

# Increased Renal Parenchymal Echogenicity in Children with Acute Abdominal Pain: Can It Be an Alarming Sign?

Rahele Mehraeen,<sup>1\*</sup> and Mehdi Maghsoudi

<sup>1</sup>Babol University of Medical Sciences, Babol, Iran

\*Corresponding author: Rahele Mehraeen, Babol University of Medical Sciences, Babol, Iran. E-mail: sany\_monzavi@yahoo.com

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## Abstract

**Background:** Ultrasound is an important imaging modality in children with acute abdominal pain. There are many etiologies which can cause acute abdominal illness. Both kidneys are evaluated in a routine abdominal sonography. Renal echogenicity in pediatric changes with age gradually, as in neonates and early infancy we can see increased echogenicity as normal variant. But there are several studies which have stated that increased echogenicity of the renal parenchyma are an indicator of renal disease in older children and adults. On the other hand, there are a few cases of renal hyper echogenicity in children with various abdominal diseases without any renal pathologic condition. This study aimed to investigate the relationship between renal echogenicity and the final diagnosis in children with acute abdominal pain.

**Methods:** This cross sectional study was done on 93 children referred to Amirkola Children's hospital with complain of acute abdominal pain who were examined with sonography. Patients with a known history of renal disease or urinary tract infections were excluded. The renal parenchymal echogenicity evaluated by comparison with adjacent liver and was divided into three categories.

**Results:** Of all 93 assessed children (52 male, 41 female) with mean age 6.45 y/o, 18 cases (19.4%) had abnormal renal parenchymal echogenicity (equal or more than liver). The final diagnosis of the cause of abdominal pain in 43 cases (46.2%) was acute appendicitis, in 8 cases (8.6%) was mesenteric adenitis, in 4 cases (4.3%) was gastroenteritis and in 2 cases (2.2%) was invagination.

**Conclusions:** The results show that renal hyperechogenicity is nonspecific finding in children which presented with acute abdominal pain and does not necessarily an indicator of renal disease in these specific patients. According to this study, increased echogenicity of the kidneys should alert the radiologist to search the abdomen more thoroughly for a cause of the acute abdominal illness.

**Keywords:** Renal Parenchymal Echogenicity, Acute Abdominal Pain

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