

Introduction

The diagnosis of pediatric emergencies is one of the challenging issues that confronts radiologists on a regular basis .Therefore, accurate and timely diagnosis is essential to determine the appropriate way of management.

Ultrasound has become the preferred imaging tool to evaluate surgical causes of acute abdominal pain.

Our study aimed to reappraise the role of ultrasound in evaluation of surgical causes of acute abdominal pain in pediatric patients by identification and differentiation between different pathologies.

Aim of the work

The main objective of this study is to emphasize the role of sonography in the diagnostic work-up of pediatric patients presenting with acute abdominal pain.

Subjects and Methods

PATIENTS: This study was carried out on 30 patients below the age of 18 years with abdominal pain suspected to be due to an acute surgical abdominal disorder referred to the Radio-diagnosis Department at any of the following hospitals: Alexandria Main University Hospitals, Elshatby Hospital and Ministry Of Health Hospitals from November 2019 to November 2020.

METHODS: All patients in the study were subjected to the following:

Full history taking and thorough clinical examination.

Imaging:

Patients have undergone Grey-Scale Ultrasonography (U/S) 5-MHz linear transducer in both longitudinal and transverse orientation, along with with Color Doppler (CDUS) when needed.

CT examination was done in selected patients for confirmation of diagnosis in disputed cases. MDCT Scans included pre and post contrast .

The patients were divided into a positive and a negative group, they were considered positive when the radiologic findings were similar to the operative data and negative when such conditions were not applicable.

Results

Thirty pediatric patients presented with acute abdominal pain due to a surgical cause from November 2020 to November 2020. The age of the studied patients ranged between five days to eighteen years old. The study included sixteen males (53%) and fourteen females (47%).Appendicitis was found to be the most common pathology represented by (30%), it was correctly diagnosed by ultrasound in nine patients (30%), and one patient that was not initially diagnosed by ultrasound was later proved by CT. The other frequent causes of acute abdominal pain in our pediatric patients included intussusception (13%); acute acalculouscholecystitis (6.6%) and mid gut volvulus (6.6%). Renal stones (6.6%); one patient that was not initially diagnosed by ultrasound was later proved by CT. Endometrioma (3.3%); Pelviureteric junction obstruction (3.3%); appendicular mass (3.3%); Hemorrhagic cyst (6.6%) and ovarian torsion (6.6%). Ureteric stones (10%); only one patient was diagnosed by ultrasound while the other two were diagnosed by CT scan .Solid papillary pancreatic neoplasm was seen in (3.3%).

Ultrasound had an overall high sensitivity (96%) as well its PPV (95.05%) and (93.3%) accuracy in evaluation surgical causes of acute abdominal pain among our pediatric patients.

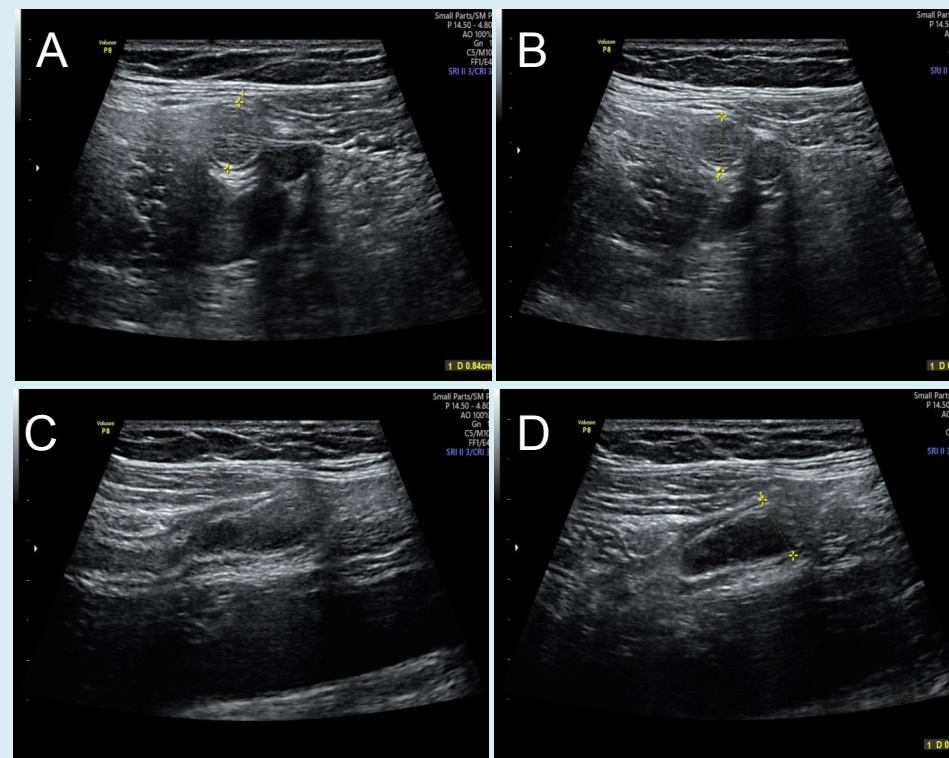


Figure 1: Appendicitis of the tip. (A, B, C) longitudinal and transverse gray scale ultrasound views showing normal compressibility of the proximal part of the appendix, while the distal part is dilated and non-compressible with a maximum outer to outer wall diameter of 8.4 mm. (D) Note that while the distal lumen is filled with echoes, the proximal lumen remains free.

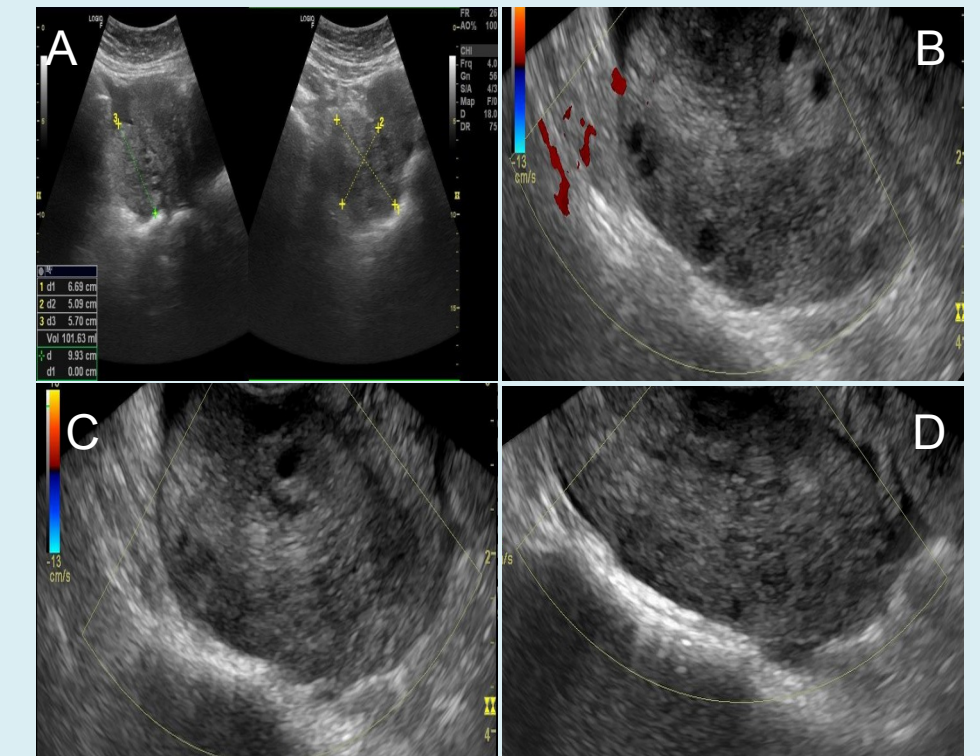


Figure 2: Ovarian torsion. (A) Longitudinal and transverse gray scale sonogram showing an enlarged lesion measuring 6.6 x 5 x 5.7 cm in maximum dimensions, peripheral cysts are seen confirming the mass to be ovarian in origin, a small amount of pelvic free fluid is also noted. (B, C, D) Color Doppler sonogram showing complete absence of blood flow in the ovary

Conclusion

Ultrasound is a reliable diagnostic imaging tool for assessment of pediatric patients with acute abdomen due to surgical causes with high-efficiency in differentiation between various pathological entities.