

DAFTAR PUSTAKA

1. Kimura T, Egawa S. Epidemiology of prostate cancer in Asian countries. *International Journal of Urology*. 2018;25(6):524-531. doi:10.1111/iju.13593
2. Barrett T. What is multiparametric-MRI of the prostate and why do we need it? *Imaging Med*. 2015;7(1).
3. Mochtar CA, Atmoko W, Umbas R, Hamid ARAH. Prostate cancer detection rate in Indonesian men. *Asian Journal of Surgery*. 2018;41(2):163-169. doi:10.1016/j.asjsur.2017.01.001
4. Prostate Cancer Foundation of Australia. *Prostate Cancer: A Guide for Newly-Diagnosed Men*.; 2020.
5. Castillejos RA, Gabilondo F. Prostate cancer. *salud publica de mexico*. 2016;58(2).
6. Descotes JL. Diagnosis of prostate cancer. *Asian Journal of Urology*. 2019;6(2):129-136. doi:10.1016/j.ajur.2018.11.007
7. Popat P, Maheshwari S, Sable N, Thakur M, Katdare A. Multiparametric MRI Approach to Prostate Cancer with a Pictorial Essay on PI-RADS. *Indian Soc Gastrointestinal Abdominal Radiol*. Published online 2019.
8. Popita C, Popita AR, Sitar-taut A, Petrut B, Fetica B, Coman I. 1.5 Tesla Multiparametric-Magnetic Resonance Imaging For The Detectiong of Clinically Significant Prostat Cancer. *Clujul Medical Vol.90, No.1*, 2017: 40-48
9. Zhen L, Liu X, Yegang C, Yongjiao Y, Yawei x, Jiaqi K. Accuracy of multiparametric magnetic resonance imaging for diagnosing prostate Cancer: a systematic review and meta- analysis. *BMC Cancer*. Published online 2019.
10. Drake R, Vogl A, Mitchell A. *Gray's Basic Anatomy*. 2nd ed. Elsevier,Inc; 2018.
11. Tortora G, Derrickson B. *Principles of Anatomy and Physiology*. 15th ed. John Wiley&Sons,Inc; 2017.
12. Rebello RJ, Oing C, Knudsen KE, et al. Prostate cancer. *Nature Reviews Disease Primers*. 2021;7(1). doi:10.1038/s41572-020-00243-0
13. *TRANSRECTAL ULTRASOUND AND PROSTATIC BIOPSY: GUIDELINES & RECOMMENDATIONS FOR TRAINING*.; 2015.
14. Mustafa M, Salih AF, Illzam EM, Sharifa AM, Suleiman M, Hussain SS. Prostate Cancer: Pathophysiology, Diagnosis, and Prognosis. *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)* e-ISSN. 2016;15(6):4-11. doi:10.9790/0853-1506020411
15. Mottet N, Briers J, Bergh, et al. Guidelines on prostate cancer. *Eur Assoc Urol*. Published online 2015.
16. Kementerian Kesehatan Republik Indonesia. *Kanker Prostat*.; 2017.
17. Phua TJ. The Etiology and Pathophysiology Genesis of Benign Prostatic Hyperplasia and Prostate Cancer: A New Perspective. *Medicines*. 2021;8(6):30. doi:10.3390/medicines8060030
18. Rosario E, Rosario D. Localized prostate cancer. *StatPearls*. Published online 2021. Accessed December 19, 2021. <https://www.ncbi.nlm.nih.gov/books/NBK563248/>
19. Murray T. The Pathogenesis of Prostate Cancer. In: *Prostate Cancer*. ExonPublication; 2021.
20. Balistreri CR, Candore G, Lio D, Carruba G. Prostate cancer: From the pathophysiologic implications of some genetic risk factors to translation in personalized cancer treatments. *Cancer Gene Therapy*. 2014;21(1):2-11. doi:10.1038/cgt.2013.77
21. Hunis AP. Prostate Cancer, Update of its Diagnosis and Treatment, with Special Emphasis on its Management in Argentina. *Cancer Therapy & Oncology International Journal*. 2020;17(4). doi:10.19080/ctoij.2020.17.555972
- ort E, Warren AY, Varma M. Gleason grading of prostate cancer: a pragmatic approach. *Diagnostic Histopathology*. 2019;25(10):371-378. doi:10.1016/j.mpdhp.2019.07.001



23. Gordetsky J, Epstein J. Grading of prostatic adenocarcinoma: Current state and prognostic implications. *Diagnostic Pathology*. 2016;11(1). doi:10.1186/s13000-016-0478-2
24. Baydar E, Epstein J. Gleason Grading System, Modifications and Additions to the Original Scheme. *Turk J Pathol*. Published online 2009.
25. David M, Leslie S. prostate specific antigen. *StatPearls*. Published online 2021. Accessed December 19, 2021. <https://www.ncbi.nlm.nih.gov/books/NBK557495/>
26. Yulius E, Parwati I, Tjandrawati A, Kartika D. Indonesian journal of clinical pathology and medical laboratory. *Maj Pat Klin*. 2014;20(2).
27. Boesen L. Multiparametric MRI in detection and staging of prostate cancer. *Dan Med J*. Published online 2015.
28. Gunadi M, Palinrungi M, Kholis K, et al. Cut-off Point Prostate-Specific Antigen and Prostate-Specific Antigen Density in Prostate Cancer - Suspected Patients in Makassar, Indonesia. *Surg Gastroenterol Oncol*. Published online 2021.
29. Lee C, Tan T, Tan C. Multiparametric MRI in Active Surveillance of Prostate Cancer: An Overview and a Practical Approach. *Korean J Radiol*. 2021;22(7).
30. Hauth E, Hohmuth H, Cozub-Poetica C, Bernand S, Beer M, Jaeger H. Multiparametric MRI of the prostate with three functional techniques in patients with PSA elevation before initial TRUS-guided biopsy. *British Journal of Radiology*. 2015;88(1054). doi:10.1259/bjr.20150422
31. Esen T, Turkey B, Patel A, Futterer J. Multiparametric MRI in Prostate Cancer. *Biomed Res Inter*. Published online 2014.
32. Rosenkrantz A, Taneja S. Radiologist, Be Aware: Ten Pitfalls That Confound the Interpretation of Multiparametric Prostate MRI. *AJR*. Published online 2014.
33. Das R, Singh A, Saha S, et al. Diffusion weighted imaging on a 3 tesla magnetic resonance scanner as a diagnostic tool in early detection of prostate cancer. *Int J Anatomy Radiol Surg*. Published online 2021.
34. *PI-RADS*. AdMeTech; 2019.
35. Ingole SM, Mehta RU, Kazi ZN, Bhuyar R v. Multiparametric Magnetic Resonance Imaging in Evaluation of Clinically Significant Prostate Cancer. *Indian Journal of Radiology and Imaging*. Published online 2021. doi:10.1055/s-0041-1730093
36. Murphy G, Haider M, Ghai S, Sreeharsha B. The expanding role of MRI in prostate cancer. In: *American Journal of Roentgenology*. Vol 201. ; 2013:1229-1238. doi:10.2214/AJR.12.10178
37. Turkbey B, Brown A, Sankineni S, Wood B, Pinto P, Choyke P. Multiparametric Prostate Magnetic Resonance Imaging in the Evaluation of Prostate Cancer. *Ca Cancer J Clin*. Published online 2016.
38. Berman RM, Brown AM, Chang SD, et al. DCE MRI of prostate cancer. *Abdominal Radiology*. 2016;41(5):844-853. doi:10.1007/s00261-015-0589-3
39. Ghai S, Haider MA. Multiparametric-MRI in diagnosis of prostate cancer. *Indian Journal of Urology*. 2015;31(3):194-201. doi:10.4103/0970-1591.159606
40. Durmus T, Baur A, Hamm B. Multiparametric magnetic resonance imaging in the detection of prostate cancer. *RoFo Fortschritte auf dem Gebiet der Rontgenstrahlen und der Bildgebenden Verfahren*. 2014;186(3):238-246. doi:10.1055/s-0034-1365937
41. Lee KW, Lee Y, Oh SW, Jin KN, Goo JM. Large cell neuroendocrine carcinoma of the lung: CT and FDG PET findings. *European Journal of Radiology*. 2015;84(11):2332-2338. doi:10.1016/j.ejrad.2015.07.033
42. Sackett J, Shih J, Reese S, Brender J, Harmon S, Barrett T. Quality of prostate MRI: is the PI-RADS standard sufficient? *Academic Radiol*. Published online 2020.



LAMPIRAN 1 REKOMENDASI ETIK PENELITIAN

**REKOMENDASI PERSETUJUAN ETIK**

Nomor : 238/UN4.6.4.5.31/ PP36/ 2023

Tanggal: 14 April 2023

Dengan ini Menyatakan bahwa Protokol dan Dokumen yang Berhubungan Dengan Protokol berikut ini telah mendapatkan Persetujuan Etik :

No Protokol	UH23030149	No Sponsor Protokol	
Peneliti Utama	dr. Zida Maulina Aini	Sponsor	
Judul Peneliti	AKURASI DIFFUSION-WEIGHTED IMAGING (DWI) MAGNETIC RESONANCE IMAGING (MRI) DIBANDINGKAN DENGAN DIGITAL RECTAL EXAMINATION (DRE) DAN PROSTATE SPESIFIC ANTIGEN (PSA) DALAM MENENTUKAN MALIGNANCY PROSTAT		
No Versi Protokol	1	Tanggal Versi	1 Maret 2023
No Versi PSP	1	Tanggal Versi	1 Maret 2023
Tempat Penelitian	RSUP Dr. Wahidin Sudirohusodo Makassar		
Jenis Review	☐ Exempted ☒ Expedited ☐ Fullboard Tanggal	Masa Berlaku 14 April 2023 sampai 14 April 2024	Frekuensi review lanjutan
Ketua KEP Universitas Hasanuddin	Nama Prof.Dr.dr. Suryani As'ad, M.Sc.,Sp.GK (K)	Tanda tangan	
Sekretaris KEP Universitas Hasanuddin	Nama dr. Agussalim Bukhari, M.Med.,Ph.D.,Sp.GK (K)	Tanda tangan	

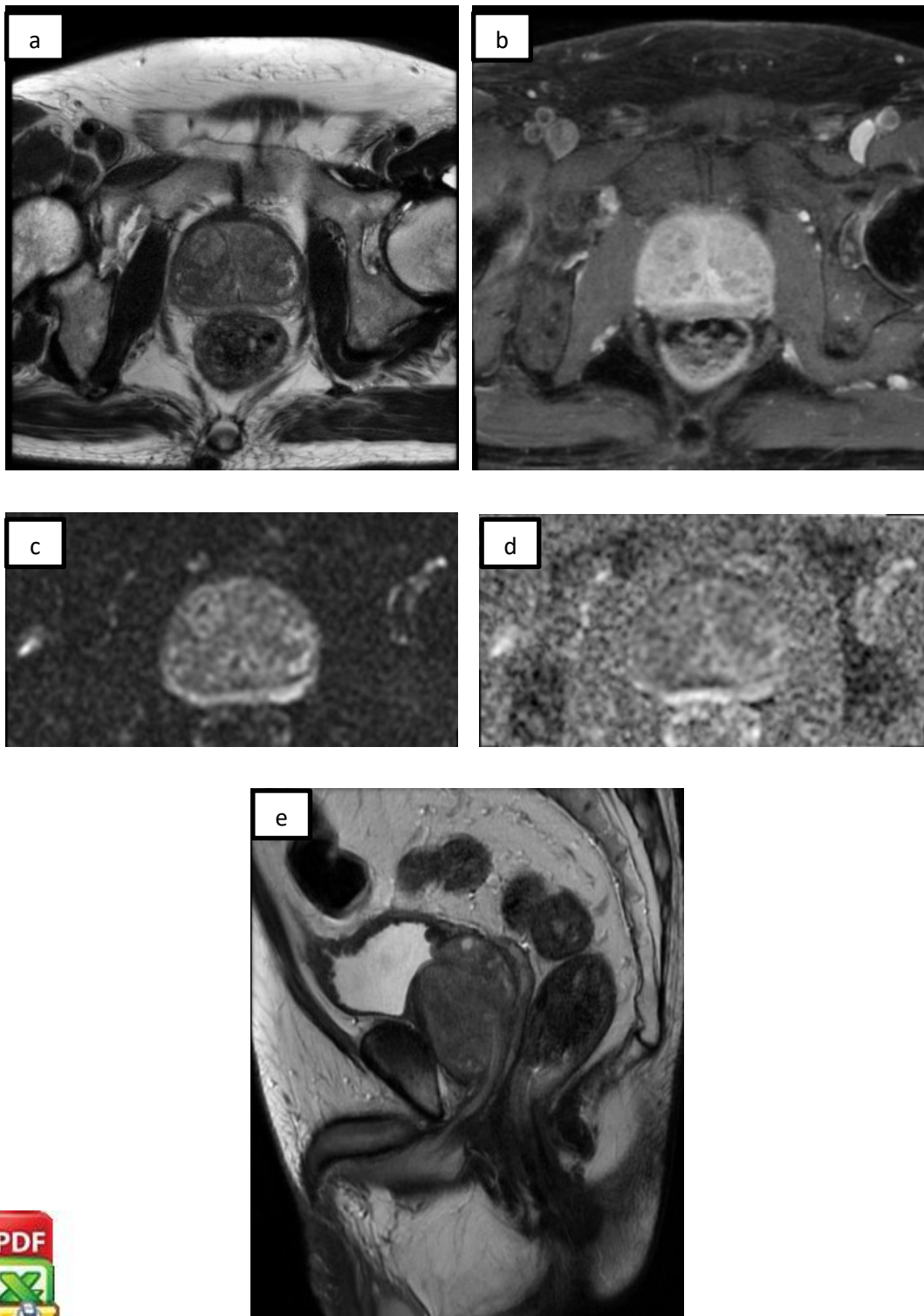
Kewajiban Peneliti Utama:

- Menyerahkan Amandemen Protokol untuk persetujuan sebelum di implementasikan
- Menyerahkan Laporan SAE ke Komisi Etik dalam 24 jam dan dilengkapi dalam 7 hari dan Laporan SUSAR dalam 72 jam setelah Peneliti Utama menerima laporan
- Menyerahkan Laporan Kemajuan (progress report) setiap 6 bulan untuk penelitian resiko tinggi dan setiap setahun untuk penelitian resiko rendah
- Menyerahkan laporan akhir setelah Penelitian berakhir
- Melaporkan penyimpangan dari protokol yang disetujui (protocol deviation / violation)
- Mematuhi semua peraturan yang ditetapkan



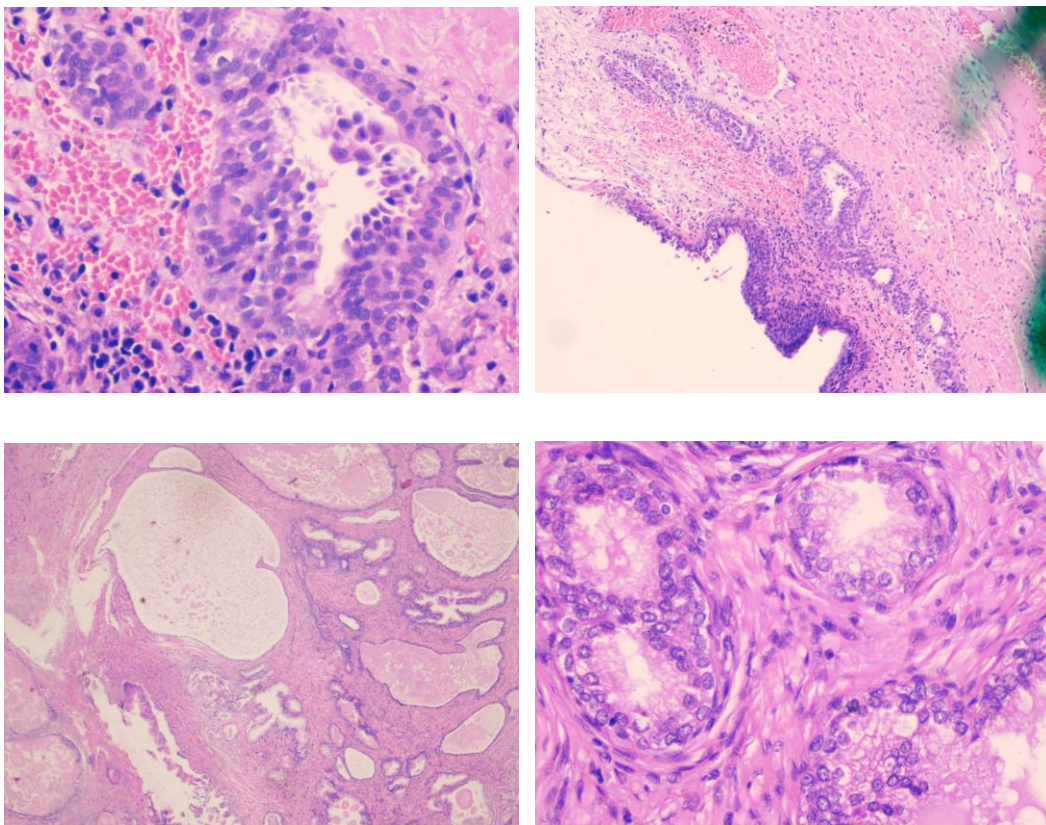
LAMPIRAN 2 Contoh Hasil Sampel Multiparametrik MRI prostat dan Histologi

Contoh Multiparametrik MRI prostat benign



Merupakan gambar multiparametrik MRI prostat (a) potongan axial sequence T2WI tampak multiple lesi heterogen berkapsul pada zona transitional bilateral, (b) potongan axial sequence DCE dengan level yang sama lesi tidak menyangat post kontras (-), (c,d) sequence DWI/ADC setinggi level yang sama tampak lesi yang non-restricted diffusion, dan (e) potongan sagittal sequence T2WI yang menunjukkan lesi berada pada area basis, mid dan apex. Sehingga dapat disimpulkan terdapat lesi pada area base, mid dan apex zona transitional bilateral dengan PIRADS 2.

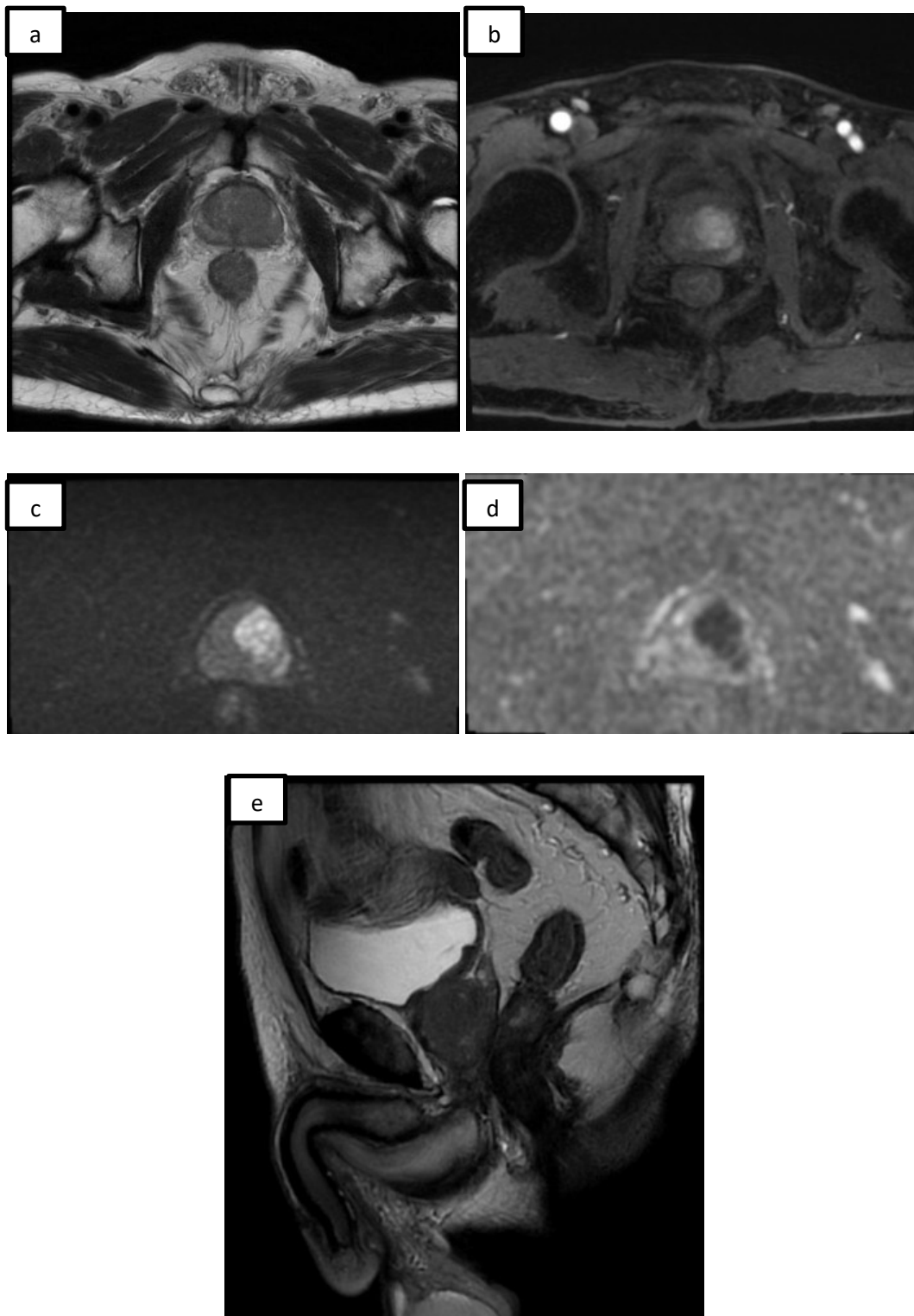
Hasil Histopatologi



Merupakan gambar mikroskopik sediaan jaringan asal prostat menunjukkan proliferasi kelenjar prostat diantara stroma fibromuskular yang proliferaatif. Kelenjar prostat dilapisi sel epitel kuboid, inti tidak atipik, dengan sel basal masih intak. Sebagian lumen kelenjar berdilatasi kistik berisi corpora . Tampak pula infiltrasi sel-sel radang limfosit dan neutrofil padat pada an intraglandular. Kesimpulan Benign Prostat Hyperplasia dan prostatitis tif.



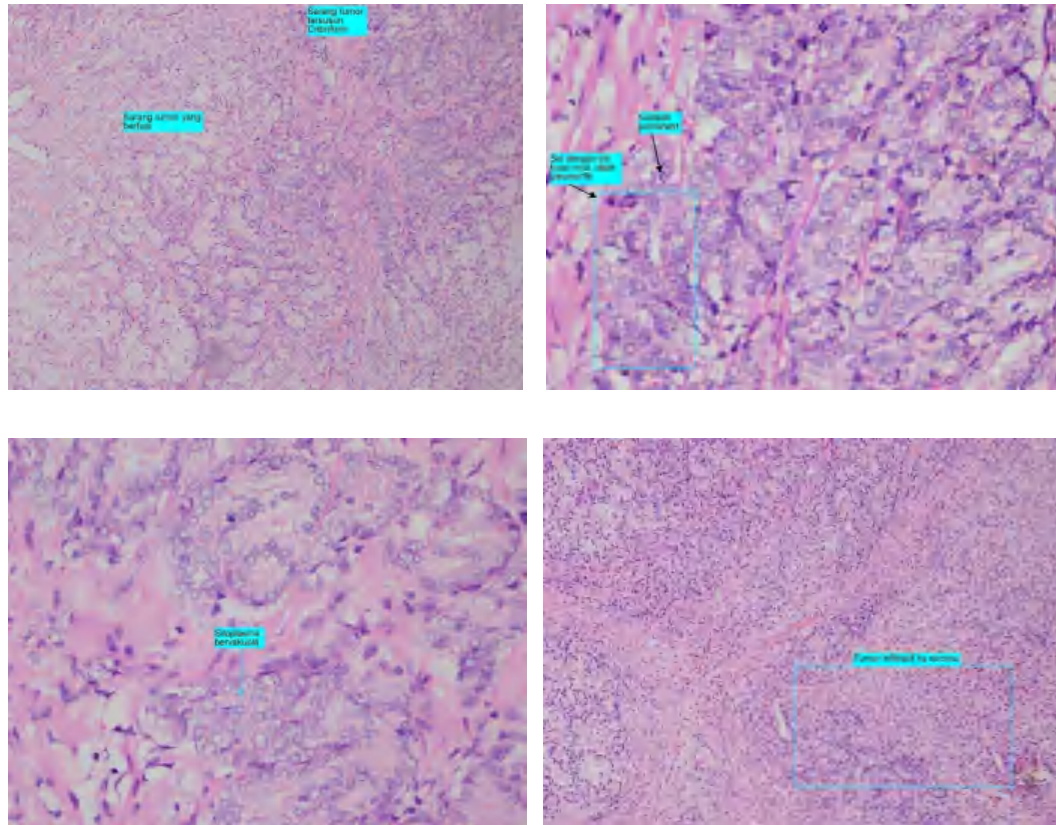
Contoh Multiparametrik MRI prostat Malignancy



erupakan gambar multiparametrik MRI prostat (a) potongan axial
 T2WI tampak lesi hipointens homogen dengan diameter > 1.5 cm pada
 positional sinistra, (b) potongan axial sequence DCE dengan level yang

sama tampak lesi yang menyangat post kontras (+), (c,d) sequence DWI/ADC setinggi level yang sama tampak lesi yang restricted diffusion, dan (e) potongan sagittal sequence T2WI yang menunjukkan lesi berada pada area basis dan mid. Sehingga dapat disimpulkan terdapat lesi pada area base dan mid zona transitional sinistra dengan PIRADS 5.

Hasil Histopatologi



Merupakan gambar mikroskopik sediaan menunjukkan jaringan asal prostat yang terdiri dari proliferasi sel maligna asal kelenjar prostat, sebagian besar tersusun dengan pola cribriform (Gleason score 4) dan sebagian tampak kelenjar yang berfusi (Gleason score 4), tumbuh infiltratif ke stroma fibromuskular yang padat. Sarang tumor terdiri dari sel dengan inti bulat-oval, atipik, pleomorfik, hiperkromatik, nukleoli prominent, beberapa sitoplasma tampak bervakuol. Aktivitas mitosis 0-1/LPB. Tidak terdapat invasi sel tumor ke pembuluh darah pada sediaan ini. Total Gleason Score: 4+4=8 (WHO Grade Group IV) merupakan Adenocarcinoma prostat (WHO GRADE GROUP IV)



LAMPIRAN 3 DATA DAN SAMPEL PENELITIAN

Kriteria_Umur

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	50-59	8	19.0	19.0	19.0
	60-69	19	45.2	45.2	64.3
	70-79	12	28.6	28.6	92.9
	>79	3	7.1	7.1	100.0
	Total	42	100.0	100.0	

DRE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	solid kenyal	13	31.0	31.0	31.0
	solid keras	29	69.0	69.0	100.0
	Total	42	100.0	100.0	

Kriteria_DRE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Benign	13	31.0	31.0	31.0
	Malignancy	29	69.0	69.0	100.0
	Total	42	100.0	100.0	

MRI

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	PIRADS 2	18	42.9	42.9	42.9
	PIRADS 3	5	11.9	11.9	54.8
	PIRADS 4	4	9.5	9.5	64.3
	PIRADS 5	15	35.7	35.7	100.0
	Total	42	100.0	100.0	



Kriteria_histologi

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Benign	21	50.0	50.0	50.0
	Malignancy	21	50.0	50.0	100.0
	Total	42	100.0	100.0	

Histologi

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	BPH	4	9.5	9.5	9.5
	BPH + Prostatitis kronik	16	38.1	38.1	47.6
	Gleason 3+3 = 6	5	11.9	11.9	59.5
	Gleason 3+4 = 7	5	11.9	11.9	71.4
	Gleason 4+3 = 7	2	4.8	4.8	76.2
	Gleason 4+4 = 8	3	7.1	7.1	83.3
	Gleason 4+5 = 9	2	4.8	4.8	88.1
	Gleason 5+3 = 8	1	2.4	2.4	90.5
	Gleason 5+4 = 9	1	2.4	2.4	92.9
	Gleason 5+5 = 10	2	4.8	4.8	97.6
	Stromal hyperplasia + Prostatis kronik	1	2.4	2.4	100.0
	Total	42	100.0	100.0	

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Kriteria_DRE *						
Kriteria_histologi	42	100.0%	0	0.0%	42	100.0%



Kriteria_DRE * Kriteria_histologi Crosstabulation

			Kriteria_histologi		Total
			Benign	Malignancy	
Kriteria_DRE	Benign	Count	13	0	13
		Expected Count	6.5	6.5	13.0
		% within Kriteria_DRE	100.0%	0.0%	100.0%
		% within Kriteria_histologi	61.9%	0.0%	31.0%
	Malignancy	Count	8	21	29
		Expected Count	14.5	14.5	29.0
		% within Kriteria_DRE	27.6%	72.4%	100.0%
		% within Kriteria_histologi	38.1%	100.0%	69.0%
Total	Count	21	21	42	
	Expected Count	21.0	21.0	42.0	
	% within Kriteria_DRE	50.0%	50.0%	100.0%	
	% within Kriteria_histologi	100.0%	100.0%	100.0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	18.828 ^a	1	.000	.000	.000
Continuity Correction ^b	16.042	1	.000		
Likelihood Ratio	24.062	1	.000		
Fisher's Exact Test					
Linear-by-Linear Association	18.379	1	.000		
N of Valid Cases	42				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.50.

b. Computed only for a 2x2 table

Kriteria_histologi

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Benign	21	50.0	50.0	50.0
	Malignancy	21	50.0	50.0	100.0
	Total	42	100.0	100.0	



Statistics

	Kriteria_histolog i	Kriteria_PSA
N Valid	42	42
Missing	0	0
Mean	1.50	3.17
Median	1.50	3.50
Mode	1 ^a	4
Std. Deviation	.506	.961
Minimum	1	1
Maximum	2	4
Sum	63	133

a. Multiple modes exist. The smallest value is shown

Kriteria_PSA

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid < 4	2	4.8	4.8	4.8
4-10	10	23.8	23.8	28.6
10-20	9	21.4	21.4	50.0
> 20	21	50.0	50.0	100.0
Total	42	100.0	100.0	

Chi-Square Tests

	Value	df	Asymp. Sig. (2- sided)
Pearson Chi-Square	21.892 ^a	3	.000
Likelihood Ratio	24.963	3	.000
Linear-by-Linear Association	18.810	1	.000
N of Valid Cases	42		

a. 4 cells (50.0%) have expected count less than 5. The minimum
count is 1.00.



Kriteria_DWI * Kriteria_histologi Crosstabulation

			Kriteria_histologi		Total
			Benign	Malignancy	
Kriteria_DWI	Benign	Count	14	0	14
		Expected Count	7.0	7.0	14.0
		% within Kriteria_DWI	100.0%	0.0%	100.0%
		% within Kriteria_histologi	66.7%	0.0%	33.3%
	Malignant	Count	7	21	28
		Expected Count	14.0	14.0	28.0
		% within Kriteria_DWI	25.0%	75.0%	100.0%
		% within Kriteria_histologi	33.3%	100.0%	66.7%
Total	Count		21	21	42
	Expected Count		21.0	21.0	42.0
	% within Kriteria_DWI		50.0%	50.0%	100.0%
	% within Kriteria_histologi		100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	21.000 ^a	1	.000	.000	.000
Continuity Correction ^b	18.107	1	.000		
Likelihood Ratio	26.734	1	.000		
Fisher's Exact Test					
Linear-by-Linear Association	20.500	1	.000		
N of Valid Cases	42				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.00.

b. Computed only for a 2x2 table

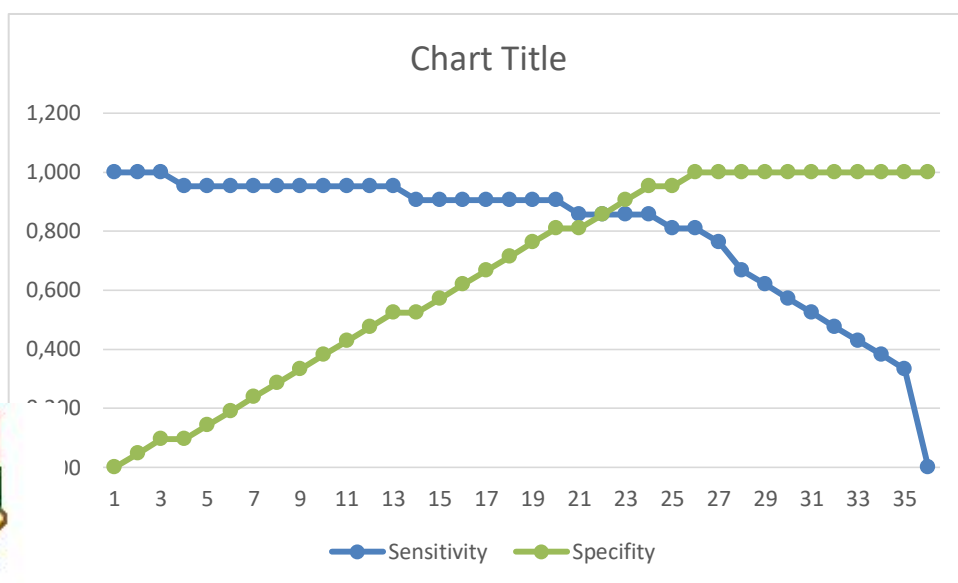
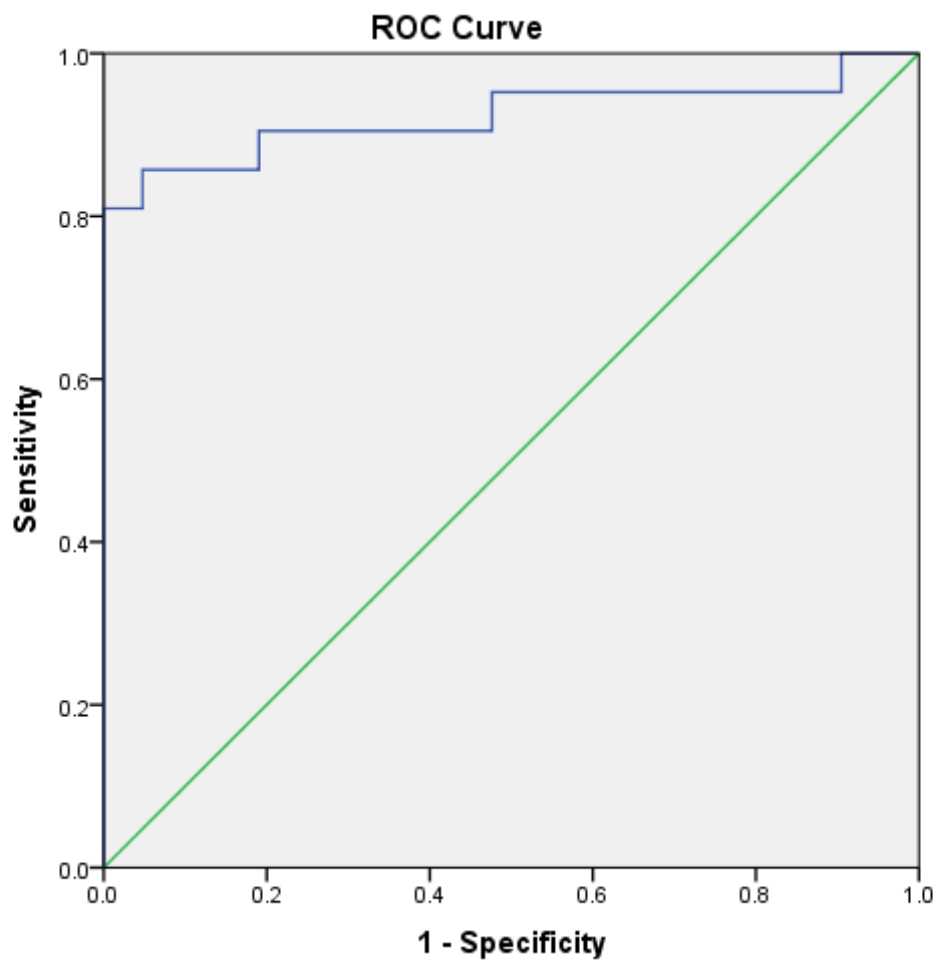
Area Under the Curve

Test Result Variable(s): PSA

Area	Std. Error ^a	Asymptotic Sig. ^b	Asymptotic 95% Confidence Interval	
			Lower Bound	Upper Bound
3	.048	.000	.828	1.000



re nonparametric assumption
 othesis: true area = 0.5



Kriteria_Umur * Kriteria_histologi Crosstabulation

Count

		Kriteria_histologi		Total
		Benign	Malignancy	
Kriteria_Umur	50-59	1	7	8
	60-69	10	9	19
	70-79	9	3	12
	>79	1	2	3
Total		21	21	42

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.886 ^a	3	.048
Likelihood Ratio	8.594	3	.035
Linear-by-Linear Association	3.296	1	.069
N of Valid Cases	42		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is 1.50.

Kriteria_DWI * Kriteria_histologi Crosstabulation

Count

		Kriteria_histologi		Total
		Benign	Malignancy	
Kriteria_DW	Benign	17	0	17
	Malignant	4	21	25
Total		21	21	42

Symmetric Measures

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.636			.000
Interval	Pearson's R	.825	.076	9.220	.000 ^c
Ordinal	Spearman Correlation	.825	.076	9.220	.000 ^c
Cases		42			



assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Kriteria_PSA_New * Kriteria_histologi	42	100.0%	0	0.0%	42	100.0%

Kriteria_PSA_New * Kriteria_histologi Crosstabulation

Count

	Kriteria_histologi		Total
	Benign	Malignancy	
Kriteria_PSA_New < 24.9	18	3	21
> 24.9	3	18	21
Total	21	21	42

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	21.429 ^a	1	.000	.000	.000
Continuity Correction ^b	18.667	1	.000		
Likelihood Ratio	23.775	1	.000		
Fisher's Exact Test					
Linear-by-Linear Association	20.918	1	.000		
N of Valid Cases	42				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.50.

b. Computed only for a 2x2 table



LAMPIRAN 4 CURRICULUM VITAE

A. Data Pribadi

- Nama : dr. Zida Maulina Aini, M.Ked.Trop
- Tempat/tanggal lahir : Kediri, 6 Agustus 1985
- Jenis Kelamin : Perempuan
- Alamat : Jalan Perintis Kemerdekaan IV Lorong 9
(belakang kost al Ikhlas 3), Tamalanrea, Kota Makassar
- Nama Ayah>Nama Ibu: Alm. Imam Maliki/Almh. Herniastuti
- Nama Suami : Ujang Hadisaputera, S.Pt
- Nama Anak : Nabila syafira putri

B. Riwayat Pendidikan

- TK : TK Kusuma Mulia Wonorejo (1989-1991)
- SD : SDN Manisrenggo Kota Kediri, Jawa Timur (1991-1996)
- SMP : SMPN 3 Kediri, Jawa Timur (1997-2000)
- SMA : SMU Negeri 2 Kediri, Jawa Timur (2000-2003)
- S1 : Fakultas Kedokteran Universitas Hasanuddin (2003-2007)
- Profesi : Pendidikan Dokter Universitas Hasanuddin (2007-2009)
- S2 : Program Magister Ilmu Kedokteran Tropis Universitas Airlangga (2014-2016)
- PPDS :Program Studi Radiologi Fakultas Kedokteran Universitas Hasanuddin Periode Juli 2020

C. Riwayat Pelatihan Tambahan :

- Pelatihan Pengembangan Keterampilan Dasar Teknik Instruksional (PEKERTI)
- Magang OSCE
- Multidiscipline Approach in Hepatobiliary Disease Primer design and advanced molecular technology
- Penyusunan SAP,Modul dan Skenario
- Seminar Pencegahan dan Penanganan DBD
- Seminar Sehari Penatalaksanaan Kegawatdaruratan Obstetri dalam Praktek Sehari-hari
- Seminar Review Mk Sistem Non Blok Mulok Kedokteran nutrisi Kelautan FK Unhalu



- Lokakarya Pengembangan Program Pendidikan Profesi
- Seminar Ilmiah “Achieve Better Care with Beta Blocker, Ace Inhibitor And Calcium Channel Blocker For Optimization Of Antihypertensive
- Pelatihan PEKERTI
- Panitia Seminar nasional Integrated management of Dengue (Host, Agent, Vector)

D. Riwayat Penugasan Selama Menjadi Dosen :

- Sekretaris Program Studi Pendidikan Dokter FK UHO (2012-2013)
- Sekretaris Jurusan FK UHO (2014)
- Koordinator Program Studi Pendidikan Dokter (2017-2019)
- Ketua Jurusan Fakultas Kedokteran Universitas Halu Oleo (Jan-Juli 2020)

