The Professional Medical Journal
www.theprofesional.com

https://doi.org/10.29309/TPMJ/2021.28.11.6495

ORIGINAL PROF-0-6495

Ultrasound guided tube drainage of perinephric abscess: Experience of 70 cases.

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Article received on:
26/03/2021
Accepted for publication:
18/06/2021

ABSTRACT… Objective: To determine the efficacy of ultrasound guided tube drainage of Perinephric abscess. **Study Design:** Observational study. **Setting:** Surgical Unit-II and Urology Ward Ghulam Muhammad Mahar Medical College Teaching Hospital Sukkur & Mustafia Hospital Sukkur. **Period:** February 2016 to January 2020. **Material & Methods:** 70 cases with Perinephric abscess underwent ultrasound guided tube drainage. Diagnosis was established by history, clinical examination, investigations like ultrasound & CT scan. Patients with emphysematous kidney & chronic sinus formation and with small abscess were excluded from the study. Patients were followed up for 4 weeks for complete regression of abscess cavity on ultrasound. **Results:** Out of 70 Patients 61.4% were male and 35% were female. 58.5% of the patients had right sided Perinephric abscess. Majority of the patients(42.8%) belonged to age group 41-50 years. 31.4% of the patients were diabetic. Clinically 95.7% of the patients reported with fever and 88.5% with flank pain. Ultrasound guided tube drainage was successful in 65(92.8%) while in 5(7.1%) patients it failed and open drainage was performed. **Conclusion:** Ultrasound guided tube drainage is an effective way to treat Perinephric abscess with very few minor complications as compared to open drainage.

Key words: Open Drainage, Perinephric Abscess, Tube Drainage, Ultrasound.

Article Citation: Baloch I, Shah AA, Shaikh SA, Shaikh B, Baloch MA, Mirani AS, Azhar N, Lund PL. Ultrasound guided tube drainage of perinephric abscess: Experience of 70 cases. Professional Med J 2021; 28(11):1566-1570. https://doi.org/10.29309/TPMJ/2021.28.11.6495

INTRODUCTION

Perinephric abscess is a condition in which there is formation and collection of pus between kidney and Gerota's fascia.[1,2] Perinephric abscess and intra-renal abscess may occur simultaneously. Infection of the kidney may lead to renal abscess formation.[3] Renal abscess may be renal cortical or cortico-medullary which then spread to outside to cause perinephric abscess.[4] Sometimes Perinephric abscess may occur due to blood born spread and is lethal specially in immuno-compromised persons.[5,6,7] Predisposing factors for Perinephric abscess are urinary tract obstruction, diabetes, immunocompromised patient and pregnancy.[8,9] It was proven previously that around 95% of renal parenchymal abscess were due to staphylococcus Aureus.[10,11] However recently predominantly 50-60% gram negative bacteria have been identified.[11,12,13,14,15] Less than 30% of cases are due to fungal infection.[16] Patients commonly present with fever and loin pain.[17] Some cases present with dysuria.[11,14,18,19] In many cases with Perinephric abscess kidneys were nonfunctional with stones.[20,21] 60-90% intra-renal abscess rupture and lead to Perinephric abscess.[22,23,24] If left untreated, perinephric abscess may lead to complications like Bleeding, Flank abscess, Fistula formation to stomach, small bowel, duodenum, lung, Subphrenic abscess, Empyema, Pneumonia, Atelectasis and Sepsis.[25]

Mainstay of treatment for perinephric abscess is drainage under cover of antibiotics. Drainage can be open or percutaneous tube drainage under ultrasound guidance. In cases where kidney is nonfunctioning, nephrectomy can be performed. Many studies have proved that tube drainage is better than open technique however in our area this procedure is still in cradle. We have performed this study to test the efficacy of ultrasound guided

tube drainage for perinephric abscess.

Aim of our study is to test the efficacy of ultrasound guided tube drainage in treatment of perinephric abscess.

Inclusion Criteria

1. Patients diagnosed as a case of perinephric abscess on history, clinical examination and ultrasound / CT scan.
2. Patients from 10 – 70 years of age.
3. Unilocular abscess
4. Severely ill patients who could not withstand general anesthesia and open drainage

Exclusion Criteria

1. Small abscess
2. Emphysematous kidney
3. Chronic sinus formation
4. Multilocular abscess

MATERIAL & METHODS

This study was performed on 70 patients fulfilling the inclusion criteria admitted through OPD and emergency during last four years. After detailed history and examination patients were investigated. Ultrasound was done in all cases; while CT scan was performed in selected cases. Complete blood count (CBC), Urea, creatinine, electrolytes, blood sugar, Hepatitis B Surface antigen, Anti HCV & Anti HIV were checked. Urine and pus for culture and sensitivity was also performed. Final diagnosis of Perinephric abscess established. All the patients underwent ultrasound guided tube drainage under local anesthesia and sedation. Procedure was performed by a general surgeon using ultrasound guidance. A pigtail catheter of 12 or 14F was percutaneously inserted into the abscess cavity. Intra-venous antibiotics (third generation cephalosporins) were started empirically in all the patients which then were switched to antibiotics according to culture and sensitivity report. Patients were discharged from the hospital with tube when they were clinically improved. Patients were called up for weekly follow-up upto 4 weeks. Drainage catheters remained in place until the output was minimal and radiographic resolution was confirmed with ultrasonography. Cure was defined as complete obliteration of the abscess cavity at four weeks follow up. Patients, in whom tube drainage failed, open incision and drainage was done through lumbar incision. DJ stenting was done in 12 patients who had obstructive uropathy. All data was recorded on predesigned proforma. Data was analysed on SPSS version 17. Variables like gender, predisposing factors, signs and symptoms and efficacy of ultrasound guided tube drainage were expressed as percentage. Mean and standard deviation (SD) of age was calculated. P value of ≤ 0.05 was considered statistically significant.

RESULTS

Out of 70 Patients 61.4% were male and 35% were female; M: F was 1.59:1. 58.5% of the patients had right sided Perinephric abscess. Age ranged from 15 to 70 years with majority (42.8%) belonging to age group 41-50 years. Mean age was 41 years. Most common predisposing factor was diabetes (31.4%) followed by established urinary tract infection. Few patients however remained idiopathic. Clinically 95.7% of the patients reported with fever and 88.5% with flank pain. Ultrasound guided percutaneous tube drainage proved successful in 65 patients (92.8%) while in 5 patients (7%) it failed most probably due to thick nature of the pus or multiple loculi Figure-1.

Gender	No. of Patients (%)
Male	43 (61.4%)
Female	27 (38.5%)

Age in Years	No. of Patients (%)
10-20	03 (4.28%)
21-30	17 (24.28%)
31-40	26 (37.14%)
41-50	30 (42.08%)
51-70	05 (7.14%)

Predisposing Factors	No. of Patients (%)
Diabetes mellitus	22 (31.4%)
Renal Stones	20 (28.5%)
Stone in ureter	12 (17.14%)
Urinary Tract infection	7 (10%)
Both renal & Ureter Stones	03 (4.28%)

Sign & Symptoms	No. of Patients
Fever	68 (97.14%)
Renal angle tenderness	66 (94.28%)
Flank pain	62 (88.5%%)
Tender Mass	43 (61.42%)
Flank swelling	25 (35%)

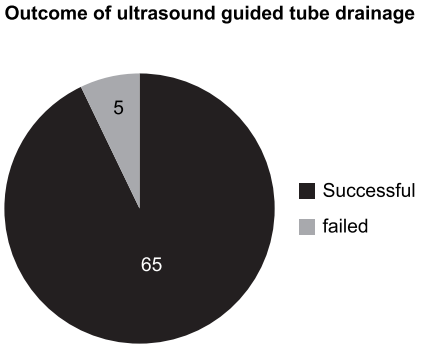

Figure-1. Outcome of ultrasound guided tube drainage.

DISCUSSION

Perinephric abscess commonly develop due to rupture of renal abscess or due to an obstructing kidney stone leading to pyo-nephrosis and gram negative bacteria are involved usually. Abscess may also develop due to urinary tract infection.[26] Around 30% patients are due to blood born spread from wound infection, boils or respiratory tract infection. Mainstay of treatment for perinephric abscess is drainage under cover of antibiotics. Antibiotics alone for treatment of perinephric abscess is inappropriate as the risk of mortality is high 33%. Drainage can be open or percutaneous tube drainage under ultrasound guidance.[27,28] Duration of antibiotic therapy is decided by clinical response. Current recommendations are to continue intra venous antibiotics for at least 24-48 hours after drainage and then converted to oral antibiotics for additional 2-3 weeks.[29] In this study 61.4% patients were male while 38.5% patients were female in comparison to other study in which it was 57% & 41% for males and females respectively. Most affected age group was 41-50years (42.8%).

In one study the most affected age group was 21-30 years (35%).[30] Elevated temperature was found 89% of cases in a study;[31] while in current study it was found to be 95.7% of cases. Flank pain and tenderness was found to be 86.2%[30] comparison to this study where it was 88.5%. The most common pathogens were gram –ve (E – coli, Proteus, kleibsella)[32,33,34] In our study the predisposing factors were Diabetes Mellitus (31.4%), renal stones (28.5%) and ureteric stones (17.4%), in comparison to other study where 35% of patients were Diabetics, 31% had ureteric stones and 24% were suffering from renal stones.

CONCLUSION

Ultrasound guided tube drainage of Perinephric abscess under local anaesthesia is an effective way to treat Perinephric abscess with very few minor complications instead of open drainage.

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2	Azhar Ali Shah	Analysis & interpratation of data.	
3	Saima Athar Shaikh	Statsitical expertise.	
4	Bushra Shaikh	Drafting of article.	
5	Muhammad Asif Baloch	Analysis & Interpretation of data.	
6	Abdul Sami Mirani	Collection of data.	
7	Nosheen Azhar	Analysis & Interpretation of data.	
8	Parkash Lal Lund	Drafting of article.	