

# Cadaveric Finding of a Large Simple Renal Cyst: A Case Report

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## Abstract

Renal cysts are common benign lesions, usually small and incidentally detected. However, large simple renal cysts occupying a significant portion of the kidney are relatively uncommon. During routine cadaveric dissection in the Department of Rachana Shareera, Shri Dharmasthala Manjunatheswara College of Ayurveda, Hassan, a large unilocular cyst was observed on the anterior surface of the right kidney. The cyst measured approximately 4 × 10 cm, while the kidney measured 10.15 × 4.5 × 3.5 cm. It contained clear, straw-colored fluid and was lined by a thin membrane. The left kidney was normal. Based on gross and histological features, the cyst was identified as a simple renal cyst. This case highlights the importance of recognizing such variations during dissection and their relevance in correlating anatomical findings with clinical imaging.

**Index Terms:** Simple renal cyst, Right kidney, Cadaveric finding, Anatomical variation, Case report.

## Introduction

Simple renal cysts are benign, fluid-filled sacs that originate from the renal parenchyma, most commonly within the cortex. They are usually unilocular and lined by cuboidal or flattened epithelial cells. The prevalence increases with age, affecting up to 25-40% of individuals over 50 years. Most are asymptomatic and discovered incidentally during imaging, surgery, or dissection. Occasionally, large cysts may compress surrounding renal tissue or cause hypertension and pain.

Cadaveric findings of large renal cysts provide valuable insights into renal morphology and possible clinical correlations. The present case reports an incidental finding of a single, large simple renal cyst in the right kidney of an adult cadaver, with emphasis on its anatomical, pathological, and educational implications.

## Procedure

The dissection was done following the steps given in Cunningham's Manual of Practical Anatomy. After lifting the front wall of the abdomen, the abdominal organs were removed one by one to expose the kidneys. Both kidneys were identified, and the thin layer of fascia covering their front surface was carefully removed.

During this process, a large cyst was seen on the anterior surface of the right kidney. Both kidneys were separated from the body along with the renal veins and arteries, including portions of the inferior vena cava and abdominal aorta, and kept together. The ureter was traced downward and cut near its terminal end. Only

the right ureter could be preserved, as the left ureter was accidentally cut during dissection. The size of the kidney and the cyst was measured, and the specimen was preserved in the departmental museum for further study.

## Case Report

During a routine dissection class in the Department of Rachana Shareera Shri Dharmasthala Manjunatheswara College of Ayurveda, Hassan, Karnataka, a simple cyst was noticed in the right kidney of an adult 70-year-old male cadaver (fig.1). The abdomen was opened following Cunningham's method. After removal of the anterior abdominal wall and visceral organs, both kidneys were exposed.

The right kidney appeared enlarged, measuring  $10.15 \times 4.5 \times 3.5$  cm ( $4 \times 1.7 \times 1.3$  in.), compared to the contralateral kidney (fig.2). A solitary cyst was observed on the anterior surface of the right kidney, measuring approximately  $4 \times 10$  cm (1.5  $\times$  4 in.) in diameter. The cyst wall was thin, smooth, and translucent, containing clear straw-colored fluid (fig.3). The underlying renal parenchyma appeared compressed but otherwise normal. The right kidney showed no pathological changes.

In addition to the cystic lesion, an anatomical variation also was noted in the renal arteries on both sides. Multiple branches of the renal artery were observed arising before entering the hilum, rather than a single main renal artery. The renal veins, ureters, and surrounding structures appeared normal.

The specimen was carefully dissected, documented, and preserved in 10% formalin for demonstration and further histological study.

## Discussion

Renal cysts are fluid-filled cavities that may develop within the renal parenchyma and represent one of the most frequently encountered benign renal pathologies. They are broadly categorized into simple and complex types. A simple renal cyst is a unilocular, thin-walled cavity filled with clear serous fluid, most often arising in the renal cortex. These cysts are usually solitary, though multiple cysts may occasionally occur. Their size can vary from a few millimeters to several centimeters, with cysts exceeding 5 cm often termed as large or giant renal cysts.

Simple renal cysts are predominantly observed in individuals above 50 years of age, and their occurrence in younger individuals is uncommon, suggesting an acquired rather than congenital origin. The increasing incidence with advancing age is thought to result from progressive tubular obstruction, degeneration, or ischemic changes within the renal cortex, ultimately leading to cystic dilation. Histologically, the cyst wall is typically lined by cuboidal or squamous epithelium and contains clear serous fluid.

Most simple cysts remain clinically silent and are discovered incidentally during radiological evaluation, surgery, or anatomical dissections, as in the present case. However, large cysts may exert a mass effect on adjacent structures, compress renal vasculature, or distort the normal renal contour. In living individuals, such cysts may occasionally present with flank pain, palpable abdominal mass, hypertension, or, rarely, secondary infection and abscess formation.

The anatomical relevance of documenting these cysts during cadaveric dissection lies in their potential to alter the normal topography of the kidney and surrounding structures. Recognition of such variations is valuable for anatomists, radiologists, and surgeons, particularly in renal transplantation and laparoscopic procedures, where unexpected cystic enlargements could complicate operative anatomy.

In the present case, an additional anatomical variation was also observed in the form of multiple branches of the renal artery on both sides, arising before entering the hilum. Such prehilum arterial branching patterns are important because they may pose challenges during renal surgeries, vascular interventions, and transplant procedures. The coexistence of a large renal cyst with vascular variation highlights the importance of detailed cadaveric studies in understanding the spectrum of renal anatomical diversity and its clinical implications.

Histopathological evaluation remains the gold standard for confirming the benign nature of these cysts and for excluding complex cystic lesions, neoplasms, or polycystic kidney disease. Thus, even incidental findings such as this provide significant educational and clinical insight into renal morphology and pathology.

## Conclusion

A large simple renal cyst in a single kidney is an uncommon finding during cadaveric dissection. Proper identification and documentation are essential, as they provide insight into renal pathology, anatomical variation, and potential clinical correlations. This case underscores the importance of detailed cadaveric examination in anatomical education and research.

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Fig.1- Simple renal cyst on the right side kidney



Fig.2- Measurement of affected Kidney



Fig.3- Measurement of Renal Cyst

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