PURPOSE: The frequency of depiction of the normal appendix by real time B-mode sonography in children was evaluated in a prospective study. MATERIALS AND METHODS: In 274 consecutive patients, age one to nineteen, without abdominal pain, depiction of the normal appendix was attempted using a 5-12 MHz linear array transducer. The ultrasound examination was performed using the graded compression technique according to the description of Puylaert. Depiction of the normal appendix was graded as a) complete, b) partial and c) unable to be depicted. In addition the position and diameter of the appendix, the examination time and the image quality were documented. RESULTS: The appendix was depicted completely in 74% of all patients and partially in 10%. In the age group of one to nine years, complete depiction was possible in 86% of the cases. The most common position with 87% was caudal and mediocaudal, 11% of the appendices were located retrocecal and 2% had a cranioventral position. The mean diameter of the appendices was 4.1 mm (range 3-7 mm). The mean examination time to depict the normal appendix completely was 3.7 min compared to 7.6 min in partial or incompletely depicted cases. In most cases in which complete depiction of the appendix was possible, the image quality was excellent. CONCLUSION: Since the normal appendix in children can be reliably depicted by experienced examiners using high-resolution linear transducers, ultrasound is suitable as a reliable
imaging modality for excluding acute appendicitis in children.