

PERFORMA DIAGNOSTIK NILAI *APPARENT DIFFUSION COEFFICIENT* PADA *MAGNETIC RESONANCE IMAGING* DALAM MEMBEDAKAN LESI OVARIUM JINAK DAN GANAS

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INTISARI

Latar Belakang: Kanker ovarium merupakan salah satu neoplasma ginekologi dengan angka mortalitas tertinggi pada perempuan dan sering terdiagnosis pada stadium lanjut. Penegakan diagnosis dini penting untuk menentukan terapi yang efektif. *Magnetic resonance imaging* pelvis, khususnya sekuens *diffusion weighted imaging* dengan parameter *apparent diffusion coefficient* berpotensi membedakan lesi ovarium jinak dan ganas secara non-invasif.

Tujuan: Penelitian ini bertujuan untuk mengetahui performa diagnostik nilai *apparent diffusion coefficient* pada *magnetic resonance imaging* dalam membedakan lesi ovarium jinak dan ganas.

Metode: Penelitian ini merupakan penelitian diagnostik. Data retrospektif subjek penelitian diperoleh dari 84 pasien dengan lesi ovarium berusia > 17 tahun yang telah dilakukan pemeriksaan MRI pelvis dengan sekuens DWI dan ADC di Instalasi Radiologi RS Dr. Sardjito sejak 1 Juni 2022 hingga 30 Juni 2025. Nilai rerata ADC dihitung pada area solid tumor dengan panduan pencitraan MRI konvensional. Performa diagnostik diuji dengan kurva *Receiver Operating Characteristic* dan *cut-off* nilai ADC ditentukan menggunakan *Youden index*.

Hasil: Penelitian terhadap 84 pasien dengan lesi ovarium menunjukkan nilai ADC memiliki akurasi yang sangat baik dalam membedakan lesi ovarium jinak dan ganas (AUC = 0,945). Berdasarkan *Youden index*, didapatkan bahwa nilai ADC sebesar $0,944 \times 10^{-3} \text{ mm}^2/\text{s}$ merupakan *cut-off* yang dapat digunakan untuk membedakan lesi ovarium jinak dan ganas dengan sensitivitas 93,5%, spesifisitas 89,5%, nilai prediksi positif 91,5%, nilai prediksi negatif 91,9%, dan akurasi 91,7%.

Kesimpulan: Nilai ADC pada pemeriksaan MRI pelvis memiliki performa diagnostik yang sangat baik dalam membedakan lesi ovarium jinak dan ganas (AUC=0,945). Nilai $\text{ADC} < 0,944 \times 10^{-3} \text{ mm}^2/\text{s}$ merupakan parameter kuantitatif untuk mendeteksi keganasan ovarium dengan sensitivitas sebesar 93,5%, spesifisitas sebesar 89,5%, nilai prediksi positif sebesar 91,5%, nilai prediksi negatif sebesar 91,9%, dan akurasi sebesar 91,7%.

Kata kunci: Nilai *Apparent Diffusion Coefficient*, Lesi Ovarium, MRI Pelvis

DIAGNOSTIC PERFORMANCE OF APPARENT DIFFUSION COEFFICIENT VALUES IN MAGNETIC RESONANCE IMAGING IN DISTINGUISHING BENIGN AND MALIGNANT OVARIAN LESIONS

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ABSTRACT

Background: Ovarian cancer is one of the gynecologic neoplasms with the highest mortality rate in women and is often diagnosed at advanced stage. Early diagnosis is essential to determine effective therapy. Pelvic magnetic resonance imaging, particularly diffusion-weighted imaging sequences with the apparent diffusion coefficient parameter, has the potential to differentiate noninvasively between benign and malignant ovarian lesions.

Objective: This study aimed to evaluate the diagnostic performance of the apparent diffusion coefficient values on MRI in distinguishing benign and malignant ovarian lesions.

Methods: This was a diagnostic study with a retrospective design. Data were obtained from 84 female patients aged >17 years with ovarian lesions who underwent pelvic MRI with DWI and ADC sequences at the Radiology Department of Dr. Sardjito General Hospital between June 1st, 2022, and June 30th, 2025. Mean ADC values were measured on the solid portion of the tumor using conventional MRI as a reference. Diagnostic performance was analyzed using the Receiver Operating Characteristic curve, and the ADC cut-off value was determined using the Youden index.

Results: Among 84 patients with ovarian lesions, ADC values demonstrated excellent diagnostic accuracy in differentiating benign and malignant ovarian lesions (AUC = 0.945). Based on the Youden index, an ADC cut-off value of $0.944 \times 10^{-3} \text{ mm}^2/\text{s}$ could distinguish benign from malignant ovarian lesions, with a sensitivity of 93.5%, specificity of 89.5%, positive predictive value of 91.5%, negative predictive value of 91.9%, and accuracy of 91.7%.

Conclusion: The ADC value on pelvic MRI shows excellent diagnostic performance in differentiating benign and malignant ovarian lesions (AUC = 0.945). An ADC value $< 0.944 \times 10^{-3} \text{ mm}^2/\text{s}$ is a quantitative parameter for detecting ovarian malignancy with a sensitivity of 93.5%, specificity of 89.5%, positive predictive value of 91.5%, negative predictive value of 91.9%, and accuracy of 91.7%.

Keywords: Apparent Diffusion Coefficient, Ovarian Lesion, Pelvic MRI