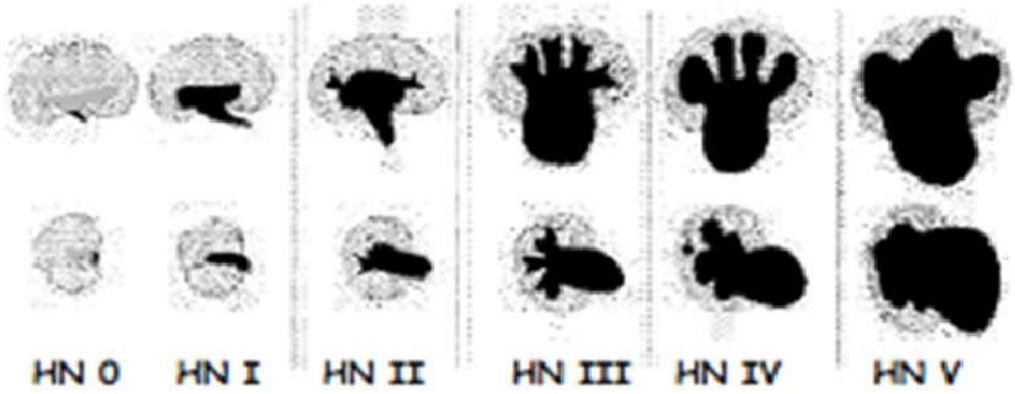
UROLOGY DEPARTMENT
CHILDREN HOSPITAL N^{0}2

ULTRASONOGRAPHY CHANGES AFTER PYELOPLASTY

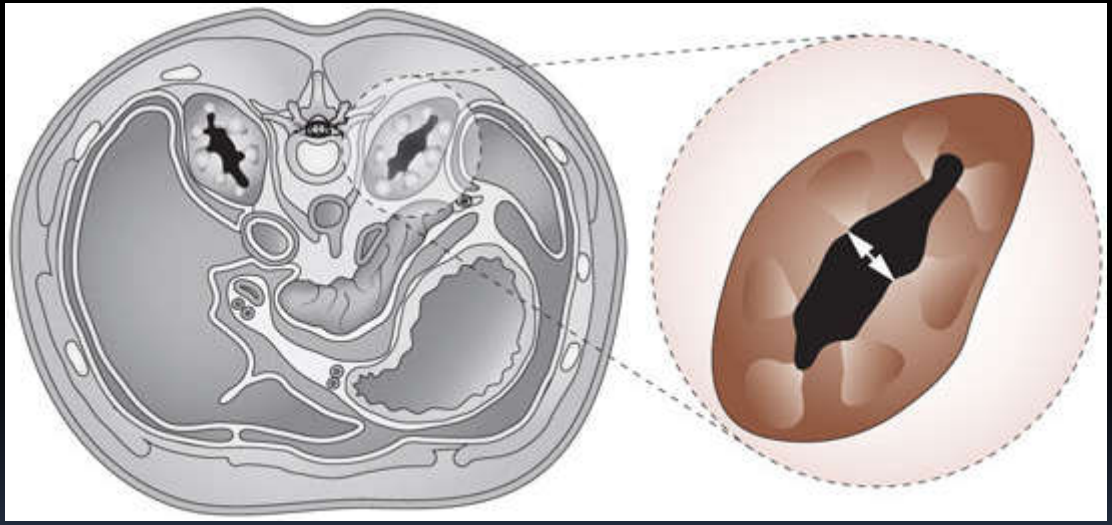
Society of Fetal Urology Classification of Prenatal and Postnatal Hydronephrosis

Neonatal / infantile hydronephrosis (HN) - US grading



HN 0	=	No or minimal collecting system visible; considered normal
HN I	=	Just the renal pelvis visible with an axial diameter <5-7 mm; usually considered normal
HN II	=	Axial renal pelvis diameter 5/7-10 mm; some calices with normal forniceal shape visible
HN III	=	Marked dilatation of the renal calices and pelvis >10 mm with reduced forniceal and papillary differentiation without parenchymal narrowing
HN IV	=	Gross dilatation of the collecting system with narrowing of the parenchyma
(HN V	=	Used in some places additionally, to communicate an extreme HN with only a thin, membrane-like residual renal parenchymal rim)

RENAL PELVIS DIAMETER



Renal pelvic diameter (RPD)

Although there is a lack of consensus on the threshold RPD that defines antenatal hydronephrosis, hydronephrosis is graded according to the RPD during the second and/or third trimester of pregnancy.

	2th trimester	3th trimester	postnatal
			normal:<7 mm
mild	4-7 mm	<9 mm	7-8 mm
moderate	7-10 mm	9-15 mm	9-15 mm
severe	>10 mm	>15 mm	> 15 mm

Ultrasonography

- Renal ultrasound changes after pediatric pyeloplasty were reported recently in the literature.
- We evaluated the use of renal ultrasound for monitoring pyelocaliectasis after pyeloplasty in children.

- A retrospective review included 47 kidneys, 21 grade 3 and 26 grade 4 HN, that had pyeloplasty. Grade was the same or worse 1 month after pyeloplasty in the majority of kidneys 33/36 (92 percent) studied at this interval. With mean follow-up at 4 years (2–9), SFU grade 0,1 was observed in only 9/47(19 %) kidneys. Improvement to <=SFU grade 2 or occurred in 12/26 (46 %) grade 4 kidneys, and in 18/21 (86 %) grade 3 kidneys (Amling et al.1996)

- Renal ultrasounds were compared in 70 consecutive children undergoing laparoscopic pyeloplasty at mean age 20.5 months (1–178) between preoperative versus 12-month postoperative. All were reported to have decreased HN after surgery, although the mean difference of SFU 2.9 ± 0.08 to 2 ± 0.1 was not signi fi cant ($p = 0.6$) (Szavay et al.2010)

- A retrospective study reported HN as AP pelvic diameters in 54 consecutive patients with prenatally detected HN that underwent pyeloplasty. Postoperative US done between 6 and 12 months
  showed signi fi cant improvement from mean 29 ± 10 mm to 14 ± 5 mm (*p* value not stated) (Calisti et al.2003).

CONCLUSION

- The goal of surgical intervention is to improve urinary drainage from the dilated collecting system
- Renal ultrasound can provide an accurate and cost-effective means of monitoring children on a long-term basis after pyeloplasty, sonographic evaluation in the early postoperative period commonly shows increased or unchanged pyelocaliectasis.

THANK YOU FOR YOUR ATTENTION