EUROPEAN JOURNAL OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES
http://www.ejbps.com

ISSN 2349-8870
Volume: 8
Issue: 9
550-552
Year: 2021

A CADAVERIC CASE STUDY ON ACQUIRED MULTIPLE CYSTIC KIDNEY WITH ITS PATHOLOGICAL AND CLINICAL IMPLICATIONS

Remya K. Simon[1]* and Prasanna S.[2]

[1]Third Year Post Graduate Scholar, Department of Rachana Shareera, Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan, Karnataka, India.
[2]Associate Professor, Department of Rachana Shareera, Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan, Karnataka, India.

***Corresponding Author: Remya K. Simon**
Third Year Post Graduate Scholar, Department of Rachana Shareera, Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan, Karnataka, India.

Article Received on 06/07/2021 **Article Revised on 26/07/2021** **Article Accepted on 16/08/2021**

ABSTRACT
Bilateral multiple cysts were found in the right and left kidney of 62 years old male cadaver during routine dissection of abdomen. They were not pertaining to particular border or surfaces and situated all over both kidneys. Cysts which found include large and small fluid filled sacs. The pathological and clinical implications of the particular case are discussed.

KEYWORDS: Acquired multiple cystic Kidney, Congenital poly cystic kidney, Chronic kidney disease.

INTRODUCTION
Kidneys (renes/nephros) are bean shaped paired excretory organs which are lying on the posterior abdominal wall by the side of the vertebral column retroperitoneally. It Occupies epigastric, hypochondriac, lumbar and umbilical regions. They are vertically extended from upper border of 12th thoracic vertebra to the center of body of L3 and right kidney is placed lower than left (due to presence of liver). It measures 11 cm long, 6 cm broad, 3 cm thick and Weighs about 150gm in male and 135 gm in females. They appear Reddish brown in color.

The cysts are the most common spaces that may develop due to genetic/pathological factors resulting into lesions/sacs of kidneys which are filled with fluid. Cystic disease of the kidney is heterogeneous, comprising of hereditary, developmental and acquired disorders. It can be associated with serious disorders that may impair kidney function. But more commonly, kidney cysts are a type called simple kidney cysts (noncancerous cysts) that rarely cause complications. Typically, only one cyst occurs on the surface of a kidney, but multiple cysts can affect one or both kidneys.

MATERIALS AND METHODS
The abdomen was dissected as per Cunningham's manual of dissection. Anterior abdominal wall was reflected and anterograde viscera were removed. Then, both the kidneys were identified and removed the fascia from the anterior surface of the right and left kidneys. Multiple large cysts were encountered on both kidneys. Then, renal veins and renal arteries of both sides were cut close to their origin from inferior vena cava and abdominal aorta respectively. Later, the ureter was traced and cut at midway. Lastly both kidneys were removed from cadaver. The dimension of kidneys and cysts were noted and the specimens preserved in departmental museum.

CASE REPORT
During routine dissection class for the Post Graduate Scholars, we observed multiple renal cysts in the kidneys of 62 years old male cadaver. The peritoneum and anterograde abdominal viscera were removed to expose the kidneys. The multiple renal cysts were detected and photographed. The cysts were found in the right and left kidneys. They were not pertaining to particular border or surfaces and situated all over both kidneys. Cysts which found include large and small fluid filled sacs. The measurements of the right kidney were 10cm x 8 cm and left kidney 11 cm x 8.5 cm. The large cyst which found on lateral border of right kidney measured 4cm x 3 cm. Anterior and posterior surfaces of both kidneys were found rough and irregular.

DISCUSSION
A Congenital Polycystic Kidney disease (CPK) is a typically bilateral disorder in which cysts are found on the surface of kidney. These cysts are loaded up with urine and they are present in solicit of the organ. A justification was given before for appearance of congenital polycystic kidney as a non fusion of excretory or secretary and collecting tubules. But according to the

latest concept the reason behind occurrence of CPK is an abnormal dilatation of uriniferous tubules, mainly the loop of Henle. It is fairly a common hereditary disease and it is also clinically incorporated with cysts present on lungs, hepatic and Pancreatic cyst. But Acquired cystic kidney disease is characterized by the development of numerous fluid-filled cysts in the kidneys in individuals who have no history of hereditary cystic disease. These cysts are often bilateral in nature

Kaur J et al did study on multiple cysts of kidney reported that out of 30 cadavers cysts were seen in 4 Cadavers more in incidence in males, compared to females.[1] The CT study done by Levine et al reported that unilateral renal cystic disease had at least three aspects from ADPKD, unilateral localization, negative family history and no progression to chronic renal failure. They have no cysts in other abdominal organs.[2] In the present study bilateral cystic kidney was seen in male cadaver, no cysts in other abdominal organs and negative family history. Kaur Manpreet et al observed and reported that multiple cysts were present only on the left side. They concluded that unilateral polycystic kidney is seen not so frequently.[3] According to the study by Sujatha K and Shakuntala Rao one male cadaver which was aged 85 years had large cysts on both sides. The personal history of the individual is known as it was a donated cadaver. The history revealed treatment of hypertension, no history of renal disease till the end. This suggests formation of cysts but a normal excretory function not affecting the individual's life. The cysts were probably simple cysts and this had to be confirmed by histological studies.[4] H J Chin et al conducted a study and found that there is a higher rate of occurrences of hypertension seen in patients with large and peripheral cysts as well as multiple cysts than in patients with small peripheral cysts and single cyst.[5]

USG study done in Autosomal dominant polycystic kidney disease (ADPKD) patients by R Torra reported that polycystic kidney disease/cystic kidneys were slightly more severe and common in males than in females.[6] The incidence rate of polycystic kidneys are increasing in frequency to 25-33% of patients older than 50 years and account for cysts which occupy 65-70% of renal parenchyma.[7]

Fig.1: Bilateral Multiple cysts on anterior surface of Kidney

Fig. 2: Bilateral Multiple cysts on Posterior surface of Kidney

Fig.3: Measurement of Largest cyst on lateral border of Right Kidney

Pathology

Obstruction of renal tubules or impaired blood supply to the kidneys might be the possible causes. The exact pathophysiology for renal cysts is unclear. Diverticula on the distal tubule of the nephron may be the starting point for cyst formation. The basal membrane involution with age, combined with a degree of urinary obstruction, may result in simple cyst formation. Acquired multiple cystic kidneys are more likely caused by CKD or kidney failure.

Clinical significance

A person with acquired cystic kidney disease often has no symptoms. Despite of an increase in organ donation, it does not fulfil the demands in patients worldwide. Prasanna et al quoted in the case report that cysts of kidney are rarely responsible for symptoms. The main importance of the cysts lies in their differentiation from kidney tumours, when they are discovered either incidentally or because of haemorrhage and pain. Radiographic studies show that, in contrast to renal tumours, renal cysts have smooth contours, are almost always avascular and give fluid rather than solid tissue signals on ultrasonography[8] An adult population, above the age of 50 years, is more commonly affected with cystic lesions of kidneys. They are benign histologically. So in renal transplantation procedures, such cystic kidneys should be accepted and not rejected. The kidneys with large cysts on them can be considered suitable for the surgical procedure. The study conducted by Milan Singh et al that the age of donated cadavers (range 60 and above) and the morphology of the multiple simple cysts found unilaterally/bilaterally probably may not have pathological effects on the life of an individual.[9]

CONCLUSION

Acquired multiple cystic kidney do not have a disease causing gene and kidneys that are normal sized or smaller and not form cysts in other parts of the body. Looking to the age and frequent presence of cysts observed in the donated cadaver and not incorporated

with cysts present on lungs, liver and Pancreas can conclude that it as an "Acquired multiple cystic Kidney". Present study can be helpful to find out the association between renal cysts and other pathologies. The knowledge of presence of simple cysts on various parts of kidneys is of utmost importance for the surgeon to carry out successful management of renal transplantation procedure.

REFERENCES

1. Kaur J. Multiple cysts of kidney-a cadaveric study. J Acad Indus Res., 2013; 1(8): 443-46.
2. Levine, Errol; Huntrakoon, Manop Unilateral Renal Cystic Disease, Journal of Computer Assisted Tomography, March 1989; 13(2): 273-276.
3. Kaur Manpreet. Wazir Sangeeta and MahajanAnupama. Anomalies by Birth in Urogenital System:Clinical Aspect. International Journal of Basic MedicalSciences and Pharmacy, 2012; 2(1). ISSN: 2049-4963.
4. Sujatha. K, Shakuntala Rao. A Human Cadaveric Study On Incidence, Prevalence And Morphology Of Cystic Kidneys-With Emphasis On Its Embryological, Pathological And Clinical Significance, Int J Anat Res., 2017; 5(4.1): 4437-40. ISSN 2321-4287.
5. Chin HJ, Ro H, Lee HJ, Na KY, Chae DW. The clinical significances of simple renal cyst: Is it related to hypertension or renal dysfunction? Kidney Int., 2006 Oct; 70(8): 1468-73. doi: 10.1038/sj.ki.5001784. Epub 2006 Aug 30. PMID: 16941027.
6. Torra R, Nicolau C, Badenas C, Navarro S, Pérez L, Estivill X, Darnell A. Ultrasonographic study of pancreatic cysts in autosomal dominant polycystic kidney disease. Clin Nephrol, 1997 Jan; 47(1): 19-22. PMID: 9021236.
7. Sadler, T.W. Development of urogenital system.In Langman's medical embryology, 7th ed.Wiliams and Wilkins, 1994; 272-311.
8. Prasanna et al, Simple Renal Cyst - A Case Report, World Journal of Pharmacy and Pharmaceutical Sciences, 2018; 7(11): 1479-1482.
9. Milan A Singh and Dilip C Master, Appearance of Renal Cysts in Adult Human Cadavers, International Journal of Anatomy, Radiology and Surgery, 2018 Jul; 7(3): AO07-AO12.