

KORELASI NILAI ADC MRI DENGAN *GRADING* HISTOPATOLOGI DAN *STAGING* FIGO PADA KARSINOMA ENDOMETRIUM

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INTISARI

Latar Belakang: Karsinoma endometrium merupakan kanker ginekologi tersering di negara maju dan menduduki peringkat ke-12 di Indonesia. Penentuan *staging* FIGO dan *grading* histopatologi ini penting untuk menentukan tatalaksana serta memprediksi prognosis. MRI pelvis dengan sekuens DWI/ADC memiliki potensi menjadi biomarker non-invasif untuk menilai agresivitas tumor.

Tujuan: Menilai korelasi ADC *mean* dan ADC *ratio* pada MRI pelvis dengan *grading* histopatologi dan *staging* FIGO pada karsinoma endometrium.

Metode: Studi analisis retrospektif cross-sectional terhadap 40 pasien karsinoma endometrium yang menjalani pemeriksaan MRI pelvis pada Januari 2017–Juli 2025. Dilakukan pengukuran ADC *mean* tumor serta ADC *ratio* terhadap myometrium (ADC *ratio*_{t-m}) dan otot gluteus maximus (ADC *ratio*_{t-g}), kemudian dianalisis korelasinya dengan *staging* dan *grading*.

Hasil: Pasien mayoritas berusia 50–69 tahun dengan tipe histopatologi endometrioid (90%), *staging* IB (37,5%), dan *grade* 3 (47,5%). Nilai ADC *mean* tidak menunjukkan hubungan yang signifikan dengan *staging* maupun *grading* ($p > 0,05$), dengan nilai rata-rata ADC *mean* pada G1: $0,74 \pm 0,14$, G2: $0,67 \pm 0,10$, dan G3: $0,68 \pm 0,09 \times 10^{-3} \text{ mm}^2/\text{s}$. Nilai ADC *ratio*_{t-g}, yang berkisar antara 0.44–0.70, menunjukkan korelasi negatif dengan kekuatan sedang terhadap *staging* ($r = -0,424$; $p = 0,006$). Sementara itu, ADC *ratio*_{t-m} (G1: 0,57; G2: 0,50; G3: 0,47) dan ADC *ratio*_{t-g} (G1: 0,69; G2: 0,55; G3: 0,54) menunjukkan korelasi negatif dengan kekuatan lemah terhadap *grading* histopatologi ($r = -0,385$; $p = 0,014$ dan $r = -0,334$; $p = 0,035$).

Kesimpulan: Nilai ADC *mean* tidak dapat membedakan *staging* FIGO dan *grading* Histopatologi. Sedangkan ADC *ratio*, khususnya ADC *ratio*_{t-g}, lebih konsisten dan berpotensi sebagai parameter kuantitatif non-invasif dalam menilai agresivitas karsinoma endometrium.

Kata Kunci: Karsinoma endometrium, MRI, ADC, *grading* histopatologi, *staging* FIGO

CORRELATION OF MRI ADC VALUES WITH HISTOPATHOLOGICAL GRADING AND FIGO STAGING IN ENDOMETRIAL CARCINOMA

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ABSTRACT

Background: Endometrial carcinoma is the most common gynecological malignancy in developed countries and ranks 12th among cancers in Indonesia. Determination of FIGO staging and histopathological grading is essential for guiding management and predicting prognosis. Pelvic MRI with DWI/ADC sequences has the potential to serve as a non-invasive biomarker for assessing tumor aggressiveness.

Objective: to evaluate the correlation between mean ADC value and ADC ratio on pelvic MRI with histopathological grading and FIGO staging in endometrial carcinoma.

Methods: A retrospective cross-sectional study was conducted on 40 patients with endometrial carcinoma who underwent pelvic MRI between January 2017 and July 2025. Tumor mean ADC values and ADC ratios relative to the myometrium (ADC ratio_{t-m}) and gluteus maximus muscle (ADC ratio_{t-g}) were measured and analyzed for correlations with staging and grading.

Results: Most patients were aged 50–69 years, with endometrioid histopathological type (90%), FIGO stage IB (37.5%), and grade 3 (47.5%). The mean ADC value showed no significant correlation with either staging or grading ($p > 0.05$), with mean ADC values of G1: 0.74 ± 0.14 , G2: 0.67 ± 0.10 , and G3: $0.68 \pm 0.09 \times 10^{-3}$ mm²/s. The ADC ratio_{t-g}, ranging from 0.44 to 0.70, demonstrated a moderate negative correlation with staging ($r = -0.424$; $p = 0.006$). Meanwhile, ADC ratio_{t-m} (G1: 0.57; G2: 0.50; G3: 0.47) and ADC ratio_{t-g} (G1: 0.69; G2: 0.55; G3: 0.54) showed weak negative correlations with histopathological grading ($r = -0.385$; $p = 0.014$ and $r = -0.334$; $p = 0.035$, respectively).

Conclusion: Absolute mean ADC values cannot reliably differentiate staging or grading. ADC ratios, particularly ADC ratio_{t-g}, demonstrated more consistent correlations and may serve as quantitative non-invasive parameters for assessing tumor aggressiveness in endometrial carcinoma.

Keywords: Endometrial carcinoma, ADC, MRI, histopathological grading, FIGO staging