

**FACULTY OF MEDICINE AND HEALTH SCIENCE MUHAMAMDIYAH
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***EVALUATION OF THE PRECISION OF LUMBOSACRAL PHOTO IN
DETECTING LUMBAR HERNIATED NUCLEUS PULPOSUS COMPARED
TO MRI 3 TESLA AS THE GOLD STANDARD AT RSUP DR. WAHIDIN
SUDIROHUSODO MAKASSAR IN 2024***

ABSTRACT

Background: Herniated nucleus pulposus (HNP) is a common cause of chronic low back pain and is frequently associated with neurological symptoms. Magnetic Resonance Imaging (MRI) is widely accepted as the reference standard for diagnosing HNP, whereas lumbosacral radiography continues to be used as an initial imaging examination because of its wide availability and relatively low cost. Nevertheless, the diagnostic performance of lumbosacral radiography in identifying HNP remains debatable. **Objective:** This study aimed to assess the diagnostic accuracy of lumbosacral radiography for detecting lumbar herniated nucleus pulposus using 3 Tesla MRI as the gold standard. **Research Method:** An analytic observational study with a cross-sectional design was performed using secondary medical record data from patients who underwent both lumbosacral radiography and 3 Tesla MRI at RSUP Dr. Wahidin Sudirohusodo Makassar in 2024. A total of 62 subjects were recruited through consecutive sampling. Diagnostic accuracy was evaluated by calculating sensitivity and specificity, while inter-modality agreement was assessed using Cohen's Kappa. **Results:** MRI confirmed HNP in 55 subjects (88.7%), whereas lumbosacral radiography yielded positive findings in 17 subjects (27.4%). The sensitivity of lumbosacral radiography was 25.45% (95% CI: 15.8–38.3%), with a specificity of 57.14% (95% CI: 25.1–84.2%). Cohen's Kappa coefficient was -0.052 ($p=0.331$), indicating poor and statistically non-significant agreement between the two imaging modalities. **Conclusion:** Lumbosacral radiography demonstrates low sensitivity and poor concordance with MRI in detecting herniated nucleus pulposus and therefore cannot be relied upon as a definitive diagnostic tool. MRI 3 Tesla remains the preferred modality, particularly in patients with strong clinical suspicion or neurological manifestations.

Keywords: lumbosacral radiography, MRI 3 Tesla, herniated nucleus pulposus, diagnostic accuracy

**FAKULTAS KEDOKTERAN DAN ILMU KESEHATAN
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***EVALUASI KETEPATAN FOTO LUMBOSAKRAL DALAM MENDETEKSI
HERNIA NUKLEUS PULPOSUS DIBANDINGKAN DENGAN MRI 3 TESLA
SEBAGAI GOLD STANDARD DI RSUP DR. WAHIDIN SUDIROHUSODO
MAKASSAR TAHUN 2024***

ABSTRAK

Latar Belakang: Hernia nukleus pulposus (HNP) merupakan penyebab utama nyeri punggung bawah kronis yang kerap disertai gejala neurologis. Magnetic Resonance Imaging (MRI) digunakan sebagai standar baku dalam diagnosis HNP, sementara foto lumbosakral masih sering dimanfaatkan sebagai pemeriksaan awal karena ketersediaannya yang luas dan biaya yang relatif rendah. Namun demikian, ketepatan diagnostik foto lumbosakral dalam mendeteksi HNP masih menjadi perdebatan. **Tujuan:** Menilai ketepatan foto lumbosakral dalam mendeteksi hernia nukleus pulposus dengan membandingkannya terhadap MRI 3 Tesla sebagai gold standard. **Metode:** Penelitian analitik observasional dengan desain potong lintang menggunakan data sekunder rekam medis pasien yang menjalani pemeriksaan foto lumbosakral dan MRI 3 Tesla di RSUP Dr. Wahidin Sudirohusodo Makassar tahun 2024. Sebanyak 62 subjek diperoleh melalui consecutive sampling. Ketepatan diagnostik dianalisis menggunakan sensitivitas dan spesifisitas, sedangkan tingkat kesesuaian antar modalitas dievaluasi menggunakan uji Cohen's Kappa. **Hasil:** MRI menunjukkan HNP positif pada 55 subjek (88,7%), sedangkan foto lumbosakral hanya menunjukkan hasil positif pada 17 subjek (27,4%). Sensitivitas foto lumbosakral sebesar 25,45% (95% CI: 15,8–38,3%) dan spesifisitas sebesar 57,14% (95% CI: 25,1–84,2%). Nilai Cohen's Kappa sebesar -0,052 (p=0,331) menunjukkan kesesuaian yang buruk dan tidak bermakna secara statistik. **Kesimpulan:** Foto lumbosakral memiliki sensitivitas rendah dan tingkat kesesuaian yang buruk dibandingkan MRI 3 Tesla dalam mendeteksi hernia nukleus pulposus, sehingga tidak dapat dijadikan modalitas diagnostik definitif. MRI tetap direkomendasikan sebagai pemeriksaan utama, khususnya pada pasien dengan kecurigaan klinis kuat atau manifestasi neurologis.

Kata kunci: foto lumbosakral, MRI 3 Tesla, hernia nukleus pulposus, ketepatan diagnostik