

HOW THE KIDNEY FORMS AND GROWS BEFORE BIRTH

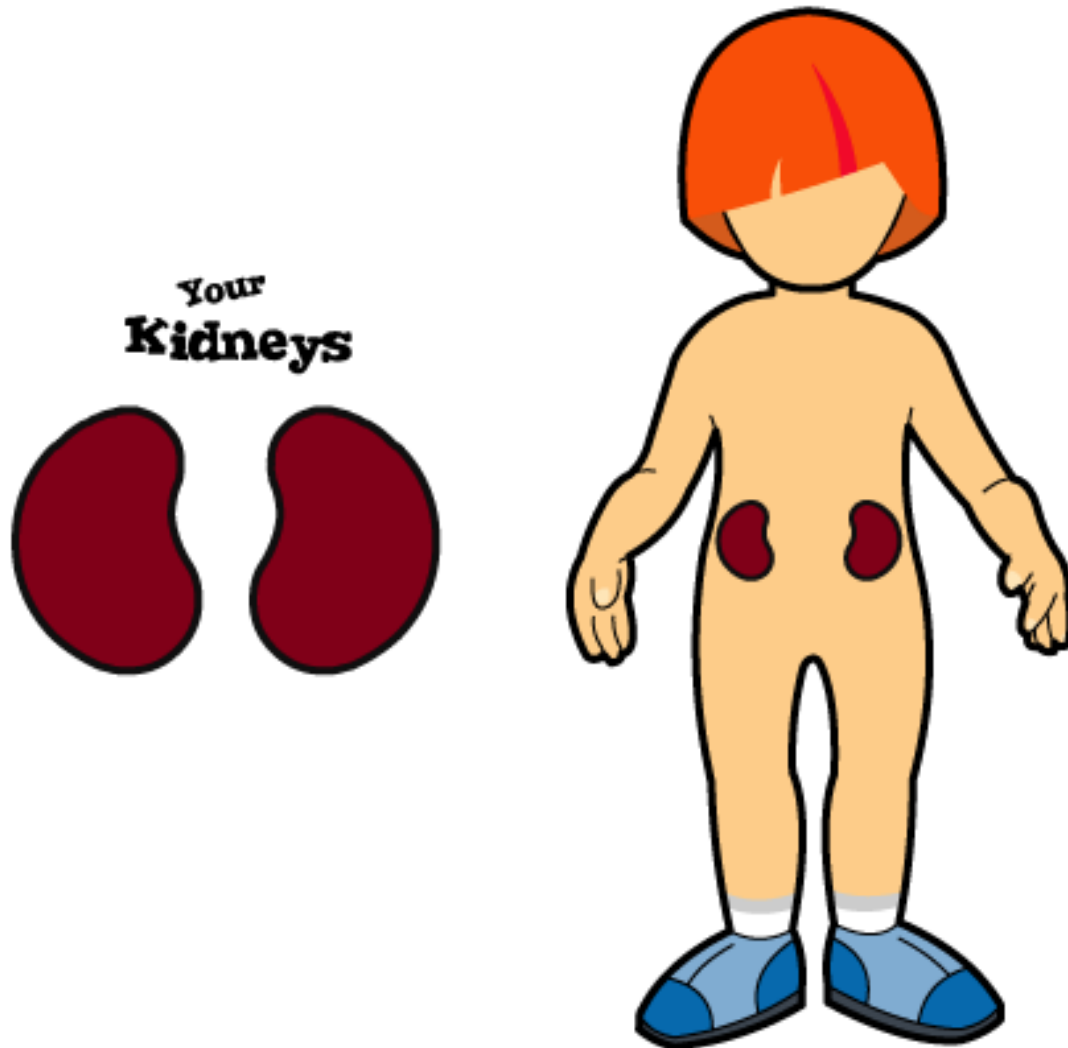
Adrian S. Woolf
Professor of Paediatric Science
University of Manchester



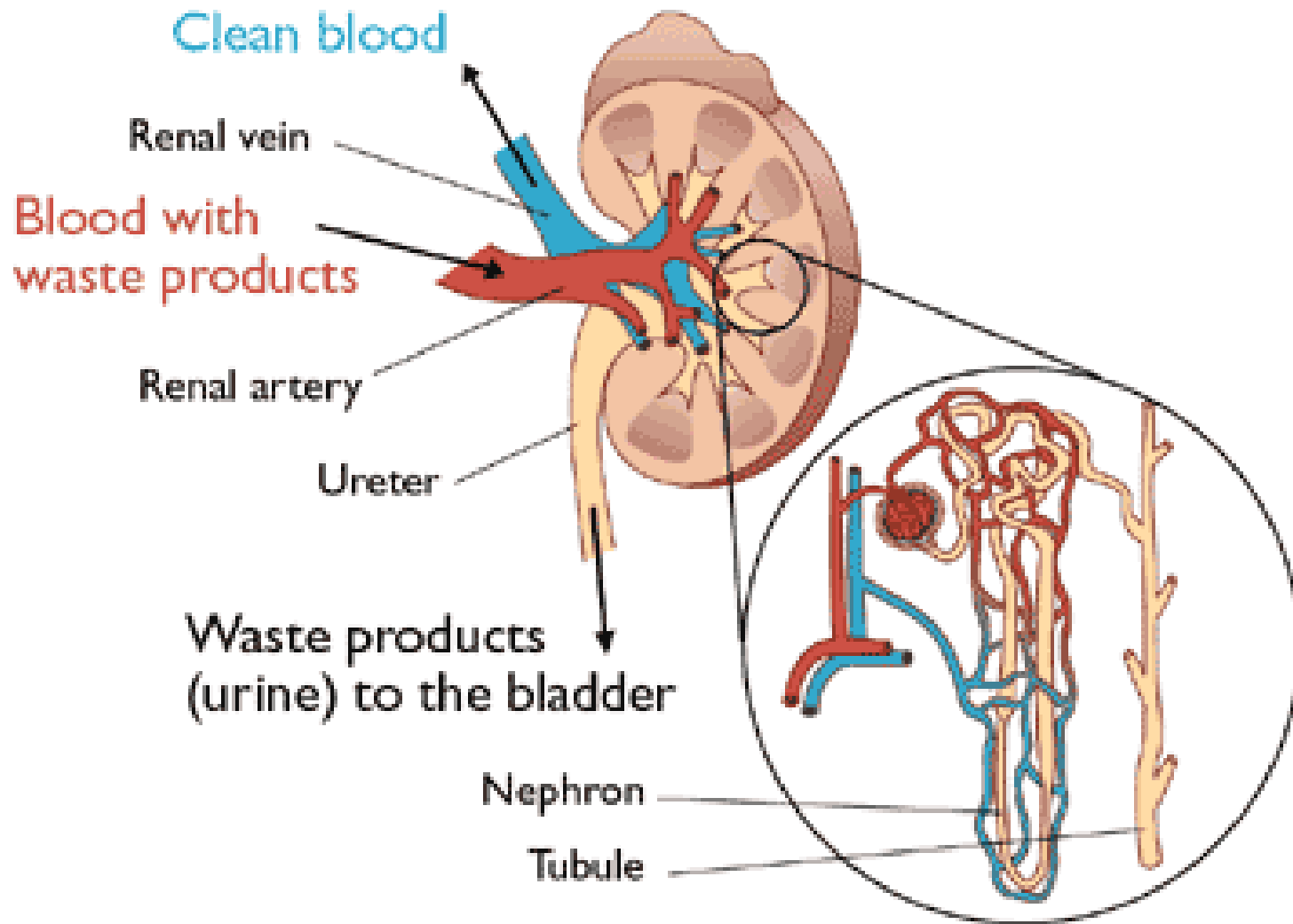
Manchester Children's Hospital and the University of Manchester



Where are your kidneys?



How the kidney works



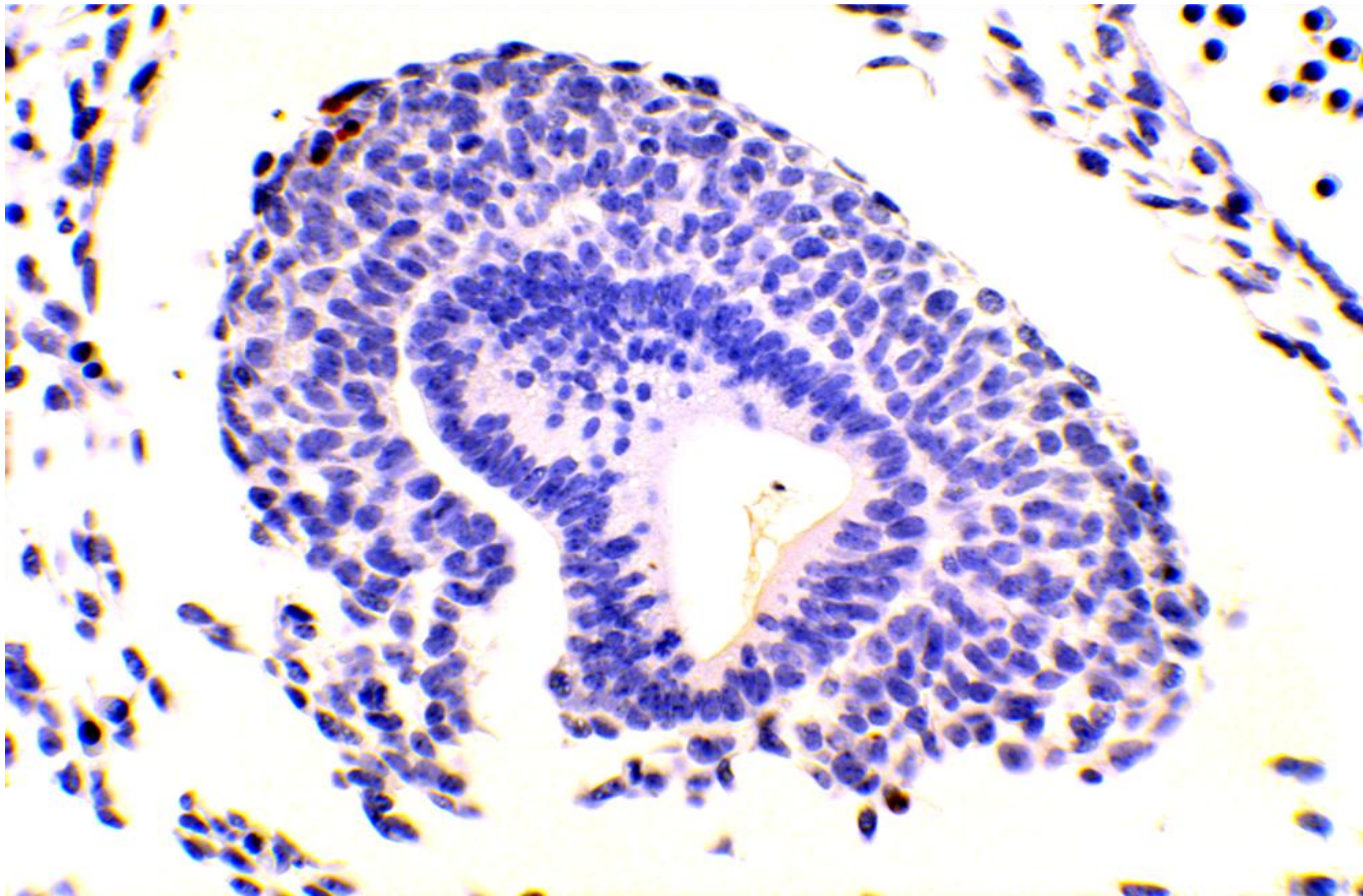
**Kidneys
begin
before
we
are
born** ▶▶▶▶



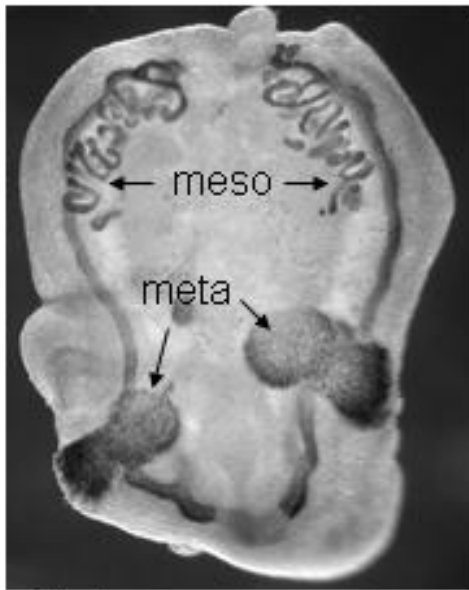
**I use a microscope to
look inside a kidney**



**THE JUST-FORMED IS ABOUT
THE SIZE OF A PIN HEAD**



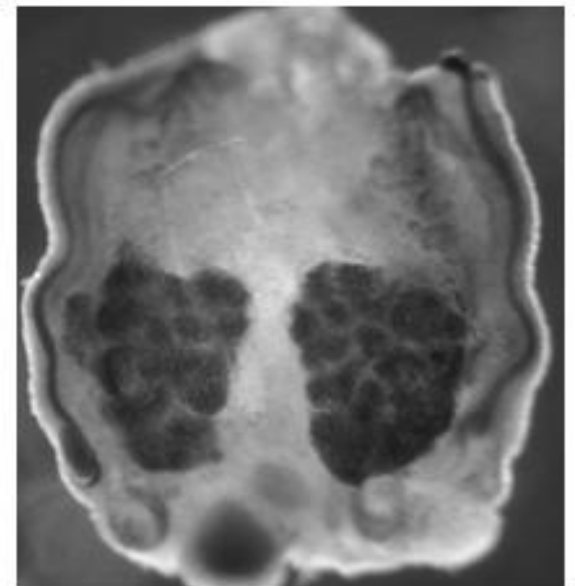
THE JUST-FORMED KIDNEYS KEEP GROWING



24 hrs



48hrs



72hrs

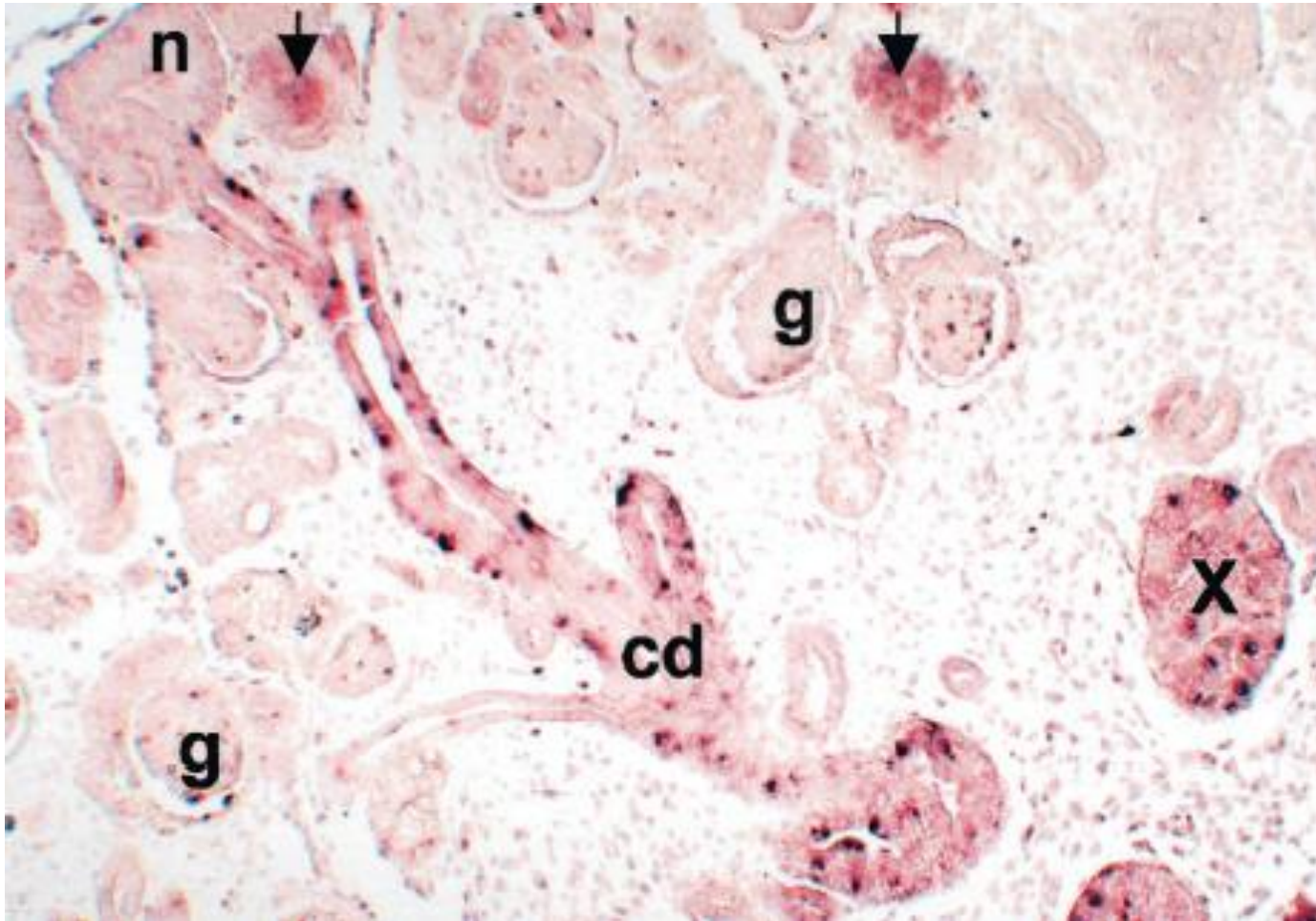


Edith Potter's Studies of how kidneys grow before birth

Normal branching of tubules



HNF1B GENE IS ACTIVE IN GROWING HUMAN KIDNEYS





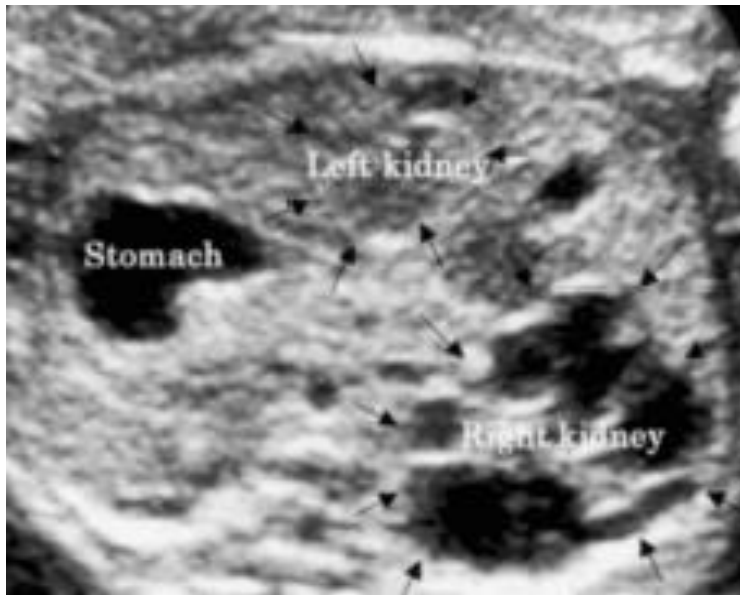
Edith Potter's Studies of how kidneys grow before birth

Abnormal branching of tubules when HNF1B gene is abnormal



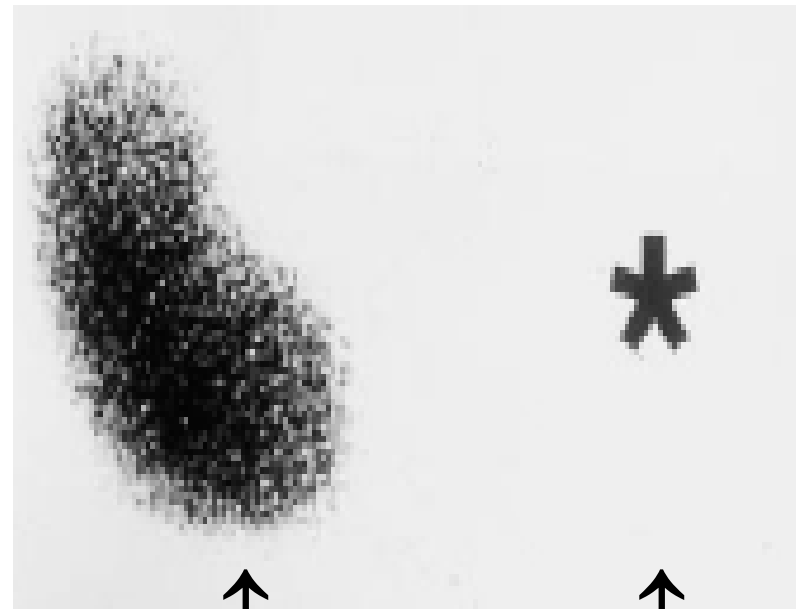
MULTICYSTIC KIDNEY – SCANS WHICH CAN BE DONE

*Ultrasound scan
32 weeks gestation*



*Shukunami K et al
J Obstet Gynaecol
24:458-459, 2004*

Postnatal isotope scan

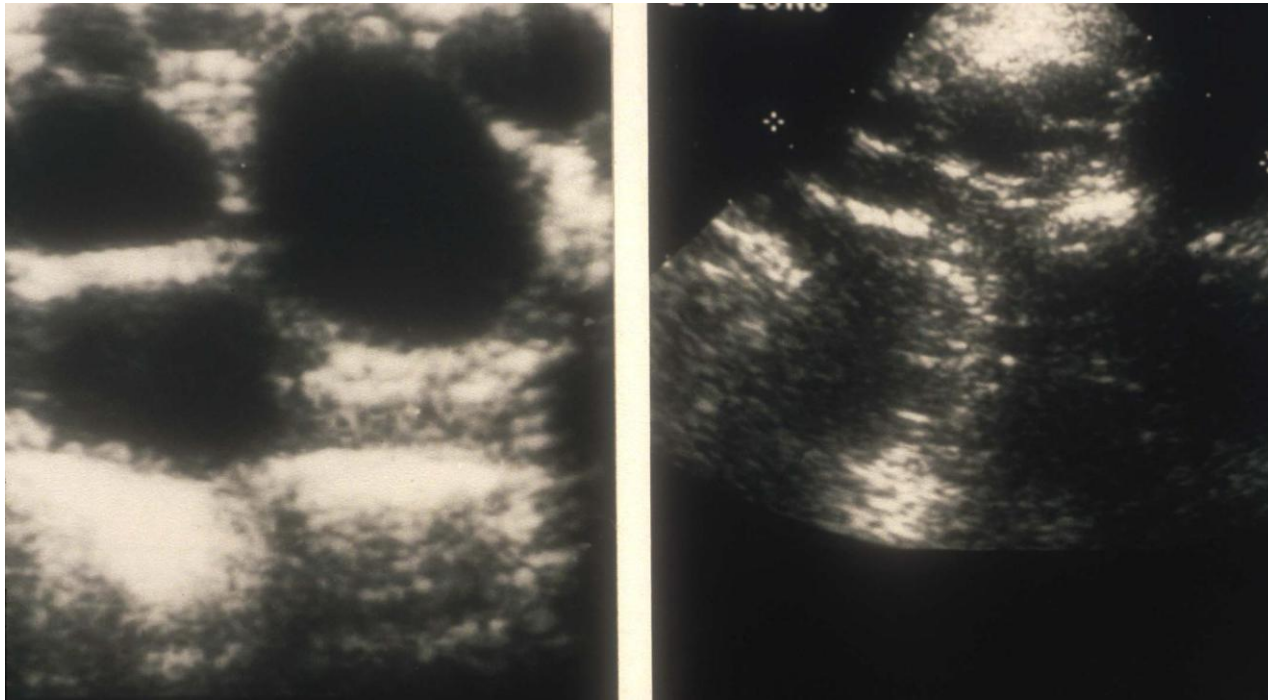


**Normal
kidney**

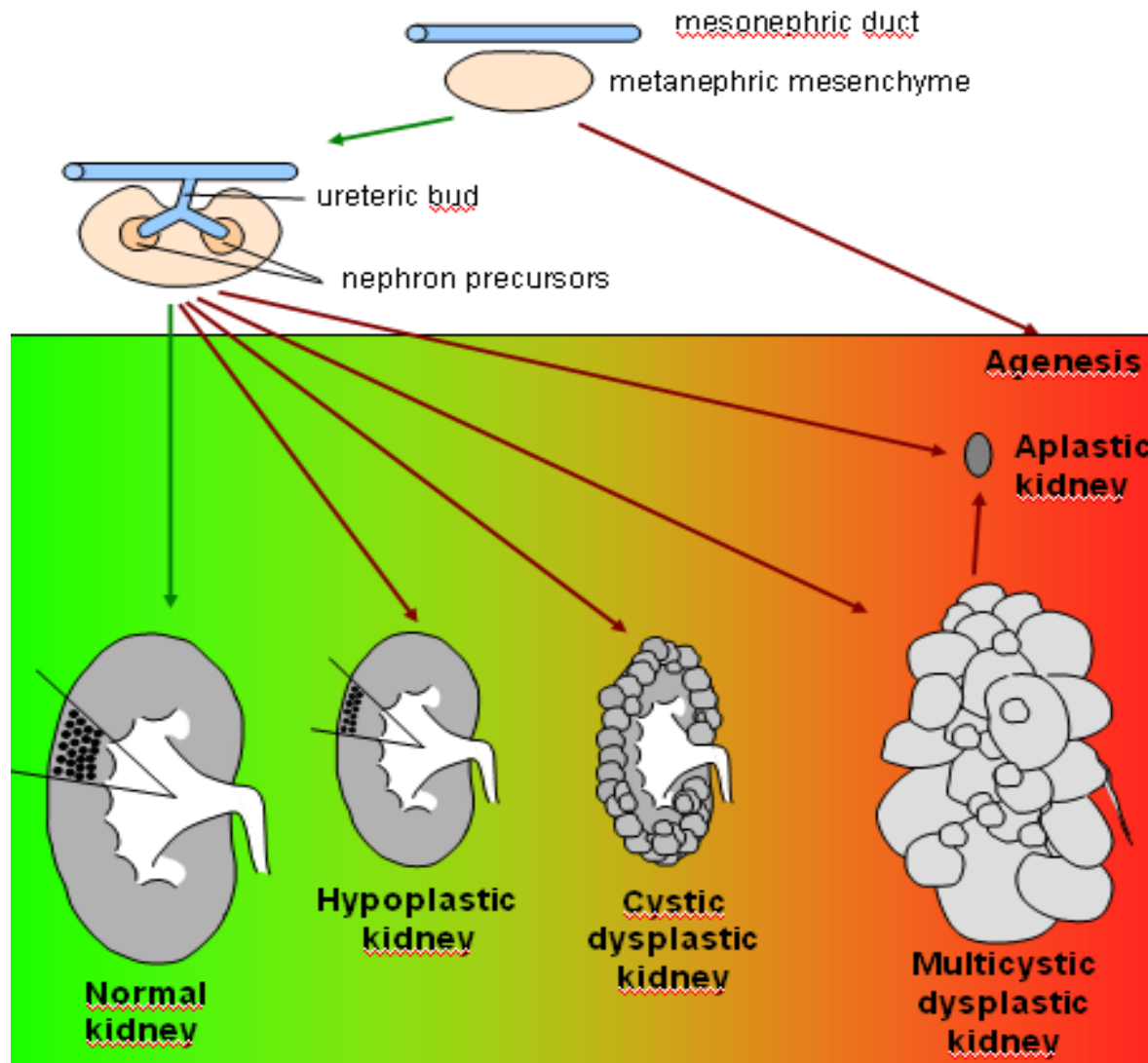
**Cystic kidney
(no function)**

MULTICYSTIC KIDNEYS OFTEN DISAPPEAR!

Newborn ultrasound scan.....two years later



Spectrum of Kidney Malformations



Worsening kidney function → →