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Best Regards,

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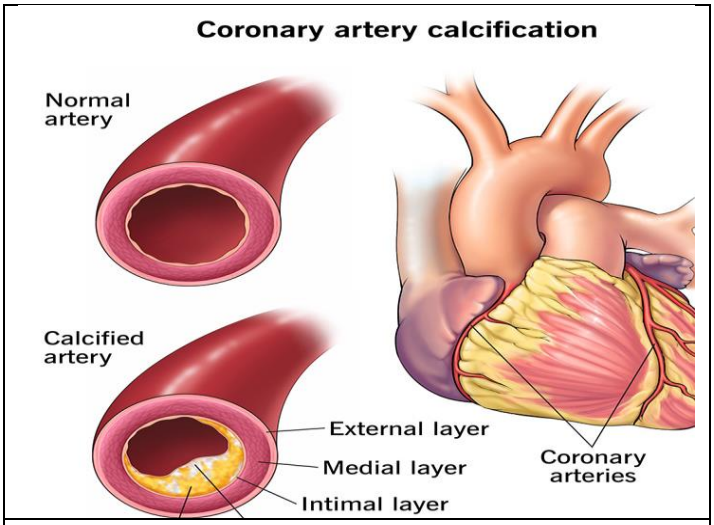
1. Relationship between Coronary Artery Calcification and Abdominal Obesity in Patients with Chronic Kidney Disease

Introduction: Cardiovascular disease is the leading cause of premature death among people with chronic kidney disease (CKD). Significant correlations between cardiovascular disease and mortality, impaired kidney function, and proteinuria have been shown in large prospective cohort studies. These correlations were not influenced by conventional risk factors. People with CKD have a higher prevalence and severity of coronary artery calcification (CAC) than people without CKD. Among the general population, coronary artery calcification is a more reliable independent predictor of the risk of coronary heart disease and cardiovascular disease overall than established risk factors.[1] The primary cause of mortality and morbidity in patients with chronic kidney disease (CKD) was coronary artery disease (CAD). As a result, CAD may appear in the early stages of chronic kidney disease (CKD), and the severity of CVD increases with declining renal function. Obesity has a strong correlation with CAD and was a recognized risk factor for metabolic diseases. Although numerous studies have utilized body mass index (BMI) as a measure of obesity, it was important to highlight that the healthy BMI range differs by ethnic group. Additionally, a number of studies have demonstrated that visceral fat influences CAD more strongly than subcutaneous fat. Since waist circumference (WC) was a better measure of abdominal obesity (AO) in relation to CAD risk than BMI, it has become the standard for evaluating AO. Although both CKD and AO separately raise the risk of CAD, the combined effects of CKD and AO on CAC are unknown.[2] The purpose of this study was to establish this relationship and emphasize the value of WC as a clinical measure for evaluating CKD patients prior to dialysis.



Coronary Artery Calcification

Methods: This cross-sectional study included 10,342 participants who had health checks at a health care facility. Renal function was assessed using the Chronic Kidney Disease Epidemiology Collaboration algorithm, and metabolic parameters were assessed through physical examinations and blood sampling. Coronary 256-slice multidetector computed CT angiography was used to calculate the coronary artery calcification (CAC) scores. A CAC score of >0 Agatston unit (AU) or ≥400 AU indicated a positive CAC, and ≥400 AU indicated a severe CAC, respectively.

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Results: People with and without CKD were compared based on their sex. The CKD group had lower serum high-density lipoprotein cholesterol and significantly higher levels of hemoglobin A1c (HbA1c), serum fasting blood glucose (FBG), and systolic blood pressure in both sexes. Analyzing the relationships between abnormal WC and sex differences, it was found that those with abdominal obesity (AO) were considerably older than people without AO and had higher systolic and diastolic blood pressure, serum FBG, HbA1c, and lipid profiles. According to multiple logistic regression analysis, patients with CKD showed a stronger correlation with severe CAC scores than patients with AO (odds ratios [ORs]: 2.7 and 1.4, respectively) (Table 1).

	AO (-) vs AO (+)†	CKD (-) vs CKD (+)†
	OR (95% CI)	
CAC score > 0	1.4 (1.3–1.6)	1.4 (1.1–1.8)
CAC score ≥ 400	1.8 (1.5–2.2)	2.7 (1.2–6.1)

Notes: †Adjusted for age, sex, systolic blood pressure, diastolic blood pressure, fasting plasma glucose, triglycerides, low-density lipoprotein cholesterol, and high-density lipoprotein cholesterol.
Abbreviations: AO, abdominal obesity; CAC, coronary artery calcification; CI, confidence interval; CKD, chronic kidney disease; OR, odds ratio.

Table 1. The odds ratios (95% Confidence Intervals) for coronary artery calcification in patients who had either chronic kidney disease or abdominal obesity in comparison to normal controls.

Discussion: In this investigation, the adjusted odds ratios for positive and severe CAC in CKD individuals were 1.1 and 2.6, respectively. There was a strong correlation between visceral obesity and the occurrence of AO.[2] Lind et al. found that those with obesity, including those without metabolic syndrome, had more severe coronary artery stenosis.[3] Bjergfelt et al. found that increasing maximal carotid plaque thickness was strongly linked with CAC severity in patients with CKD stage 3.[4]

Conclusion: The current study provided evidence of the combined impact of CKD and AO on CAC. Both CKD and AO patients showed 2.4- and 4.4-fold higher chances of positive CAC and severe CAC, respectively. Therefore, reducing AO for those with CKD should receive more attention in clinical practice.

Abdominal obesity was linked to a 4.4-fold greater risk of severe coronary artery calcification in patients with chronic renal disease and considerably enhanced the odds of coronary artery calcification (CAC). Reducing abdominal obesity in patients with chronic kidney disease should receive more focus in clinical practice.

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2. Incidence of Acute Kidney Injury in non-malignant pleural effusion inpatients and its association with effusion size

Introduction: Pleural effusion (PE) is a common medical condition caused by a range of systemic, neoplastic, viral, and inflammatory disorders. Depending on the cause, PE has been shown to have a considerable impact on mortality and prognosis.[1] Every year, it impacts almost 3,000 individuals out of every million people. Organ dysfunction, including heart failure and pneumonia, was typically linked to non-malignant pleural effusions (NMPE). Acute kidney injury (AKI) is a prevalent disease with a complex etiology and pathophysiological pathways that results in sudden loss of renal function. According to reports, 9.1% of patients develop hospital-acquired AKI (HA-AKI), which not only has a severe influence on survival over the long run but also on short-term outcomes. It was thought that mild AKI can predict a variety of unfavorable outcomes on its own. Acute kidney damage (AKI) was thought to be associated with pleural effusion. There was no information available regarding the prevalence of AKI in NMPE patients or if AKI and effusion size were correlated.[2] Therefore, the purpose of this study was to evaluate the incidence of AKI and its relationship to effusion size in NMPE inpatients.

Methods: A total of 3047 participants were enrolled in this retrospective cohort study after screening. Patients diagnosed with cancer, chronic dialysis, end-stage renal disease (ESRD), community-acquired AKI, hospital-acquired AKI, and fewer than two serum creatinine tests during hospitalization were excluded from the study. The study included all patients with pleural effusions confirmed by chest radiography (CT or X-ray). Risk factors for AKI were identified using multivariate logistic regression and LASSO logistic regression models. After adjusting for the factors chosen using LASSO, subgroup analysis and interaction tests for effusion volume were conducted. The mediating role of pneumonia, eGFR, and heart failure was estimated using causal mediation analysis. The primary outcome was the occurrence of hospital-acquired AKI.

Results: NMPE was detected in 7.8% of internal medicine inpatients. AKI was developed in 360 individuals (11.8%) while they were hospitalized. Moderate and large effusions were associated with a higher risk of AKI after LASSO-selected variables were taken into account. Multivariate logistic regression revealed that independent risk factors for AKI during hospitalization included low eGFR and platelets, high leukocyte count, proteinuria, use of vancomycin/teicoplanin, mechanical ventilation, ICU admission, vasoactive drugs, spironolactone, loop diuretics, NSAIDs, and a low volume of effusions. There was no significant impact on age, gender, diabetes, bilateral effusions, or eGFR. The development of AKI was influenced by heart failure, pneumonia, and low eGFR, with the volume of effusions mediating 6.8% ($p = 0.005$), 4.0% ($p = 0.046$), and 4.6% ($p<0.001$) of the effects, respectively (Figure 1).

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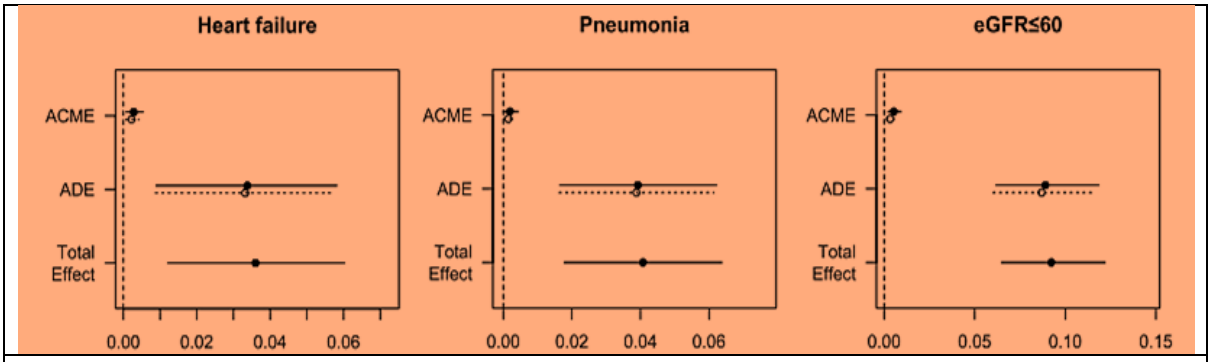

Figure 1. The effect decomposition graphs for each mediator model. Average direct effect (ADE) and average causal mediation effect (ACME).

Discussion: This study found that patients with malignant pleural effusions (MPE), which were often associated with a poor prognosis, had a worse prognosis when they had non-malignant pleural effusions (NMPE) caused by organ dysfunction. Large pleural effusions can cause pleural irritation, aberrant gas exchange, or a decrease in diaphragmatic function. They can also modify the mechanics of breathing.[2] Markatis E et al. revealed that patients with PEs associated with organ failure have a greater mortality rate in the first month, but those with MPE have the worst long-term prognosis. In addition to the APACHE II, SOFA scores, and the Charlson Comorbidity Index (CCI), age and bilateral distribution were independent predictors of mortality in the short term and malignancy in the future.[1] A prospective study by Wang Z et al. following the drainage of massive ejections demonstrated improved preload, systolic and diastolic function, and hemodynamic alterations.[3]

Conclusion: The current study concluded that large effusion volumes were independently related to AKI in comparison to small size, and AKI was common in patients with non-muscular pressure erosion (NMPE). Pneumonia, heart failure, and eGFR were all mediated by the effusion size.

Acute kidney injury (AKI) was more common in patients with non-muscular pressure erosion (NMPE), and greater effusion volumes were independently associated with AKI compared to small sizes.

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3. Clinical efficacy of laparoscopic pyeloplasty with flexible vacuum-aided ureteral access sheath ureteroscopy for the treatment of ureteropelvic junction blockage in patients with renal calculi

Introduction: Ureteropelvic junction obstruction (UPJO) is a frequent condition that disrupts urine passage from the kidney to the ureter. It usually doesn't cause any symptoms and doesn't affect renal function. Effective therapy is necessary in cases of renal calculi, which are reported in as many as 20–30% of cases. Simultaneous stone extraction becomes more challenging when managing UPJO-linked renal calculi surgically.[1] Laparoscopic pyeloplasty (LP) and robot-assisted laparoscopic pyeloplasty (RAP) are currently the most often used surgical interventions for relieving stenosis due to the advancement of minimally invasive urology. But in contrast to conventional pyelolithotomy, a reliable and effective technique is still required to remove renal calculi, particularly numerous kidney stones. Previous research has indicated that flexible cystoscopy and percutaneous nephrolithotomy may be effective ways to address this issue.[2] The purpose of this study was to establish that single-use flexible ureteroscopy (f-URS) for treating patients with multiple renal stones who also had UPJO was clinically effective when performed with LP and a new flexible vacuum-assisted ureteral access sheath (FV-UAS).

Methods: A total of 110 individuals with multiple renal calculi and UPJO were included in this retrospective analysis. Patients were categorized based on the approaches taken to treat renal calculi and UPJO. Patients in Group A received pyelolithotomy and conventional open pyeloplasty. Group B patients had laparoscopic pyeloplasty after a percutaneous nephrolithotomy. Patients in Group C had laparoscopic pyeloplasty after a flexible cystoscopy to remove stones. Patients in Group D had laparoscopic pyeloplasty with flexible vacuum-assisted ureteral access sheath (FV-UAS)-assisted flexible ureteroscopy (f-URS). A holmium laser was used to break up the stones. The success rate of pyeloplasty, stone clearance rate, operation time, bleeding quantity, complication occurrence rate, postsurgical pain, duration of stay, and hospitalization cost were all compared between groups.

Results: Factors such as mean age, sex ratio, body mass index, total stone volume, stone volume in the renal pelvis, and stone volume in the upper, middle, or lower renal calyx did not significantly differ across the groups. In Groups A, B, C, and D, the corresponding surgical success rates and stone clearance rates were 68.00, 85.71, 78.79, and 94.29%. The four groups' rates of stone clearance varied significantly from one another. The effectiveness of the treatment was also evaluated using the stone clearance rate and the pyeloplasty success rate. Groups A, B, C, and D had pyeloplasty success rates of 92.00, 95.24, 93.94, and 94.29%, respectively. There was no statistically significant variation in the success rates of pyeloplasty across the four groups (Table 1). In UPJO patients with numerous coexisting renal calculi, the use of f-URS and the FV-UAS improved the renal stone clearance rate and greatly decreased the incidence of complications and operation time.

	Group A (n=25)	Group B (n=21)	Group C (n=33)	Group D (n=31)
Stone clearance rate	17/25(68.00%)[abc]	18/21(85.71%)[ab]	26/33(78.79%)[a]	33/35(94.29%)
Success rate of pyeloplasty	23/25(92.00%)[def]	20/21(95.24%)[de]	31/33(93.94%)[d]	33/35(94.29%)
Success rate of operation	17/25(68.00%)[abc]	18/21(85.71%)[ab]	26/33(78.79%)[a]	33/35(94.29%)

Abbreviation: a, compared to group D, $P<0.05$; b, compared to group C, $P<0.05$; c, compared to group B, $P<0.05$; d, compared to group D, $P>0.05$; e, compared to group C, $P>0.05$; f, compared to group B, $P>0.05$

Table 1. The success and stone clearance rates following pyeloplasty.

Discussion: This study demonstrated the safety and efficacy of laparoscopic pyeloplasty in conjunction with f-URS and FV-UAS for the treatment of UPJO in patients with renal caliceal stones.[2] According to Krings G et al., the combination of robot-assisted laparoscopic pyeloplasty and retrograde flexible ureteroscopy is a reasonable technique that appears to be repeatable and effective at managing kidney stones and UPJO concurrently, sparing patients from the cumulative morbidity of two consecutive surgeries.[1] According to An L et al., LP combined with concurrent pyelolithotomy using a 19.5 F rigid nephroscope was a safe and practical treatment option for UPJO with renal calculi that has a respectable success rate and stone-free rate.[3]

Conclusion: The current study confirmed the safety and effectiveness of employing LP and a new FV-RAS during single-use f-RUS, and it analysed several approaches to treat UPJO patients with coexisting renal calculi. In addition to lowering the risk of infection, this technique might improve the rates of renal stone removal.

For patients with complicated renal caliceal stones, laparoscopic pyeloplasty, together with f-URS and FV-UAS, is an effective and secure surgical option for ureteropelvic junction obstruction (UPJO).

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4. Case report on prolapsing ureterocele-induced urine retention

Introduction: Benign prostatic hyperplasia and urethral strictures are the most common causes of urinary retention in men.[1] A congenital abnormality known as ureterocleosis results from a cystic dilatation of the distal portion of the ureter. Every birth, the clinical incidence ranges from 1/5000 to 1/12,000. Most of the time, the diagnosis was made when the patient was young. Adults may occasionally be observed during imaging studies carried out for multiple reasons.[2] In this case, an unusual prolapsing ureterocele presenting with retention at 53 years of age was discussed.

Case presentation: A 53-year-old man was admitted to the hospital, reporting symptoms of urine retention. His quality of life was six, and he had an AUA symptom score of 30, indicating significant obstructive lower urinary tract issues. He had a foley put in the emergency room for urine retention one month before admission. Since then, he has had numerous failed void trials. He refuted having visible hematuria. He refuted giving any further urologic or surgical history. His creatinine was within the normal range, and the results of his urine showed very few white blood cells. A noncontrast CT revealed no hydronephrosis and only what seemed to be bladder stones. He felt he could not handle cystoscopy under anesthesia alone, so he decided to have it done in an operating room. During the cystoscopy, the anterior and posterior urethras were observed to be normal, showing no signs of stricture, obstructing prostate, or primary bladder neck obstruction. His bladder neck was being prolapsed by a massive right ureterocele (Fig. 1). The ureterocele was shown to be filled with stone by a retrograde pyelogram (Fig. 2). After examining the results and treatment alternatives, he was scheduled for a transurethral ureterocelectomy. After that, he had a smooth transurethral excision of the ureterocele using a Moses laser fiber with a wavelength of 550 nm. The Moses laser enabled an accurate and bloodless resection of the ureterocele, as well as a cystolitholopaxy with minimal stone retropulsion. After the treatment, he had no trouble emptying his bladder.

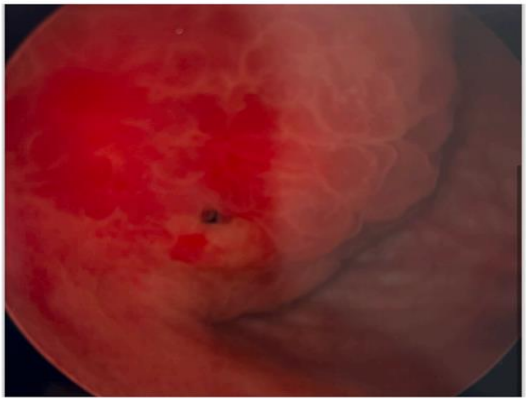

Figure 1. Ureterocele on the right

Discussion: For a male patient with a prolapsed orthotopic ureterocele producing obstruction of the bladder outlet, a transurethral incision of the prostate (TUIP) combined with a holmium laser ureterocele excision was an effective therapeutic strategy.[3] Moses has been shown to have less stone retropulsion and, because of its tissue-interacting properties, usually results in improved hemostasis.[4]

Figure 2. A stone-filled ureterocele was noted on the right retrograde pyrelogram

Conclusion: A preoperative cystoscopy was necessary for diagnosing urine retention. Usually, to evaluate the prostate's morphology and stricture in men. A different surgical strategy was needed for more uncommon entities, such as a prolapsing ureterocele. The moses method was useful for executing a big cystolitholopaxy with minimum retropulsion.

The Holmium laser enabled a bloodless pinpoint excision with clear vision of the plane between the bladder and the ureterocele.

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