed by second trimester or early third trimester (69.4%). Saini et al, reported that all babies detected to have hydronephrosis in antenatal scan, for whom it had resolved prenatally should also be evaluated in the postnatal period (3).

Out of 85 cases, 41% were bilateral HN cases, 47% cases had unilateral hydronephrosis,2.3% had B/L HUN with PUV,1.2 % had unilateral hydroureteronephrosis.

In this study to reduce the discrepancies in coining the terminologies, the postnatal images of the study population were reviewed by the expert team individually and analyzed. In our study involvement of right kidney and left kidney were termed as unilateral involvement, if both were involved it was termed as bilateral involvement.

Majority of cases had mild hydronephrosis (64 out of 85 =53.8%), followed by moderate (18 out of 85=21%) and severe grades of hydronephrosis (4 out of 85=4%). In a study by sidhu et al, they noticed that despite various classification methods was used, babies who had renal pelvic diameter less than 12 mm mostly normalized and they mostly didn't have any problems. Since the measurement of renal pelvis in USG scan is always observer dependent, the severe hydronephrosis with APD more than 12 mm have a variable outcome (10).

Transient hydronephrosis was found to be the most common etiology for antenatal hydronephrosis (50 out of 85=58%). Majority of infants with transient hydronephrosis showed mild (48/50=96%) followed by moderate (2/50=4%) and severe (0%) grades of hydronephrosis. Majority of the cases showed a resolution at 1 month of postnatal follow up. In a study by Saini et al, hydronephrosis was the most common anomaly identified on postnatal scan (71%) that correlated well with the antenatal records (78%) (3). In study by jyoti et al hydronephrosis was the most detected anomaly (79 out of 100) cases. On evaluation of babies with moderate to severe hydronephrosis persisting abnormality was seen in 17.4% and 1.1%. 8 babies had surgical intervention of which 20 babies with severe abnormalities. Mild hydronephrosis was resolved in 75% of the cases.

All the 85 babies in our study had post-natal scan done before the discharge from hospital. The mean day of USG was on day 3-5 of life. In the normal neonate, there is low urine output during the first 24–48 hours so that with unilateral hydronephrosis the USG should not be undertaken before 72 hours post-delivery. In study by sidhu et al, their results demonstrate that more than 70% cases of mild hydronephrosis (SFU grades 1–2; APPD less than 12 mm) resolved, stabilized or improve during follow-up. Ismaili et al concluded in his study that babies whose hydronephrosis had resolved spontaneously in postnatal period do not require further follow up and they have good outcome (7).

Mild variants with APD diameter <10 mm on antenatal scans were transient and resolved spontaneously on subsequent follow-up scans. In a

systemic analysis on 25 studies (10), they demonstrated that isolated antenatal detected hydronephrosis resolved in 98% of the patients with APD less than 12 mm, but only 51 % was resolved for those who had larger APD. In 2 other studies by Elder JS and Koff SA, it was reported that antenatally detected dilatation was transient and resolved spontaneously in more than 50% of cases. 2728 Severe forms of hydronephrosis (APD>12 mm) persisted on postnatal scans.

Vesicoureteric reflux was found among 7 % (6 out of 85) of the study population who underwent MCU. Out of them ,4(57.1%) had moderate hydronephrosis and 2(28.6%) had severe hydronephrosis. One among the babies with VUR was admitted for urinary tract infection and put on antibiotic prophylaxis. Among these infants, 2 (28.6%) had grade 2 VUR, 3(42.9%) had grade 3 VUR. Thus grade 3 of VUR was the most common among these infants. All were under follow up with uroprophylaxis. In a study by Ismaili K (7), Vesicoureteric reflux was found among 8.8% (7 out of 80) of the study population out of the total 24 infants who underwent MCU.

Posterior urethral valve was found among 2.3 % (2 out of 85) of the study population. Both among them had severe grade of hydronephrosis. Both cases underwent immediate surgical intervention by cystoscopic fulgration. From the overall analysis of this study, it was found out that among those infants with transient hydronephrosis majority (96%) had mild followed by moderate (4%) grades of hydronephrosis. All cases of vesicoureteric reflux either moderate or severe grades of hydronephrosis. Among those infants with significant uropathy like pelviureteric junction obstruction, posterior urethral valve, majority of the infants presented with severe grades of hydronephrosis.

In study done by Sairam S et al reported that fetal hydronephrosis was identified in 268 out of 11,465 mothers (2.3%). Out of 268 cases, 216 were found to have mild hydronephrosis (80.6%), whereas the remaining were moderate or severe hydronephrosis (52 cases out of 268, i.e, 19.4%). 88 % of the cases had resolution of hydronephrosis in the antenatal itself or during the early neonatal period. No intervention was needed in the mild hydronephrosis group. Surgery was needed in post-natal period for one third of the babies who had either moderate hydronephrosis or severe hydronephrosis. Surgery was required in only 1 in 1000 births in their study population required surgery.

In our study, among the persisted hydronephrosis were more than 10 mm APD. The majority of hydronephrosis below 8 mm resolved spontaneously. Cases with hydroureteronephrosis received antibiotic prophylaxis (11). Antibiotic prophylaxis was discontinued at 3 months for patients, if VCUG was normal and no further UTIs occurred (12). In our study total 64 out of 85 was normalized in our study (75.2 %) in the follow up period of up to 6 months. During the follow up period infants did not have any urinary

tract problems. Issues for infections, hypertension, weight gain were all noted. Micturating cystourethrogram is done for patients who had unilateral / bilateral hydronephrosis having renal pelvic AP diameter more than 10 mm, grade 34 SFU and with ureterohydronephrosis. In the follow up period subsequently 17 was normalized in PN scan 2 and 2 in PN scan 3, 5 were lost follow up (5.8 % of the study population) during the study period. 1 baby had surgery; one extra renal pelvis was a variant in study. other 3 were in follow up. Their follow up status had no issues of renal problems and thriving well. 1 had pyeloplasty and 1 had cystoscopy with fulgration.

ASSOCIATION BETWEEN RPD (RENAL PELVIC DIAMETER) AND POSTNATAL PROVISIONAL DIAGNOSIS IN UNILATERAL HYDRONEPHROSIS: A significant positive correlation was found between anteroposterior renal pelvic diameter detected in antenatal ultrasound and urinary tract anomalies in unilateral hydronephrosis detected postnatally (p value- 0.01).

ASSOCIATION BETWEEN ANTENATAL RENAL PELVIC DIAMETER AND POSTNATAL SIGNIFICANT UROPATHY: A statistically significant association was found between antenatal renal pelvic diameter and development of significant postnatal uropathy. (p value - 0.0001).

CONCLUSION:

This study highlights that antenatal hydronephrosis is a relatively common finding on prenatal ultrasonography, with a higher detection rate antenatally compared to postnatal evaluation, and most cases being identified during the second trimester. The majority of cases were mild and showed a strong tendency toward spontaneous resolution, with nearly three-fourths normalizing within the first 4–6 months of life, particularly those with unilateral involvement. However, a smaller yet clinically significant proportion—especially those with moderate to severe hydronephrosis—were associated with persistent postnatal uropathies and a higher likelihood of requiring surgical intervention. Transient hydronephrosis emerged as the most common etiology, though conditions such as vesicoureteric reflux and pelviureteric junction obstruction contributed to persistent disease burden. Importantly, the study demonstrates a strong and statistically significant correlation between increased antenatal renal pelvic diameter and the risk of clinically significant postnatal pathology, emphasizing its value as a predictive marker. Overall, these findings reinforce the need for risk stratification based on severity and targeted postnatal follow-up, ensuring timely identification and management of infants at risk while avoiding

unnecessary interventions in those likely to resolve spontaneously.

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