

## THE LITERARY STUDY OF MULTILOBULATED KIDNEYS

**Dr. Priya Jadhav**

M.D. Scholar, Rachana Sharir, B.S.D.T.'s Ayurved College, Pune.



### ABSTRACT

It is necessary to know about the human body and the co-relation of structural information of organs with the diseases. It is needful to establish theories regarding various etiological factors and pathogenesis.

Dhanwantari sampraday was very particular and practical in commenting the facts they observed in the study of Sharir Rachana.

During dissection of the cadaver (female body) in our college we found Multilobulated kidneys. The kidney has got 4-5 lobes firmly

attached with each other. After searching different reference books of modern anatomy, we came to know the fact that the description about Multilobulated kidney is negligible. And also there is no description of the multilobulated kidney in Ayurvedic texts.

In this Article giving some information to demystify the term Multilobulated kidney.

### INTRODUCTION :

The knowledge of Anatomy is mandatory for the student of any system of medicine without the knowledge of Anatomy you are not able to treat the patient. Our sages have deliberated the detail description about many organs of the body.

Kidney is a vital organ of the Mutravaha sansathan. But the congenital structural anomalies of kidney is not described and no unanimous opinion has been emerged in Ayurveda. In modern science we got very little references about it.

Kidneys are normally bean shaped reddish brown in color in adult. In the fetus the kidney normally has 12 lobules. These lobules are fused in adults to present a smooth surface although traces of lobulation may retain. Sometimes due to the congenital anomalies these lobules do not get fused together, this leads to formation of Multilobulated kidneys. To understand this we have to study the embryology of kidney.

### AIMS AND OBJECTIVE

To Study and Compile the available literature from different sources on Multilobulated Kidney.

### MATERIAL AND METHODS

The article is based on the observation we got on dissection, and the reference we got from British journal of Radiology is as following pictorial review of CT findings in congenital anomalies of kidney. Also

referred to other modern texts and searched various websites to collect information on the relevant topic.

### LITERATURE REVIEW

Kidney began to develop during the 4th week of foetal life. The kidneys develop from the intermediate mesoderm, from the cranio caudal gradient.

### EMBRYOLOGY OF KIDNEY

The kidney development proceeds through series of successive phases each marked by the development of a more advanced kidney.

- \* Pronephros
- \* Mesonephros
- \* Metanephros

The definitive human kidney arises from two distinct sources. The excretory tubule (or nephron) are derived from the lowest part of the nephrogenic cord. This part is the metanephros, the cells of which form diverticulum called the ureteric bud, which arises from the lower part of mesonephric duct.

Some of the features of the development of the kidney in the human embryo can be appreciated only if the evolutionary history of the organ is kept in mind. The vertebrates kidney has passed through three stages of evolution. Most primitive of these is called the pronephros. It is the functioning kidney in some cyclostome and fishes. This has been succeeded in higher vertebrates by the mesonephros, which is the functioning kidney of most of the anamniot. The kidney of the anamniot including man is called metanephros. During development of human embryo the evolutionary history of kidney repeats itself being example of the saying that, "Osteogeny repeats Phylogeny" the pronephron is formed in relation to cervical region of the nephrogenic cord. This is followed by the appearance of the mesonephros in the thoracolumbar region, and finally by formation of the sacral region. The human pronephros is non-functional, and disappears soon after its formation. A nephric duct formed in relation to the pronephros and ending in the cloaca, however persists. The mesonephros consists of series of excretory tubules that developed in the thoracolumbar region. These tubules drain into nephric duct which may now be called mesonephric duct. Most of mesonephric tubule disappears, but some of them are modified and take part in forming that duct system of the testis.

As a ureteric bud grows cranially toward metanephric blastema its growing end becomes dilated to form ampulla. The ampulla divides repeatedly. The first three to five generation of branches fuse to form pelvis of the kidney the next division becomes the major calyces, while further divisions forms the minor calyces and collecting tubules.

Collecting tubules formed vary in number from 1 – 3 million. The growing tip of each of the numerous branch of the ureteric bud is dilated to form the ampulla. The cell of the metanephric blastema in contact with an ampulla undergoes differentiation to form a nephron. This differentiation is induced by ampulla. Loosely arranged cell of the metanephric blastema form solid clump in relation to the ampullae. Each solid clump is converted into vesicle. The vesicle soon becomes pear shaped and opens into ampulla. The vesicle now become 'S' shaped tube. Its distal end comes to invaginated by a tuft of capillary which form a glomerulus. The various part of the nephron are derived from this 'S' shaped tube.

The metanephros, at first receives its blood supply from the lateral sacral arteries, but with its ascent, higher branches of aorta at the level of the second lumbar segment.

The rotation of kidney takes place. The hilum of the kidney, at first, faces anteriorly. The organ gradually rotates so that the hilum comes to face medially.

## DISCUSSION

Multilobulated kidney is characterized by congenital anomaly of embryonic renal tissue development. The lobules of kidney present in the fetal life do not fuse due to any reason is responsible of this condition .somewhere the embryogenesis of the kidney is hampered.

No evidence has been found of the loss of functional tissue of kidney in this condition. This condition may be asymptomatic ever or cause problem in the old age.

In Ayurveda , utapatti of organs is described in Garbhavyakaran Shariram of Sushrut Samhita Sharir Sthna.

According to Aacharya Susruta Rakta Dhatu plays a definitive significant role in the process of utpatti of Vrukka (kidney). The concepts of embryology in Ayurveda for genesis of individuals are purely based on its fundamentals i.e.tridosha, triguna and panchmahabhuta etc. Ayurveda believes in unique concept of soul which is responsible for existence for life.

## CONCLUSION

Mutilobulated kidney is a congenital anomaly ,which is mostly symptomless.

More study is required with the help of CT or MRI.

The description about Mutilobulated kidney is negligible .This review has been trying to give an attempt to describe the topic more efficiently.

It needs further light on this subject by the experts.

Concepts of Ayurveda requires proper insight to the concept which still hold relevance in current scientific world.

## REFERENCES

1. British journal of Radiology is as following pictorial review of CT findings.
2. B.D. chaurasia human anatomy volume 2, CBS publishers and Distributors Pvt ltd.
3. bidem Sushruta samhita ,Sharirsthana, chapter 4,Verse 63
4. National kidney and urologic diseases , information clearing house.[www.http://kidney.niddk.nih.gov/kudiseases/pubs/yourkidneys](http://kidney.niddk.nih.gov/kudiseases/pubs/yourkidneys).
5. Susruta Samhita by Sharma . P. V. Sharirsthana 4/30 Chokhambha Vishwabharti, Varanasi, reprint year (2010)
6. Sheshayan S. Inderbir Singh's Textbook of Anatomy, ed 6/2016. The Health Science publisher ,New Delhi Vol 2 .
7. Human Embryology by William J. Larsen ,Third edition.
8. Langman's Medical Embryology T.W.Sadler ,Eleventh edition.