

PERFORMA DIAGNOSTIK DENSITAS ASITES PADA PEMERIKSAAN COMPUTED TOMOGRAPHY SCAN ABDOMEN DENGAN HASIL SITOLOGI ASITES SEBAGAI PREDIKTOR DERAJAT KEGANASAN ASITES PADA PASIEN KEGANASAN INTRA-ABDOMEN

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INTISARI

Latar Belakang: Asites merupakan akumulasi cairan abnormal di rongga peritoneum yang dapat disebabkan oleh berbagai kondisi, termasuk keganasan intra-abdomen. Asites maligna berhubungan dengan prognosis buruk dan tata laksana kompleks. Sitologi cairan asites adalah standar emas diagnosis, tetapi sensitivitasnya terbatas dan bersifat invasif. Computed tomography (CT) scan abdomen non-kontras memungkinkan pengukuran densitas cairan asites secara kuantitatif, yang berpotensi membedakan asites maligna dari benigna.

Tujuan: Menilai performa diagnostik densitas asites pada CT scan abdomen non-kontras dengan sitologi sebagai standar rujukan, serta menentukan nilai cut-off untuk membedakan asites maligna dari benigna.

Metode: Penelitian ini merupakan studi uji diagnostik retrospektif terhadap 60 pasien keganasan intra-abdomen yang menjalani CT scan abdomen non-kontras dan sitologi asites di RSUP Dr. Sardjito Yogyakarta periode Januari 2023–Mei 2025. Densitas cairan asites diukur menggunakan region of interest (ROI) ≥ 1 cm² pada tiga area berbeda. Reliabilitas antar-pengamat dianalisis dengan intraclass correlation coefficient (ICC), sedangkan akurasi diagnostik dievaluasi menggunakan receiver operating characteristic (ROC).

Hasil: Rerata densitas asites maligna lebih tinggi dibandingkan asites benigna (15,0 HU vs. 8,8 HU; $p < 0,001$). Uji reliabilitas antar-pengamat menunjukkan konsistensi sangat baik (ICC = 0,986; $p < 0,001$). Analisis ROC menghasilkan area under the curve (AUC) 0,850 (95% CI: 0,723–0,978; $p < 0,001$). Nilai cut-off $\geq 9,5$ HU memberikan sensitivitas 95,1% dan spesifisitas 68,4%.

Kesimpulan: Densitas asites pada CT scan abdomen non-kontras memiliki akurasi baik untuk membedakan asites maligna dari benigna pada pasien keganasan intra-abdomen. Nilai cut-off $\geq 9,5$ HU dapat digunakan sebagai prediktor sensitif dan layak dipertimbangkan sebagai parameter kuantitatif tambahan dalam praktik radiologi klinis.

Kata kunci: asites maligna, CT scan abdomen, densitas asites, sitologi, akurasi diagnostik

DIAGNOSTIC PERFORMANCE OF ASCITIC FLUID DENSITY ON ABDOMINAL COMPUTED TOMOGRAPHY SCAN USING ASCITIC FLUID CYTOLOGY AS A PREDICTOR OF MALIGNANT ASCITES IN INTRA-ABDOMINAL MALIGNANCY PATIENTS

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ABSTRACT

Background: Ascites is an abnormal accumulation of fluid in the peritoneal cavity, caused by various conditions including intra-abdominal malignancy. Malignant ascites is associated with poor prognosis and complex management. Ascitic fluid cytology is the gold standard for diagnosis but has limited sensitivity and is invasive. Non-contrast abdominal computed tomography (CT) allows quantitative measurement of ascitic fluid density, potentially distinguishing malignant from benign ascites.

Objective: To evaluate the diagnostic performance of ascitic fluid density on non-contrast abdominal CT compared with cytology as the reference standard, and to determine the optimal cut-off value to differentiate malignant from benign ascites.

Methods: This retrospective diagnostic test study included 60 patients with intra-abdominal malignancies who underwent non-contrast abdominal CT and ascitic fluid cytology at Dr. Sardjito General Hospital, Yogyakarta, between January 2023 and May 2025. Ascitic fluid density was measured using a region of interest (ROI) $\geq 1 \text{ cm}^2$ in three different areas. Interobserver reliability was assessed using intraclass correlation coefficient (ICC), while diagnostic accuracy was analyzed with receiver operating characteristic (ROC) curve.

Results: Mean ascitic fluid density was significantly higher in malignant ascites compared with benign ascites (15.0 HU vs. 8.8 HU; $p < 0.001$). Interobserver reliability showed excellent consistency (ICC = 0.986; $p < 0.001$). ROC analysis yielded an area under the curve (AUC) of 0.850 (95% CI: 0.723–0.978; $p < 0.001$). A cut-off value of ≥ 9.5 HU provided sensitivity of 95.1% and specificity of 68.4%.

Conclusion: Ascitic fluid density on non-contrast abdominal CT shows good accuracy for differentiating malignant from benign ascites in patients with intra-abdominal malignancies. A cut-off value of ≥ 9.5 HU can serve as a sensitive predictor and may be applied as an additional quantitative parameter in clinical radiology practice.

Keywords: malignant ascites, abdominal CT scan, ascitic fluid density, cytology, diagnostic accuracy