PERFORMA DIAGNOSTIK PENGUKURAN *BOWEL-SPINE RATIO* DAN *BOWEL WALL-BOWEL RATIO* BERDASARKAN RADIOGRAFI ABDOMEN DALAM DIAGNOSIS *SMALL BOWEL OBSTRUCTION*

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INTISARI

Latar Belakang:

Small Bowel Obstruction (SBO) merupakan salah satu penyebab nyeri abdomen akut yang memerlukan diagnosis dan penanganan segera. Radiografi abdomen sering digunakan sebagai pemeriksaan awal, namun akurasinya terbatas. Bowel-Spine Ratio (BSR) dan Bowel Wall-Bowel Ratio (BBR) dikembangkan sebagai metode kuantitatif alternatif untuk meningkatkan akurasi diagnosis SBO.

Tujuan:
Penelitian ini bertujuan menilai performa diagnostik pengukuran BSR dan BBR berdasarkan radiografi abdomen dalam diagnosis SBO.

Metode:
Penelitian ini merupakan studi observasional uji diagnostik dengan desain potong lintang menggunakan data sekunder di RSUP Dr. Sardjito Yogyakarta pada Januari–Maret 2025. Sebanyak 46 pasien yang menjalani radiografi abdomen 3 posisi dengan keluhan nyeri perut dianalisis. Penilaian BSR dan BBR dilakukan oleh dua dokter spesialis radiologi independen. Reliabilitas interobserver diuji dengan Intraclass Correlation Coefficient (ICC), sedangkan performa diagnostik dinilai menggunakan analisis kurva ROC.

Hasil:
BSR menunjukkan reliabilitas interobserver yang baik (ICC = 0,895) dan rerata BSR pasien dengan SBO lebih tinggi dibandingkan non-obstruksi (0,84 vs 0,61; p = 0,003). Nilai *Area Under Curve* (AUC) BSR sebesar 0,777, dengan nilai *cut-off* ≥ 0,726 menghasilkan sensitivitas 72,7%, spesifisitas 76,9%, nilai prediksi positif 88,9%, nilai prediksi negatif 52,6%, dan akurasi 73,9%. Sebaliknya, BBR menunjukkan reliabilitas yang sedang (ICC = 0,746) dan AUC yang rendah (0,394), sehingga tidak dapat digunakan sebagai parameter diagnostik SBO.

Kesimpulan:
Pengukuran BSR berdasarkan radiografi abdomen memiliki performa diagnostik yang cukup baik dalam membedakan SBO dan non-SBO. BSR dapat dijadikan metode tambahan yang sederhana, cepat, dan objektif dalam membantu diagnosis SBO, khususnya di fasilitas dengan keterbatasan akses terhadap CT scan. Sebaliknya, BBR tidak direkomendasikan sebagai alat diagnostik dalam kasus SBO.

Kata Kunci: SBO, BBR, BSR, Radiografi Abdomen

DIAGNOSTIC PERFORMANCE OF BOWEL-PINE RATIO AND BOWEL WALL-BOWEL RATIO MEASUREMENT BASED ON ABDOMINAL RADIOGRAPHY IN THE DIAGNOSIS ON SMALL BOWEL OBSTRUCTION

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ABSTRACT

Background:
Small Bowel Obstruction (SBO) is a common cause of acute abdominal pain that requires prompt diagnosis and management. Abdominal radiography is often utilized as the initial imaging modality, although its diagnostic accuracy is limited. The Bowel-Spine Ratio (BSR) and Bowel Wall-Bowel Ratio (BBR) have been proposed as alternative quantitative methods to improve the diagnostic accuracy of SBO.

Objective:
To evaluate the diagnostic performance of BSR and BBR measurements based on abdominal radiography in diagnosing SBO.

Methods:
This was an observational diagnostic test study with a cross-sectional design, utilizing secondary data collected at Dr. Sardjito General Hospital, Yogyakarta, between January and March 2025. A total of 46 patients who underwent three-position abdominal radiography for abdominal pain were included. BSR and BBR measurements were independently assessed by two radiologists. Interobserver reliability was evaluated using the Intraclass Correlation Coefficient (ICC), and diagnostic performance was analyzed using Receiver Operating Characteristic (ROC) curves.

Results:
BSR demonstrated good interobserver reliability (ICC = 0.895), and the mean BSR in patients with SBO was significantly higher compared to non-obstruction patients (0.84 vs 0.61; p = 0.003). The Area Under the Curve (AUC) for BSR was 0.777, with a cut-off value of ≥ 0.726, resulting in a sensitivity of 72.7%, specificity of 76.9%, positive predictive value of 88.9%, negative predictive value 52,6%, and overall diagnostic accuracy of 73.9%. In contrast, BBR demonstrated moderate reliability (ICC = 0.746) and a low AUC (0.394), thus it cannot be used as a diagnostic parameter for SBO.

Conclusion:
BSR measurement based on abdominal radiography provides a reasonably good diagnostic performance for differentiating between SBO and non-SBO cases. BSR can serve as a simple, rapid, and objective adjunctive method to aid in the diagnosis of SBO, particularly in healthcare facilities with limited access to CT scans. Conversely, BBR is not recommended as a diagnostic parameter for SBO.

Keywords: SBO, BSR, BBR, Abdominal Radiography