IMAGING IN INTENSIVE CARE MEDICINE

Diagnosis of spontaneous intestinal perforation using point of care ultrasound

Ignacio Oulego-Eroz^{1,2,3,4*} , Carlos Ocaña-Alcober^{1,4}, Pilar de Castro Vecino⁵ and Sandra Terroba-Seara^{3,4,5}

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A male 26-week preterm infant presented with abdominal distension, reddish coloration of the abdomen and clinical deterioration on the third day of life. The neonatologist suspected spontaneous intestinal perforation (SIP) and performed an abdominal point of care ultrasound (POCUS). The exam showed pneumoperitoneum in the right upper quadrant (Videoclip 1 available online, Supplementary Fig. 1) and a complex fluid collection in the right lower quadrant. An emergent laparotomy was performed in the NICU bed and confirmed an extensive perforation of the terminal ileum. The posterior clinical course was favorable.

SIP is one of the main causes of an abdominal emergency in the preterm infant. Radiological detection of PNP in the supine patient can be challenging. POCUS can reliably identify PNP and establish the diagnosis of bowel perforation at the bedside. Sonographic features of PNP include air-artifacts (“abdominal A lines”) in the right upper quadrant that prevent visualization of the liver and a highly echogenic line in the interface of soft tissue and air (“enhancement of the peritoneal stripe sign”). Sometimes, an abrupt transition between the air artifacts and the liver is observed in the same image, a sign that has been called the “gut point” which is regarded pathognomonic of PNP.

Supplementary Information

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Abbreviations

POCUS: Point of care ultrasound; NICU: Neonatal intensive care unit; PNP: Pneumoperitoneum; SIP: Spontaneous intestinal perforation.

Author details

¹ Pediatric Intensive Care Unit, Complejo Asistencial Universitario de León, Altos de Nava s/n, 24002 León, Spain. ² Working Group on Bedside Ultrasound of the Spanish Society of Pediatric Intensive Care (SECIP), Madrid, Spain. ³ Working Group on Ultrasound of the Spanish Society of Neonatology (SENeo), Valencia, Spain. ⁴ Biomedicine Institute of León (IBIOMED), University of León, León, Spain. ⁵ Neonatal Intensive Care Unit, Complejo Asistencial Universitario de León, León, Spain.

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*Correspondence: ignacio.oulego@gmail.com

¹ Pediatric Intensive Care Unit, Complejo Asistencial Universitario de León, Altos de Nava s/n, 24002 León, Spain

Full author information is available at the end of the article