

Appendices



Saudi German Hospitals
 GROUP
 Saudi German Hospitals
 جروب هسپتال سعودي المانيا
 JEDDAH, Saudi Arabia
 REQUEST FOR
 C.T. NUCLEAR MEDICINE
 & ULTRASONOGRAPHY
 DEPARTMENT

NAME : / P.I.N. :

Charge Acct. Company Code Room No.

Age Yrs. Sex. M F In Patient Out Patient Room No.

Possibility of Pregnancy YES NO If YES, should investigation be carried out: YES NO Last Menstrual Period

X-RAY NO.

FULL CLINICAL HISTORY

Allergies/Relevant Medication
 Remarks :

II - NUCLEAR MEDICINE

- 400 Cerebral Scintigraphy
- 401 Thyroid Scan w/ Technitium
- 402 Thyroid Uptake/perfusion
- 403 Thyroid Scan w/R.A. Iodine
- 404 Heart Multigated Acquisition
- 405 Thallium w/o Exercise
- 406 Thallium w/ Exercise
- 407 Thallium w/ Persantine
- 408 Myocardial Infarctscintigraphy w/ Pyrophosphate
- 409 Cardiac Phase Amplitude
- 410 1st Pass Study
- 411 Lung Perfusion
- 412 Lung Ventilation
- 413 Lung Perfusion & Ventilation
- 414 Liver & Spleen Scan
- 415 Biliary Tree Scan
- 416 Renogram & Renal Scan
- 417 Renogram, Renal Scan & G. F. R.
- 418 Glomerular Filtration Rate (G. F. R.)
- 419 Radionuclide Micrurating Uretrocystogram (For Ureleic Reflex)
- 420 Bone Scan
- 421 Whole Body Scan w/R. A. Iodine
- 422 Whole Body Scan w/67 Gallium
- 423 Lacrimal Duct Scintigraphy
- 424 Radionuclide Phlebography Bilateral w/Lung Scan
- 425 Preliminary Scan Any Areal/Organ
- 426 Scintigraphy Of Any Area/Organ Using Technitium
- 427 Dynamic Scan Any Areal/Organ
- 428 Isotope Scan Follow Up Study

III - ULTRASONOGR.

- 500 Thyroid
- 501 Upper Abdomen Or Pelvis
- 502 Abdomen & Pelvis Combined
- 503 Breast
- 504 Soft Tissue
- 505 Follow-up Ultrasonogram
- 506 Testes
- 507 I.V.F. 1 Visit
- 508 I.V.F. Complete Program 1 st Time
- 509 I.V.F. Follow-up
- 510 Ultrasound Guided Biopsy & ASP
- 511 Diagnostic US One Organ
- 513 Diagnostic US For Neonates
- 514 Transrectal / Transvaginal US

IV - OTHER SERVICE

- 600 M.R.I.
- 601 D.S.A.

MRI breast
Dynamic CE
Diffusion
MRS

[Signature]

Name & S

DATE	D	D	M	M	M	Y	Y	Y
NATURE:	<input type="checkbox"/> Routine <input type="checkbox"/> Urgent <input type="checkbox"/> EMERGENCY							
Appointment	<input type="checkbox"/> Routine <input type="checkbox"/> Urgent <input type="checkbox"/> EMERGENCY							
EMERGENCY ROOM	<input type="checkbox"/> X-RAY Required in : <input type="checkbox"/> OPERATING ROOM <input type="checkbox"/> PORTABLE IN							
INVESTIGATION REQUIRED	<input type="checkbox"/> I - COMPUTED TOMOGRAPHY <input type="checkbox"/> II - NUCLEAR MEDICINE <input type="checkbox"/> III - ULTRASONOGR. <input checked="" type="checkbox"/> IV - OTHER SERVICE							

Form No. M3019 / Feb, 2009

PS : No. Service will be done if Form is not completed

Please visit our website at : http

Appendix 1

Study group data

index	age	site	size	shape	signal	enhancement	type of tumour	ADC	coline + peak	histopathology	Breast masses
1	45	1	2.6	3	2	3	2	3	2	2	1
2	48	1	1.6	2	2	2	1	2	1	1	6
3	30	5	2.7	1	1	1	1	1	1	1	2
4	38	2	2.2	3	2	3	2	3	2	2	1
5	36	3	2	3	2	3	2	3	2	2	1
6	38	1	2	3	2	3	2	3	2	2	1
7	50	4	1.5	3	2	3	2	3	1	2	4
8	22	1	2.9	3	2	3	2	2	2	2	1
9	36	2	2.5	2	1	1	1	1	1	1	2
10	32	2	2	3	2	3	2	3	2	2	7
11	35	1	3	3	2	3	2	3	2	2	1
12	39	1	0.9	2	2	3	2	2	1	2	5
13	50	3	1.5	3	2	3	2	3	2	2	1
14	44	2	2.5	3	2	2	2	2	1	1	2
15	25	3	2.5	3	2	1	1	1	2	2	4
16	35	2	2.6	2	1	1	1	2	1	1	2
17	43	2	2.6	2	1	1	1	1	1	1	6
18	63	2	2.3	3	2	3	2	3	2	2	1
19	57	2	2.6	3	2	3	2	3	2	2	1
20	33	4	0.9	2	2	3	2	2	1	2	5
21	49	4	1.8	2	2	3	2	2	2	2	4
22	40	1	2.7	2	1	2	1	1	1	1	6
23	39	2	0.8	2	2	3	2	3	1	2	5
24	37	1	2.6	3	2	3	2	3	2	2	1
25	53	1	1.5	3	1	1	1	1	1	1	2
26	38	1	2.9	3	2	3	2	3	2	2	1
27	37	3	2.9	1	2	2	1	2	1	1	2
28	37	1	1.6	1	1	2	1	1	1	1	1
29	42	2	2.5	3	2	3	2	3	2	2	1
30	40	5	2.1	3	2	3	2	3	2	2	1
31	40	2	2.2	3	2	3	2	3	2	2	1
32	85	3	2.5	3	2	3	2	3	1	1	7
33	25	5	2.5	2	1	1	1	1	1	1	3
34	45	2	2.3	2	2	2	1	2	1	1	2
35	48	3	2.8	3	2	3	2	3	2	2	1
36	50	3	1.5	3	2	3	2	3	2	2	1

77	44	4	3	3	2	3	2	3	2	2	1
index	age	site	size	shape	signal	enhancement	type of tumor	ADC	choline + peak	histopathology	Breast masses
78	49	4	2.7	3	2	3	2	3	2	2	1
79	46	2	2.1	3	2	3	2	3	2	2	1
80	55	3	2.7	3	2	3	2	3	2	2	4
81	51	4	2.3	1	2	2	1	1	2	2	4
82	37	5	2.3	2	1	1	1	1		1	3
83	69	2	2.7	3	2	3	2	3	2	2	1
84	45	1	2.9	3	2	3	2	3	2	2	1
85	30	3	2	3	2	3	2	3	2	2	1
86	30	5	3	3	2	3	2	3	2	2	1
87	60	3	3	3	2	3	2	3	2	2	1
88	37	3	3.2	3	2	3	2	3	2	2	1
89	25	2	2.2	3	2	3	2	3	2	2	1
90	65	4	0.7	2	2	3	2	3	1	2	5
91	40	4	2	2	2	2	1	1	2	2	4
92	43	2	3.3	3	2	3	2	3	2	2	1
93	40	2	2.7	3	2	3	2	3	2	2	1
94	53	2	3	3	2	3	2	3	2	2	1
95	46	2	2.5	3	2	3	2	3	2	2	1
96	46	1	1.5	2	1	1	1	1	1	1	6
97	31	5	2.5	2	1	1	1	1		1	3
98	60	1	2.9	3	2	3	2	3	2	2	1
99	44	2	2.9	3	2	2	2	3	2	2	4
100	55	1	2.5	3	2	3	2	3	2	2	1

1. Invasive DC 2. Fibroadinoma. 3. Fibrocystic c 4. Papillary ca 5. Intraductal CIS 6. Lymphoid hyp. 7. Malignant phylloid

Site of lesion: 1 = outer upper — 2 = outer lower —3 = inner upper — 4 = inner lower — 5 = central

Shape of lesion: 1 = Oval—2 = Round— 3 = Irregular

Signal intensity: 1 = homogenously hyperintense — 2 = heterogeneously hyperintense

Pattern of enhancement: 1= Type1 (progressive -benign) —2= Type2 (plateau -intermediate) —3= Type3 (washout malignant)

Type of tumor: 1 = Benign — 2 = Malignant

ADC value: 1 = > 1.5 (definitely benign) — 2 = 1- < 1.5 (borderline) — 3 = < 1 (malignant)

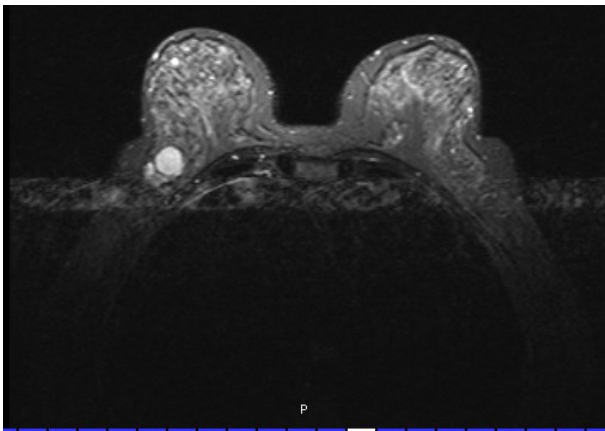
Choline peak: 1 = No peak— 2= With peak

Histopathology: 1 = Negative — 2 = Positive

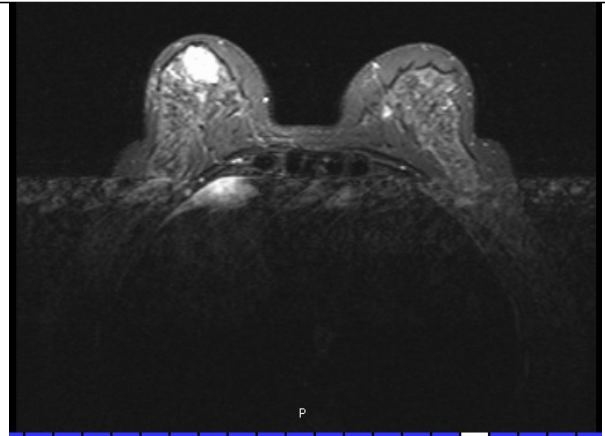
Appendix 2

Case 1

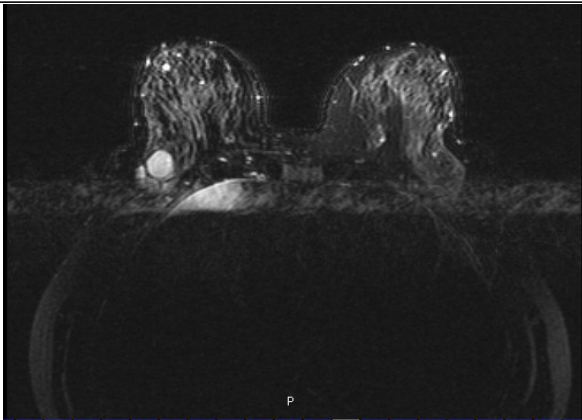
37-year-old woman with bilateral breast benign masses and two sizeable lesions in the Rt. Breast are highly suggestive of fibroadenomata. from a biopsy proven fibrocystic disease with proliferative changes.



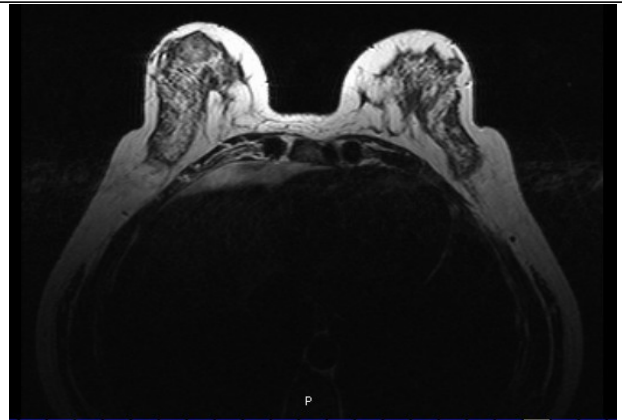
Axial pre contrast PD WI



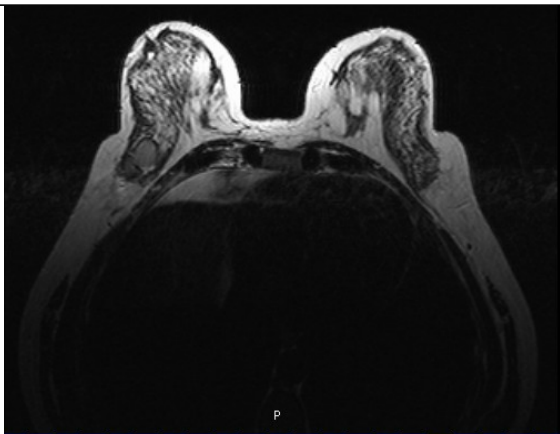
Axial pre contrast PD WI



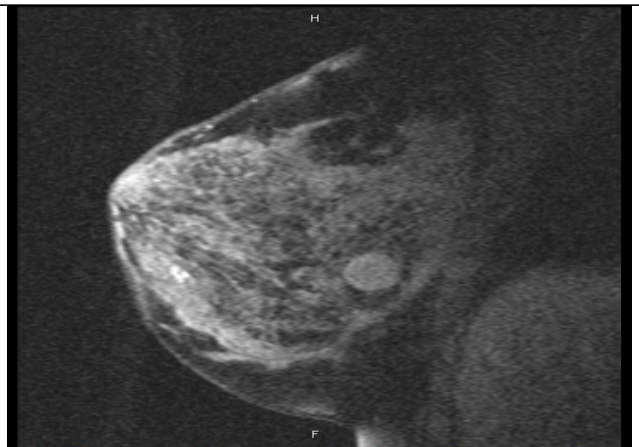
Axial fat suppressed SE T2 WI



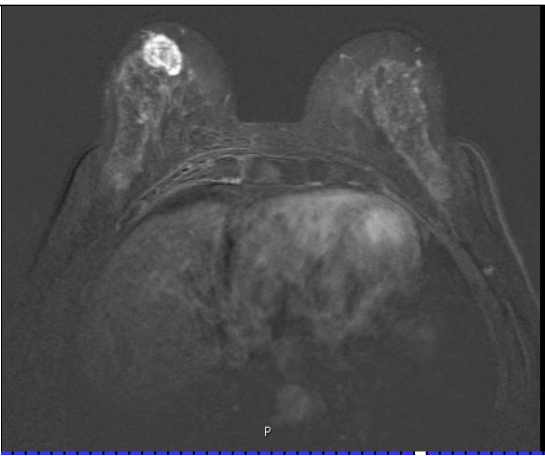
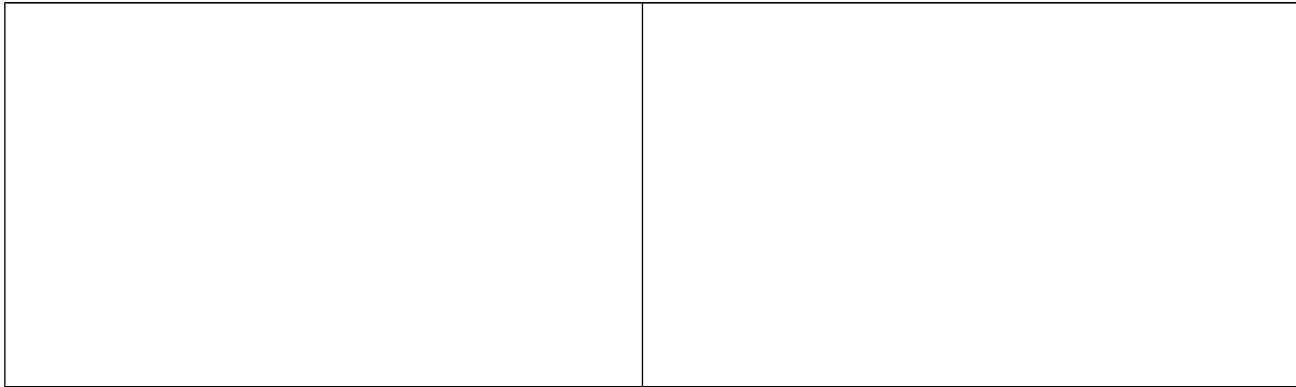
Pre contrast-SE T2 WI -without fat suppression



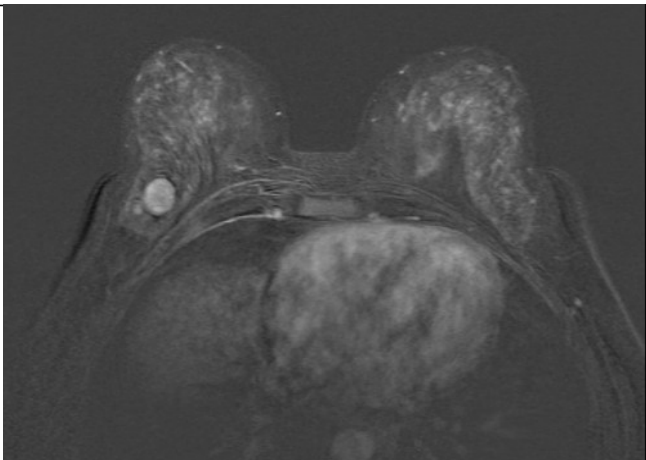
Pre contrast SE T2 WI -without fat suppression



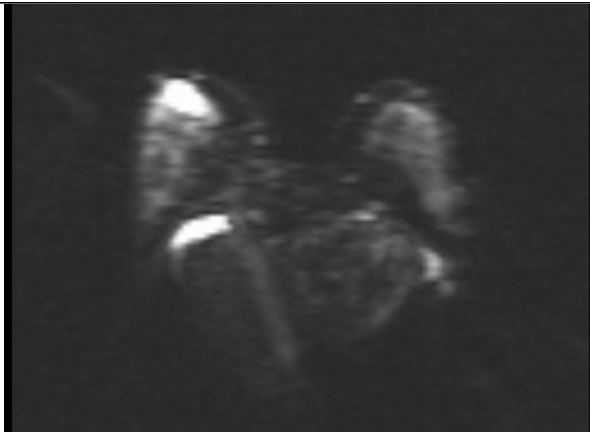
Sagittal 3 dimensional SE T1 WI -without fat suppression



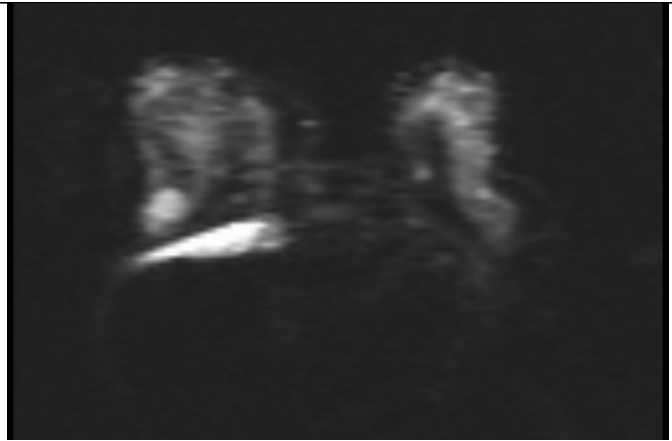
Axial GRE T1 WI- post contrast



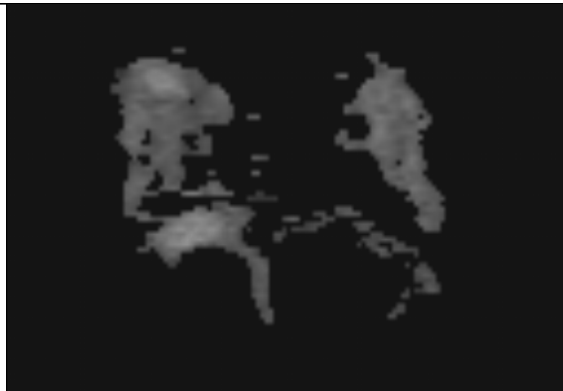
Axial GRE T1 WI -post contrast



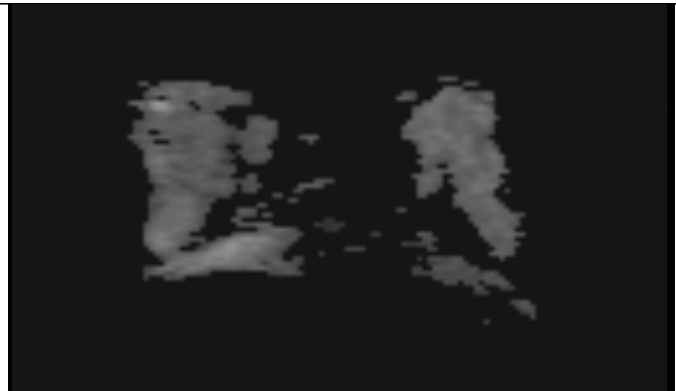
SE T2 DWI fat suppressed- post contrast



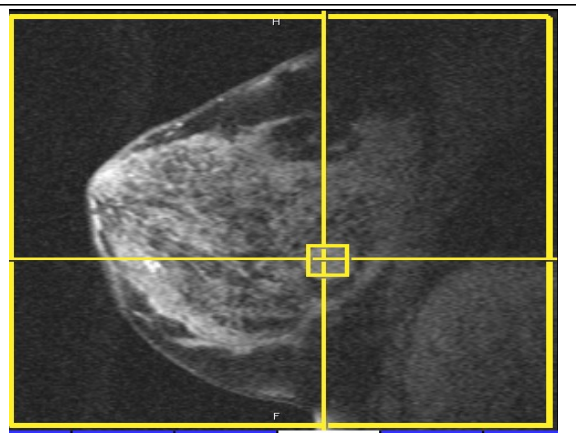
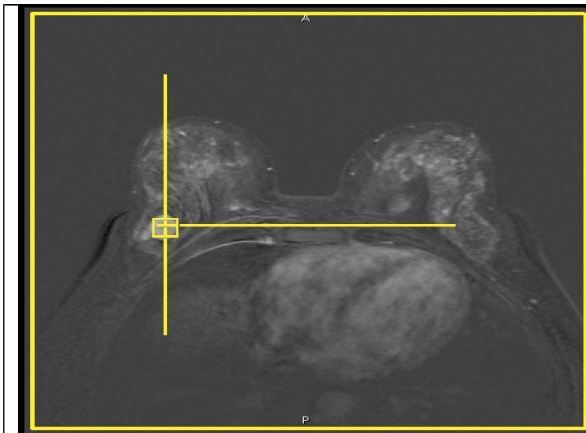
SE T2 DWI fat suppressed- post contrast

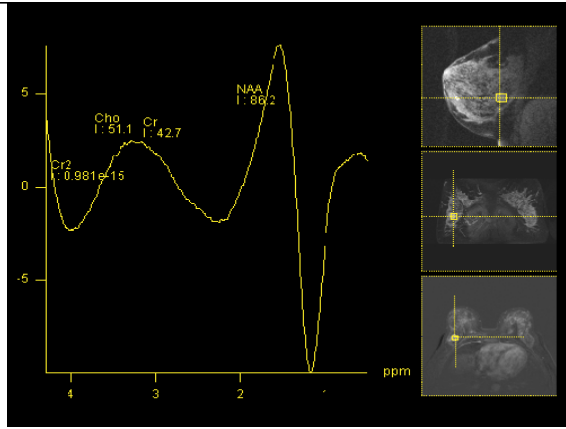


SE T2 DWI (ADC)

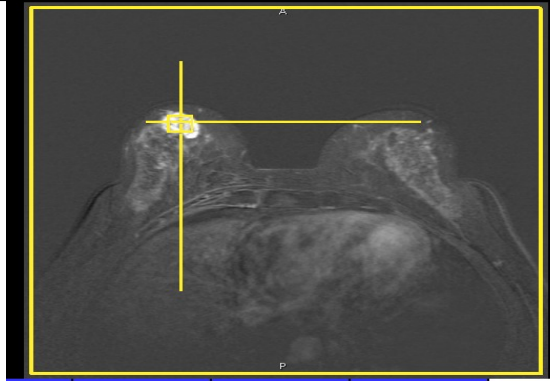
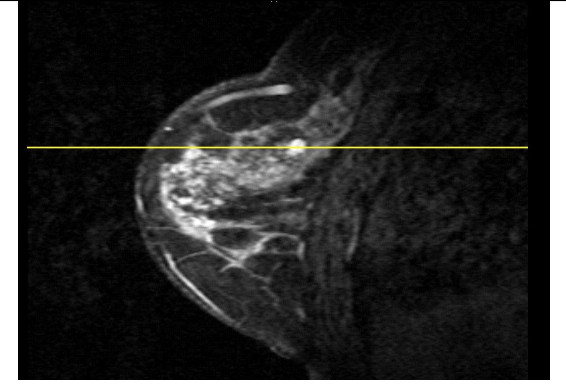
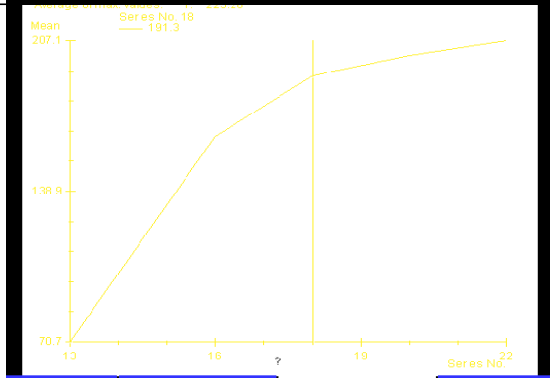
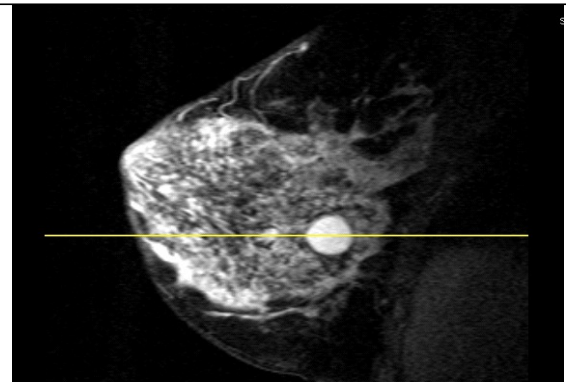


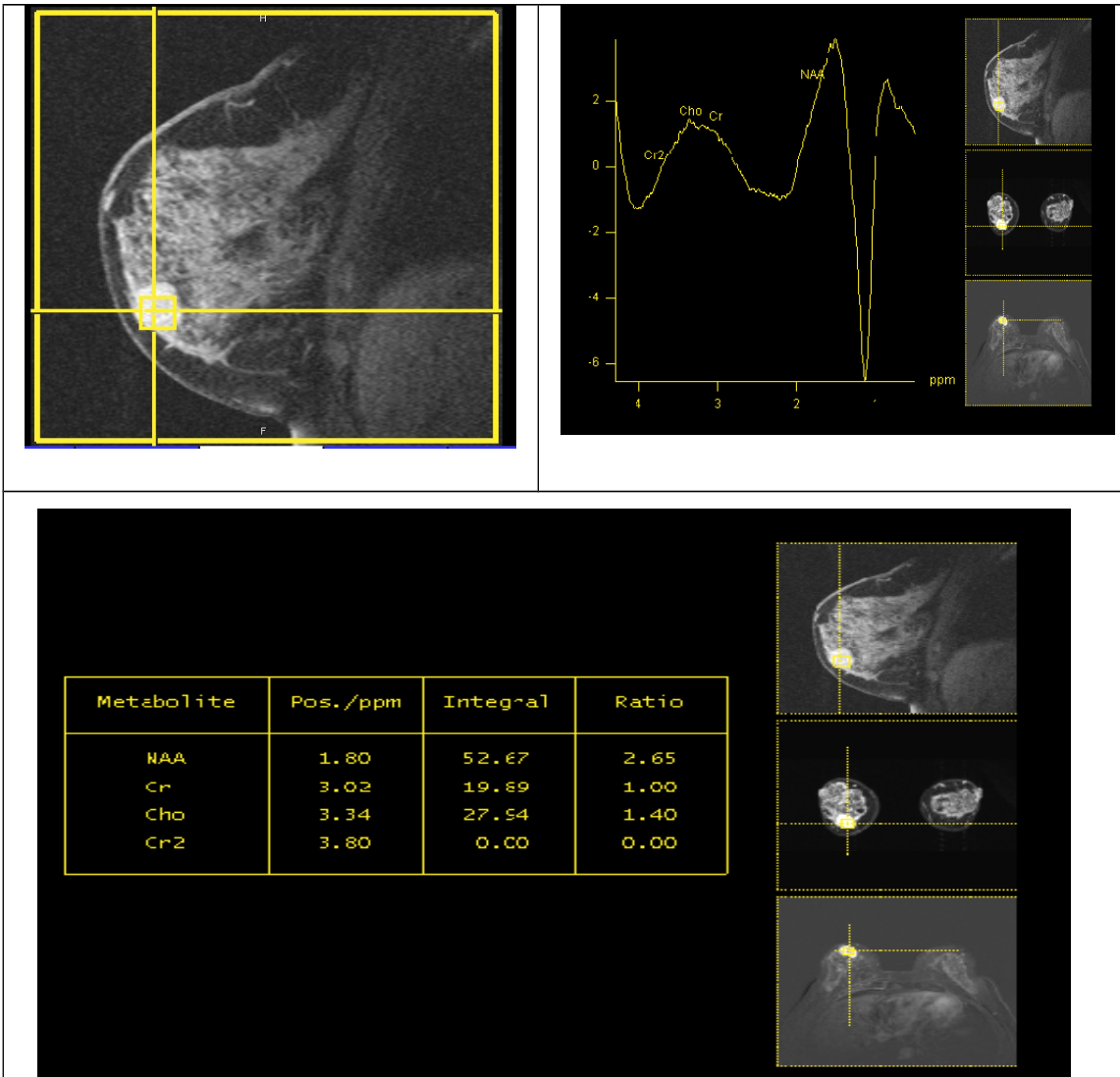
SE T2 DWI (ADC)





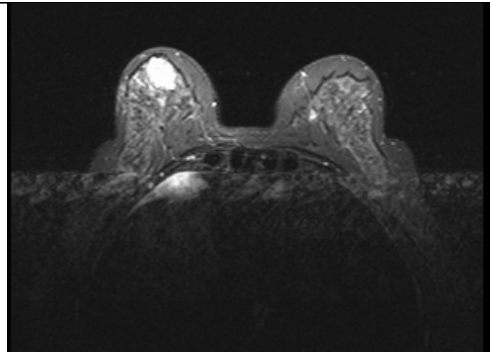
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Cr	3.05	42.67	1.00
Cho	3.34	51.09	1.20
Cr ₂	3.80	0.00	0.00



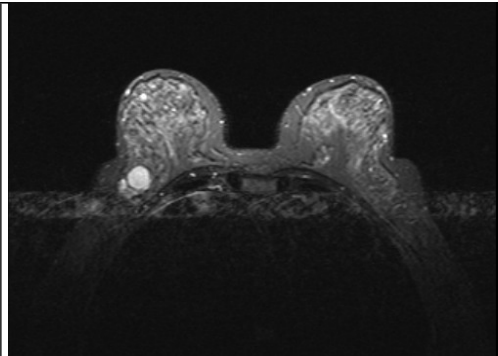


Case 2

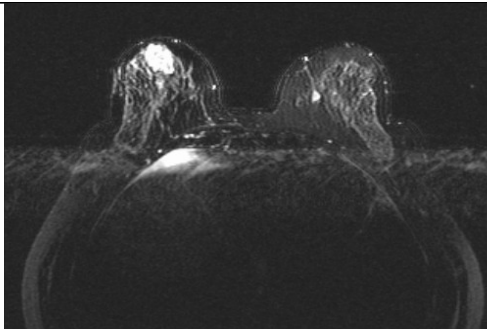
45-year(s)-old woman with retroareolar small Lt. breast mass following enhancing curve, suspicious of malignancy. from a biopsy proven grade II invasive ductal carcinoma.



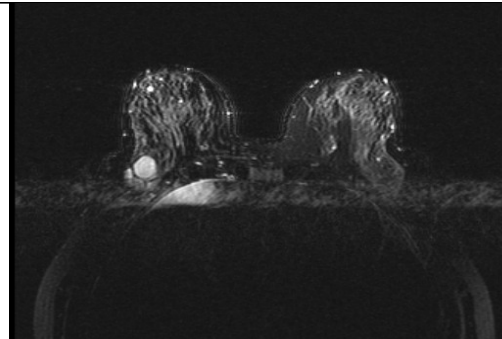
Proton density WI-without fat suppression



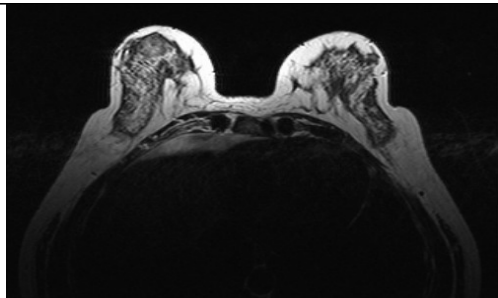
Proton density WI-without fat suppression



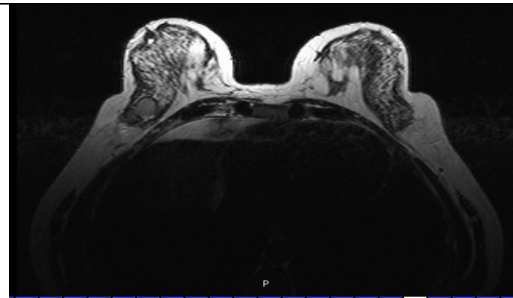
SE T2 WI with fat suppression



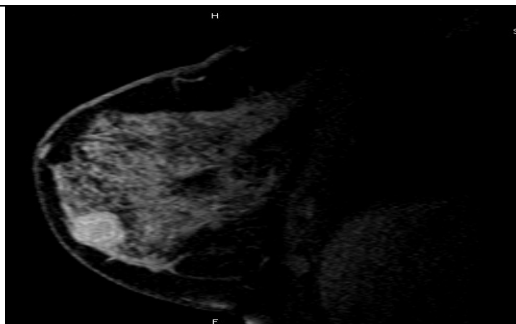
SE T2 WI with fat suppression



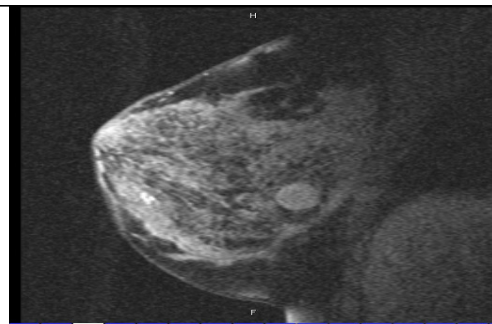
Pre contrast SE T2WI without fat suppression



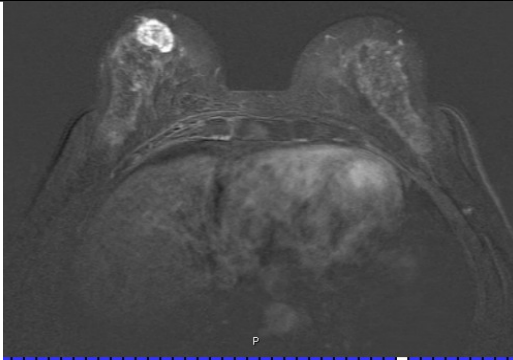
Pre contrast SE T2WI without fat suppression



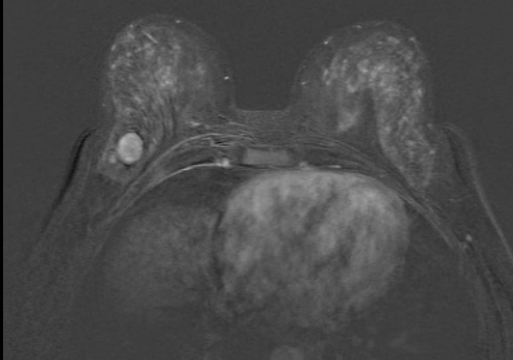
Sagittal 3 dimensional SE T1 WI-with FS



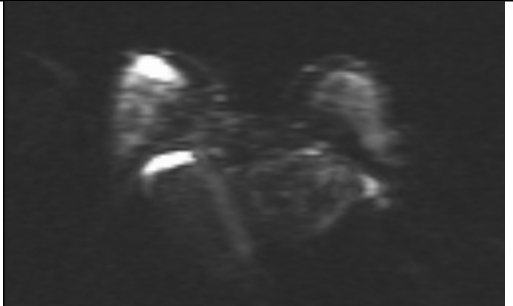
Sagittal 3 dimensional SE T1 WI-without FS



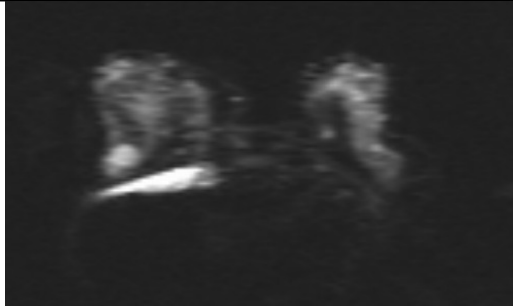
Axial fat suppressed GRE T1 WI- post contrast



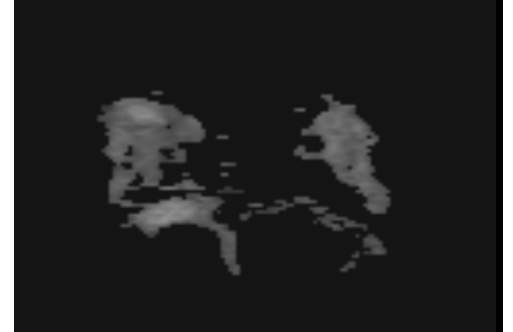
Axial fat suppressed GRE T1 WI- post contrast



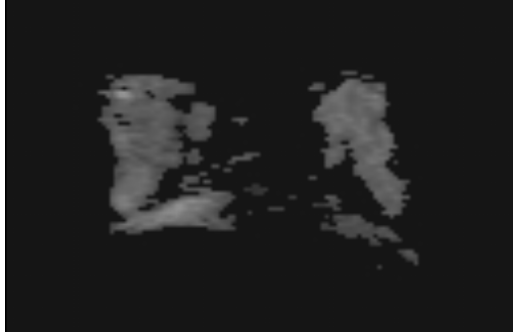
SE T2 DWI fat suppressed- post contrast



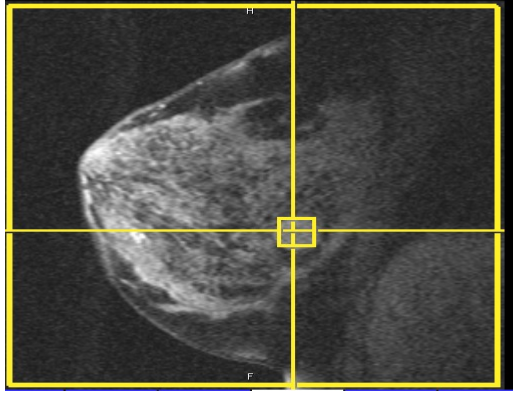
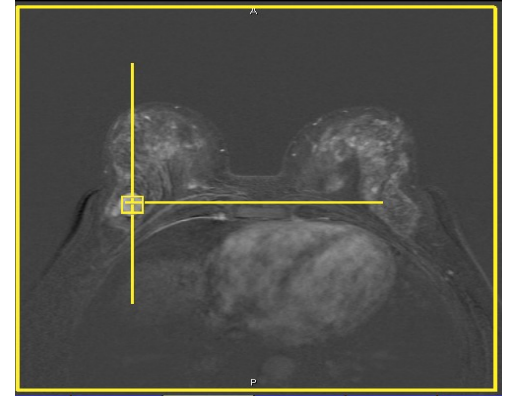
SE T2 DWI fat suppressed- post contrast

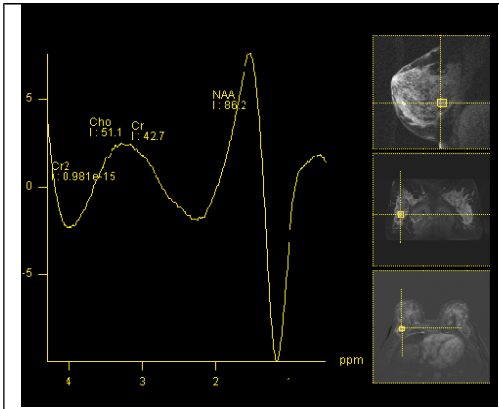


SE T2 DWI (ADC)

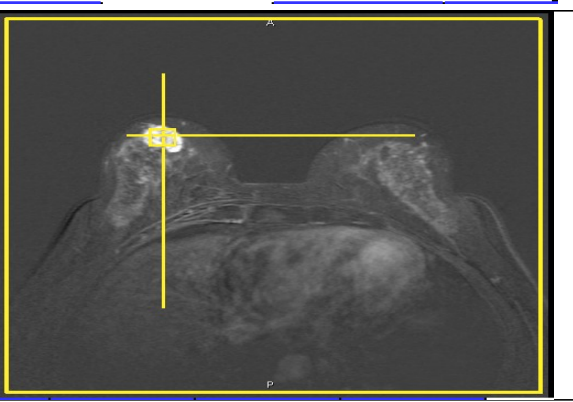
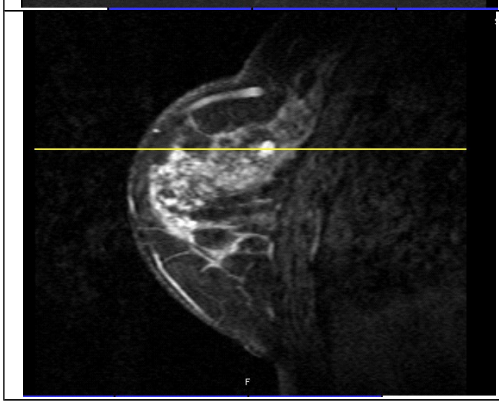
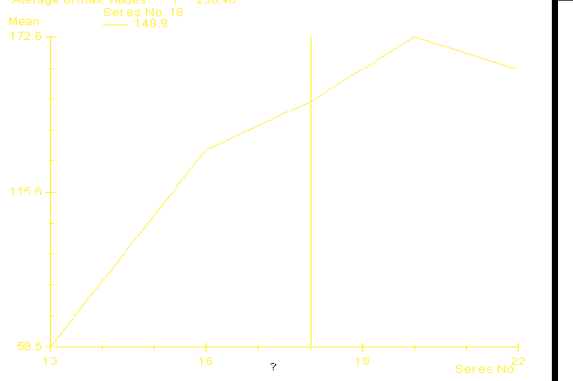
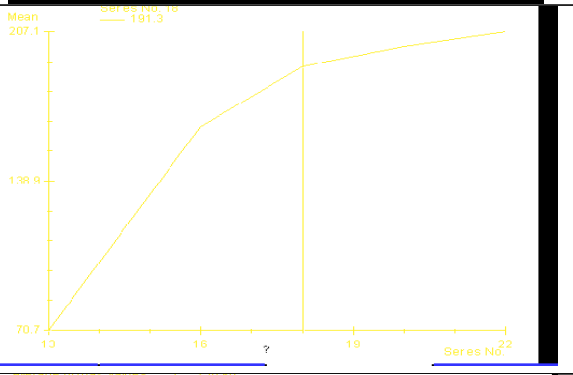
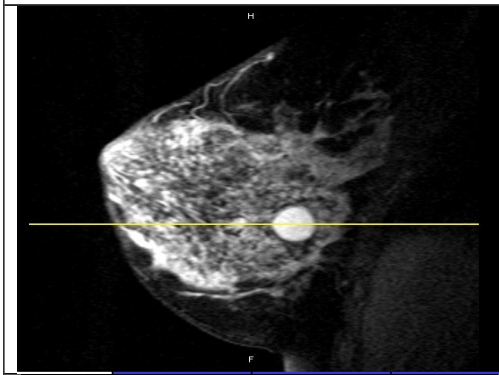


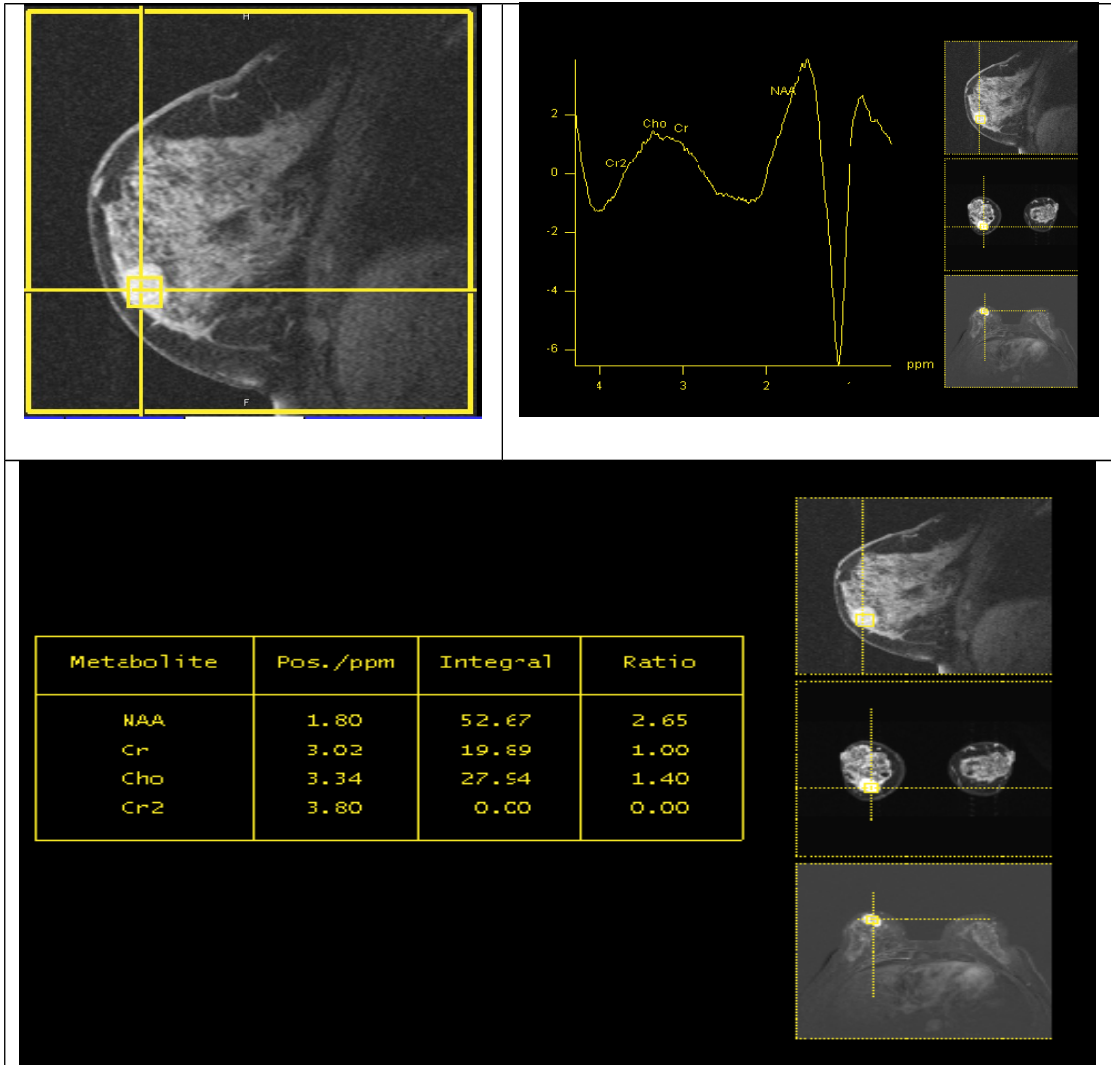
SE T2 DWI (ADC)





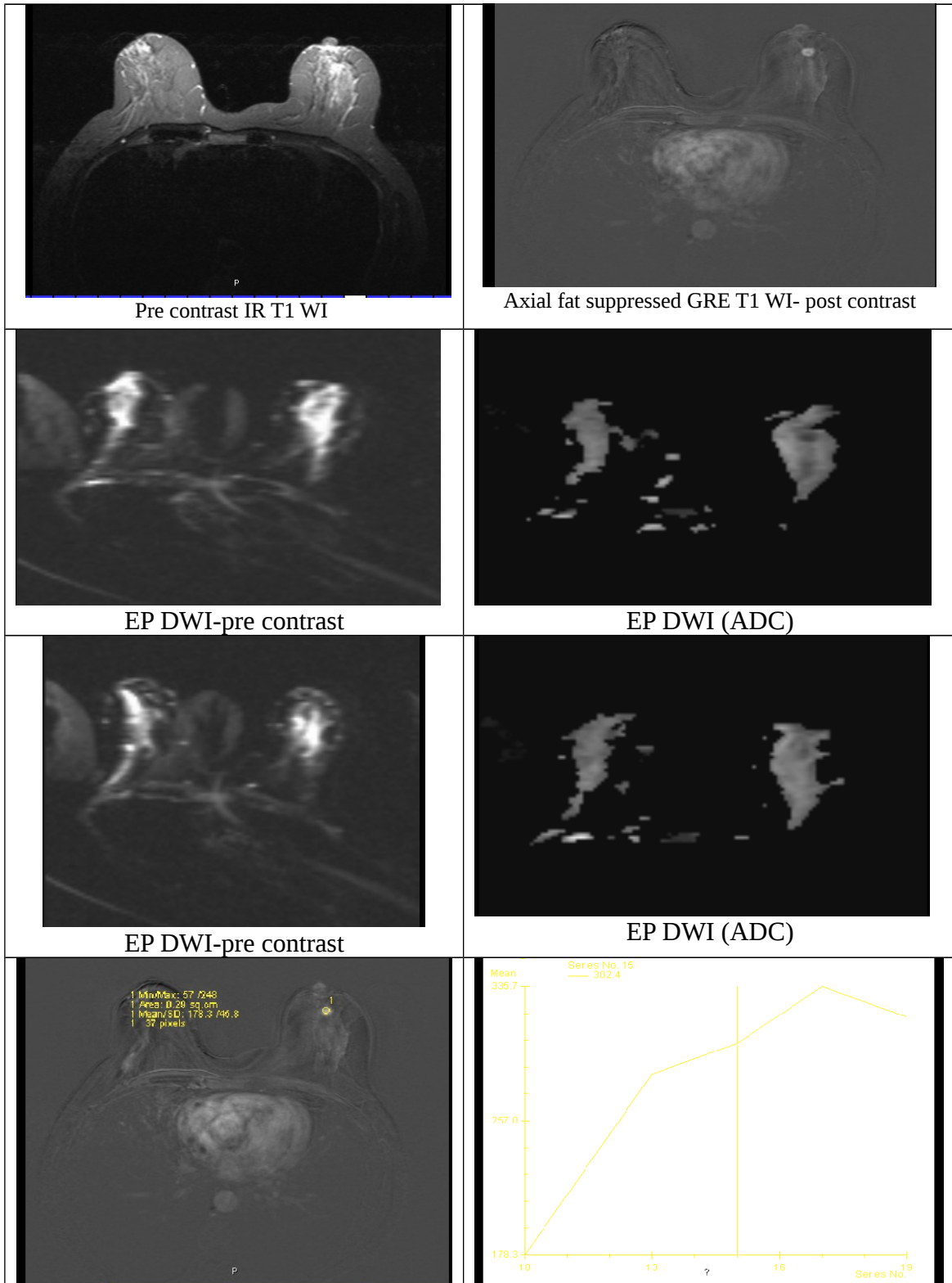
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Cr	3.05	42.67	1.00
Cho	3.34	51.09	1.20
Cr2	3.80	0.00	0.00

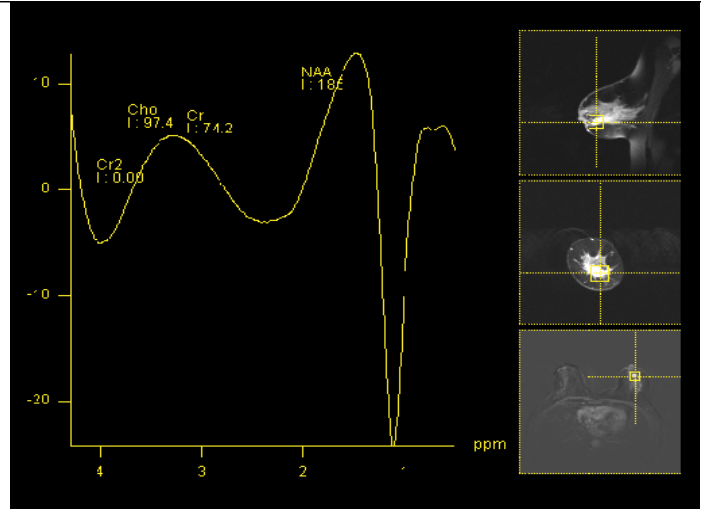
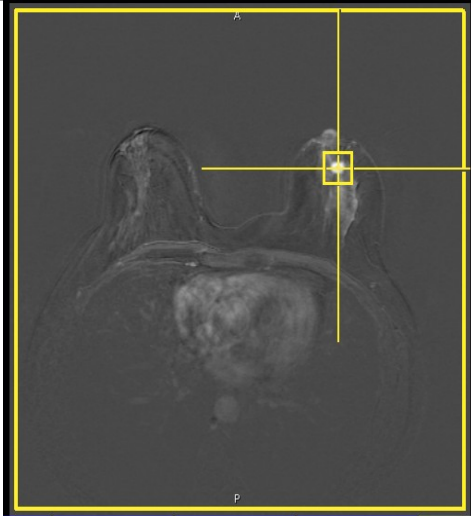




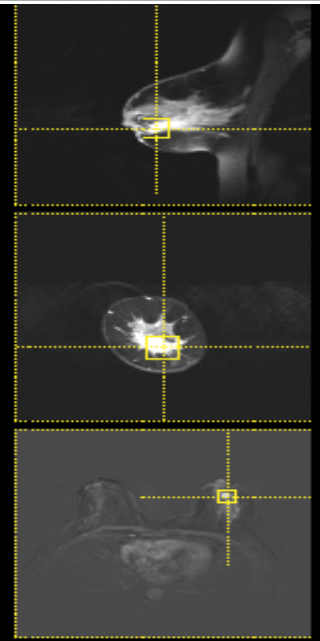
Case 3

45-year(s)-old woman with retroareolar small Lt. breast mass following enhancing curve, suspicious of malignancy. from a biopsy proven grade II invasive ductal carcinoma.



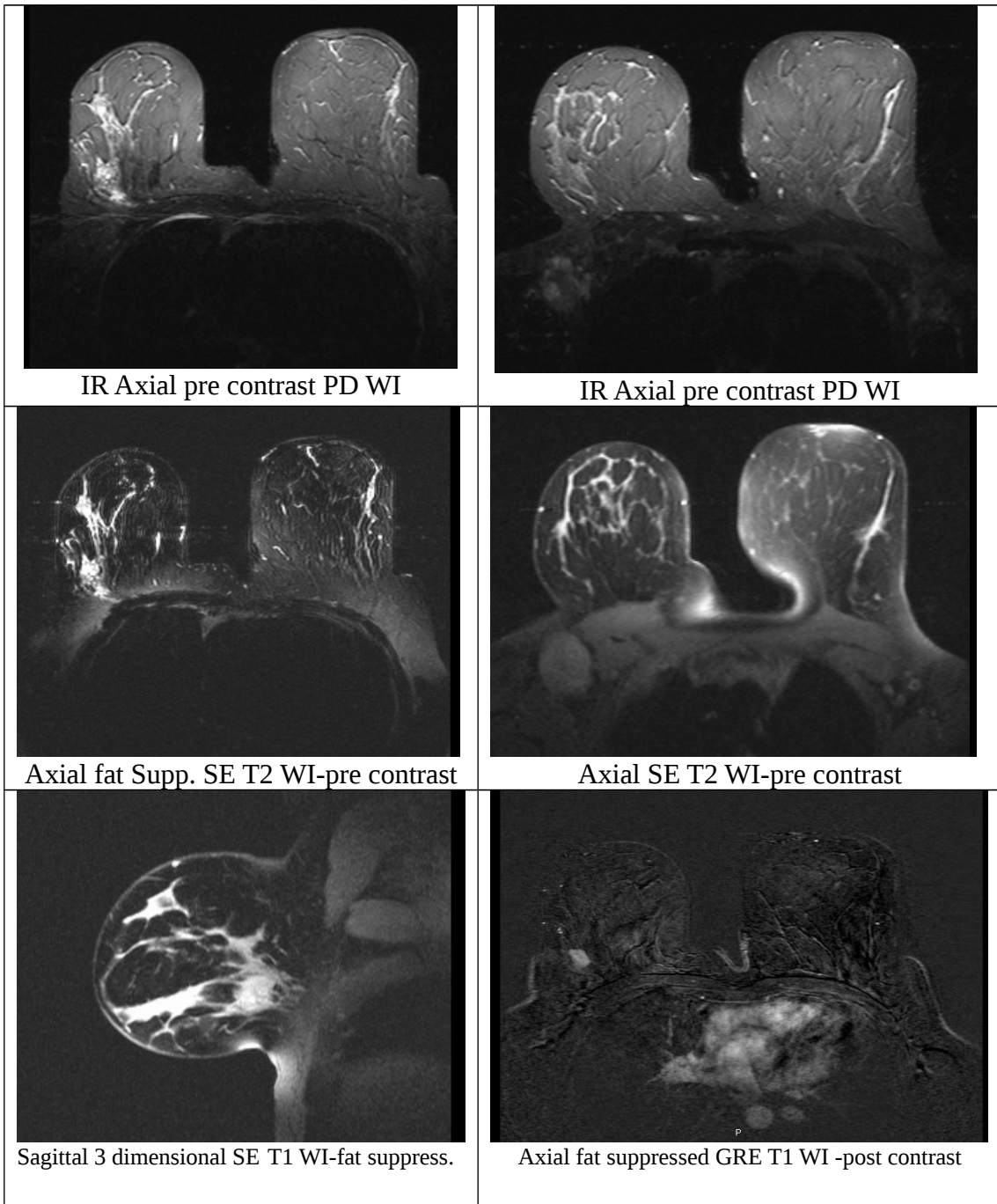


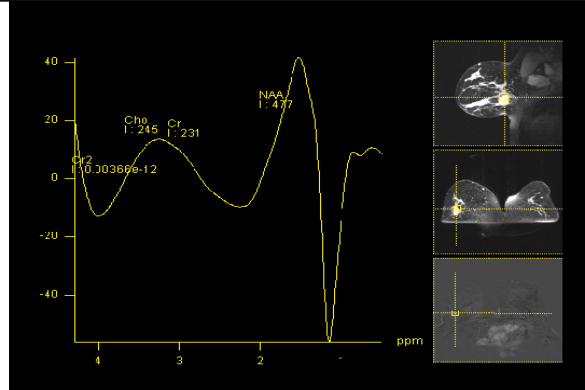
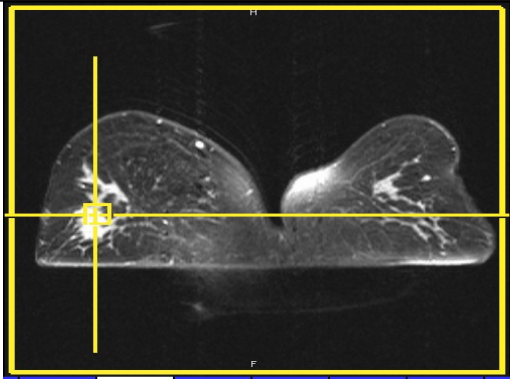
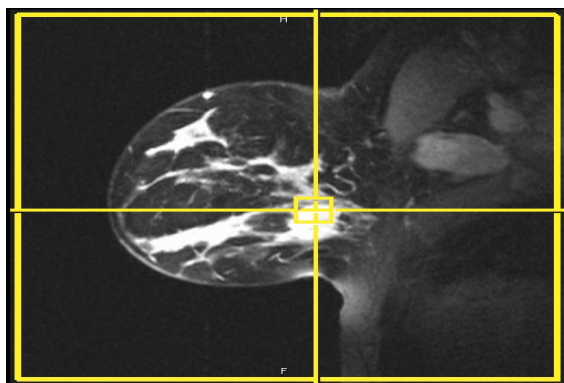
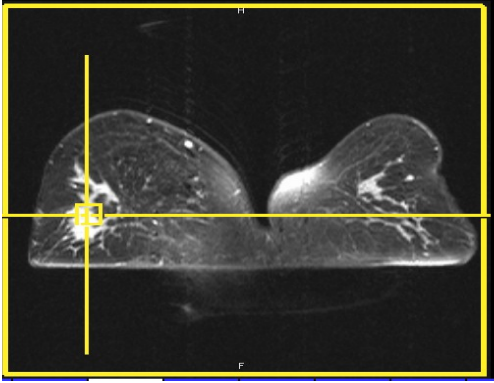
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Cr	3.06	74.23	1.00
Cho	3.34	97.39	1.31
Cr2	3.80	0.00	0.00



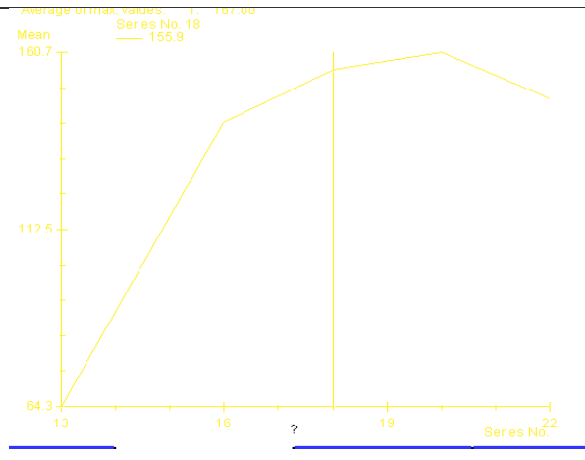
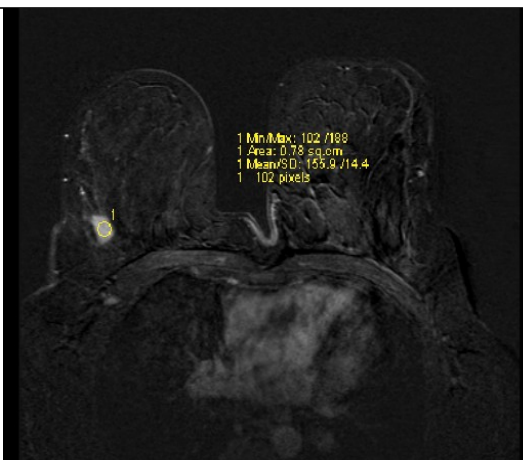
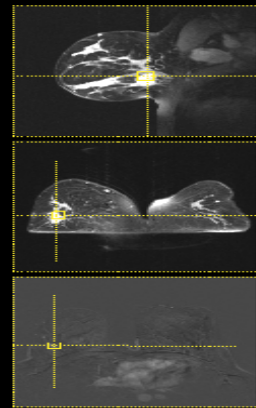
Case 4

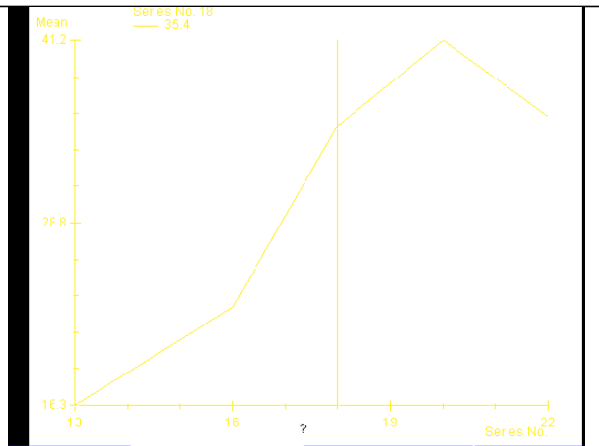
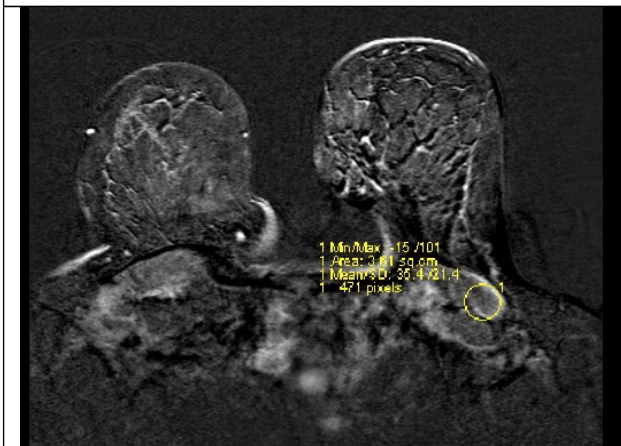
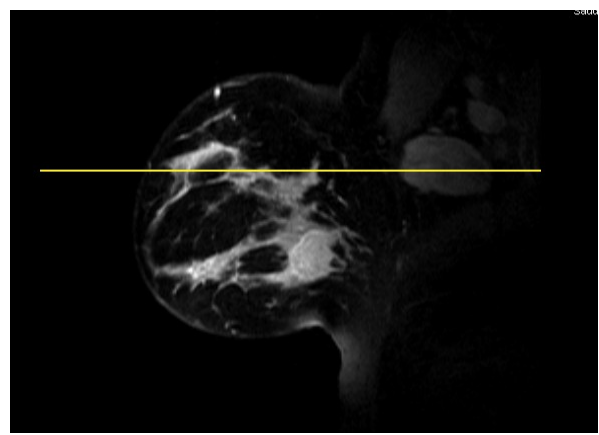
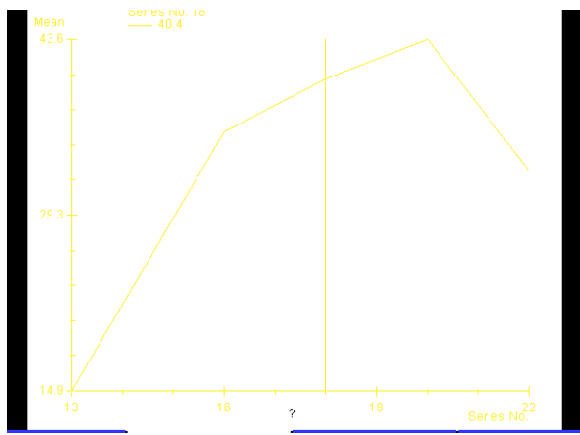
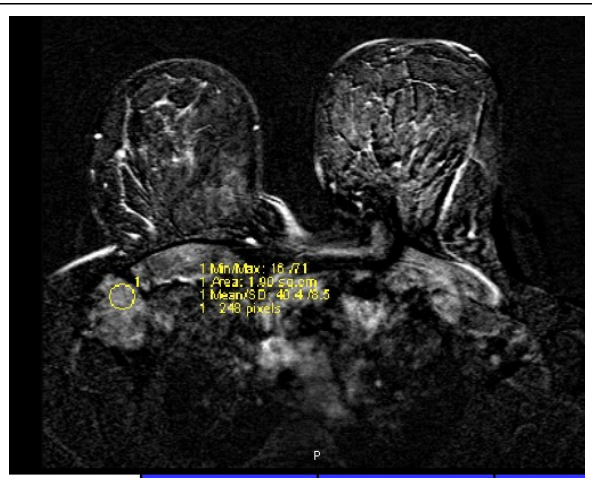
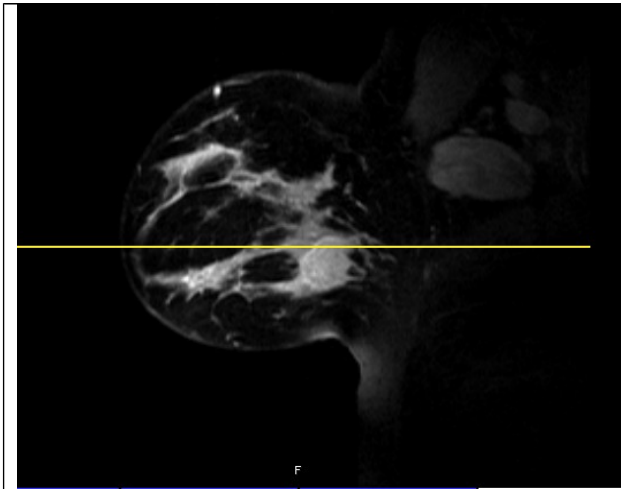
38-year-old woman with Rt. Breast lower lateral quadrant posterior aspect mass with fairly sizeable Rt. Axillary mass, possibly representing matted metastatic lymph nodes. Lt. breast retromammary enhancing area showing malignant dynamic enhancing curve with Lt. axillary few small lymph nodes. from a biopsy proven high grade invasive ductal inflammatory carcinoma.





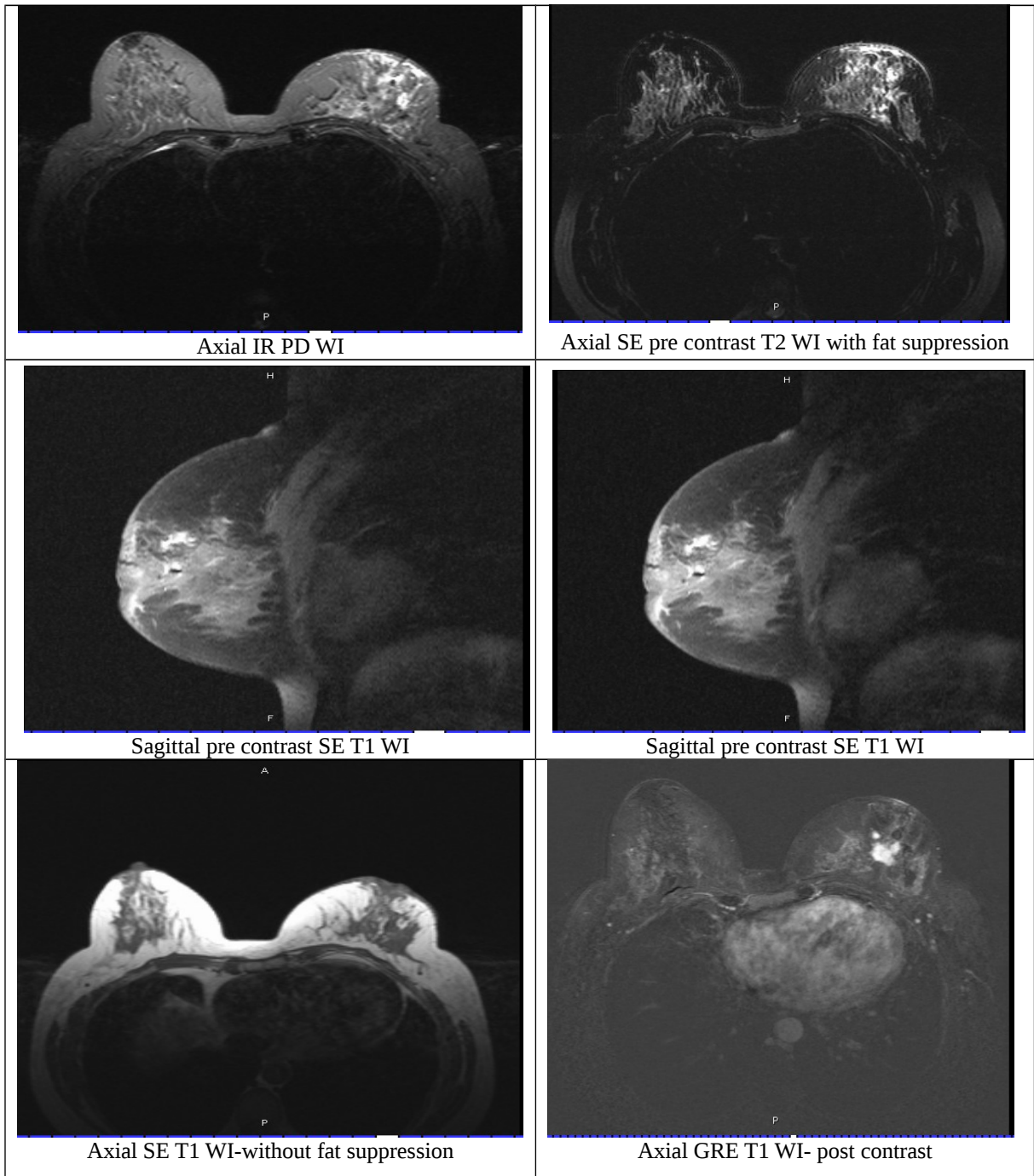
Metabolite	Pos./ppm	Integral	Ratio
NAA	1.80	477.40	2.07
Cr	3.06	230.62	1.00
Cho	3.34	244.76	1.06
Cr2	3.80	0.00	0.00

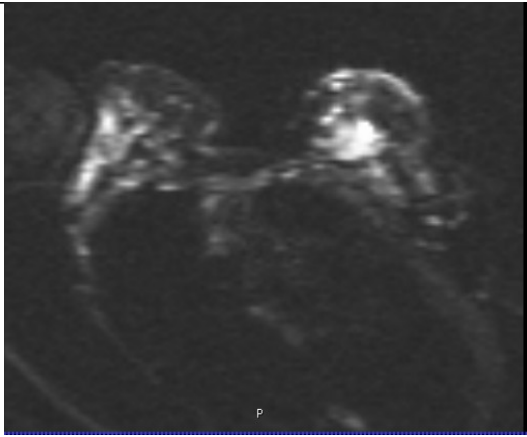




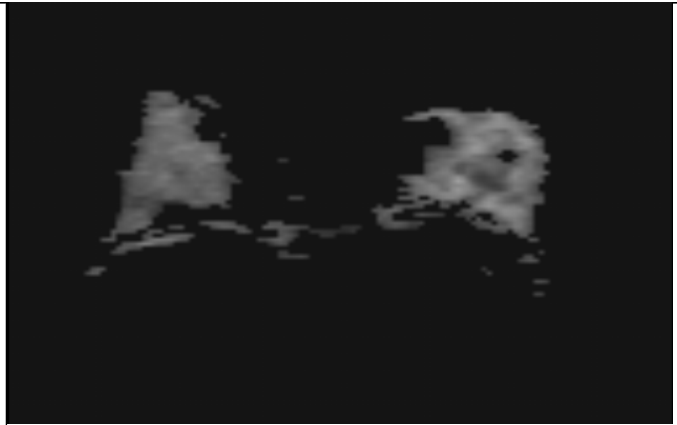
Case 5

38-year-old woman with localized irregular outline nodular lesion involving the upper lateral quadrant showing enhancing curve (with Lt. breast edema) suspicious of malignancy, however not matching the spectroscopic result (false negative case occure) . from a biopsy proven grade II invasive ductal carcinoma.

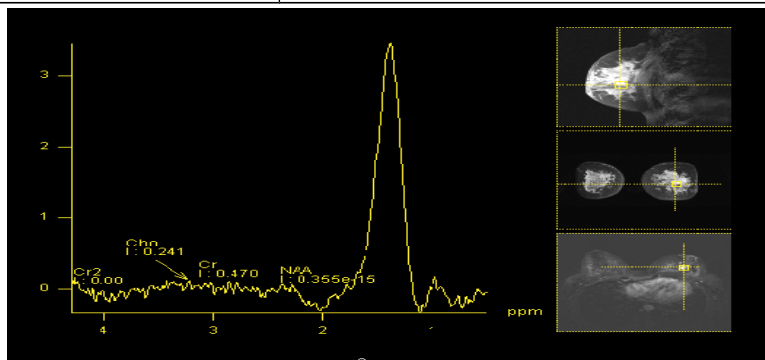
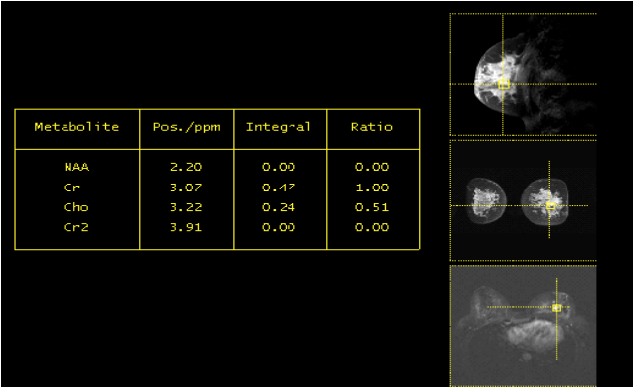
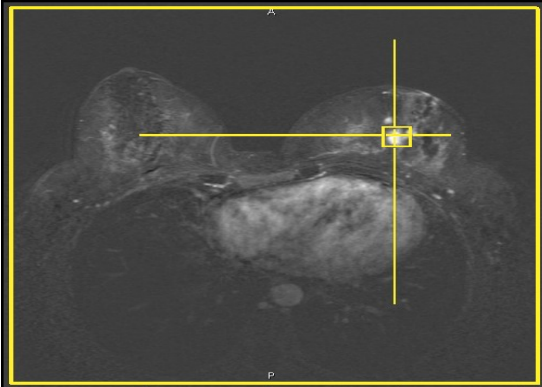
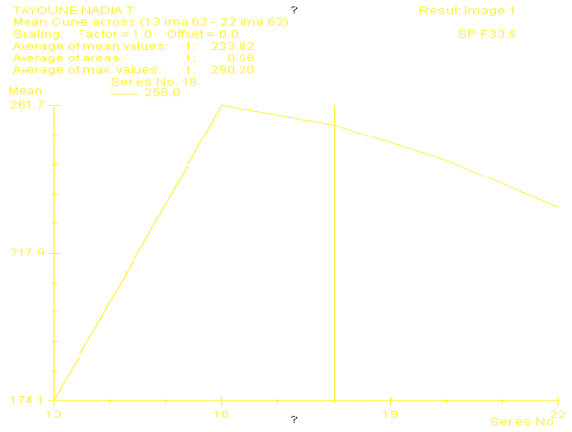
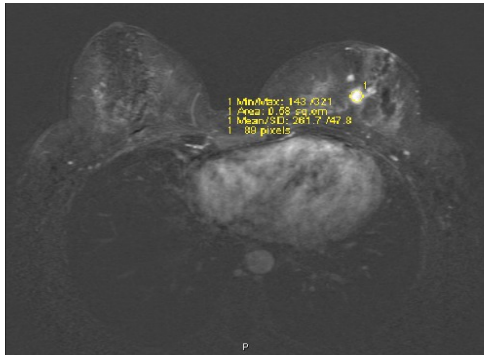




Axial EP DWI- pre contrast

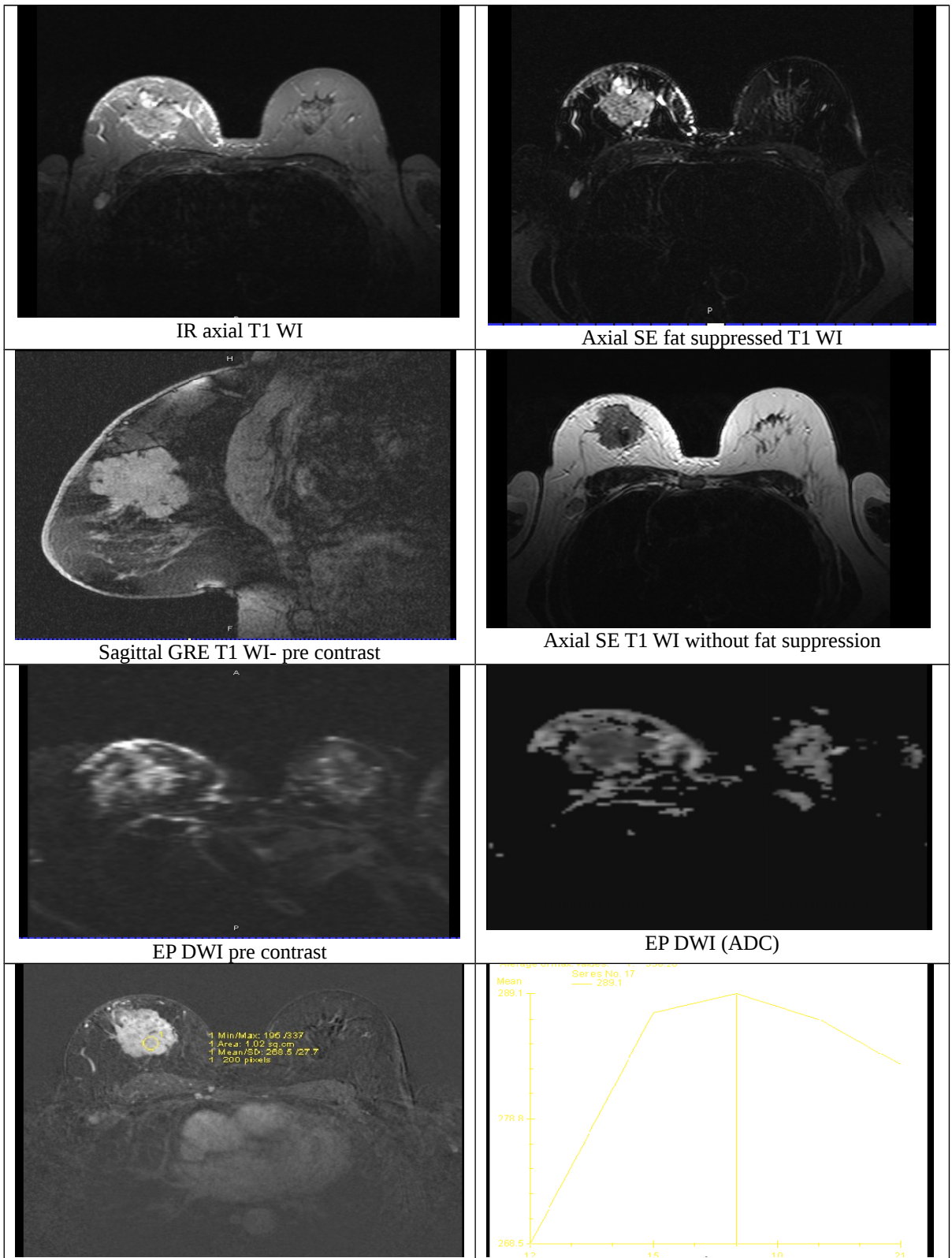


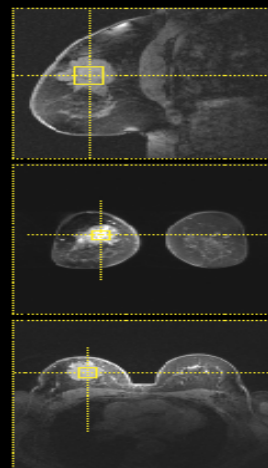
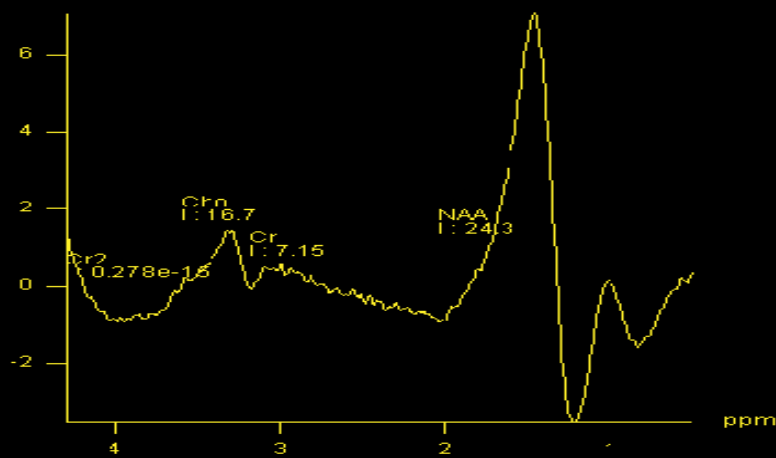
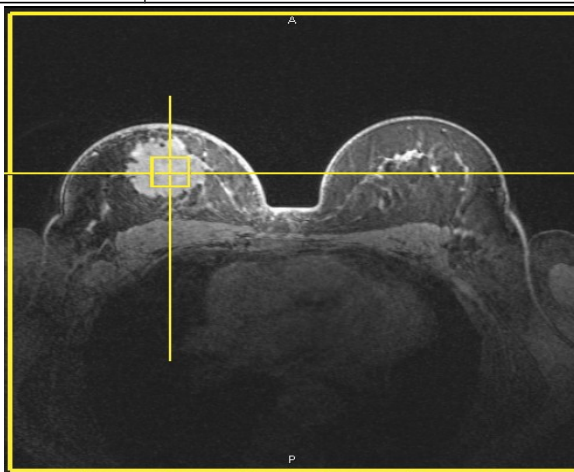
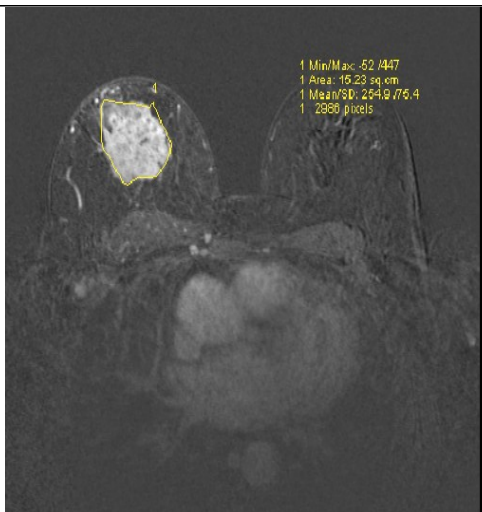
Axial EP DWI (ADC)



Case 6

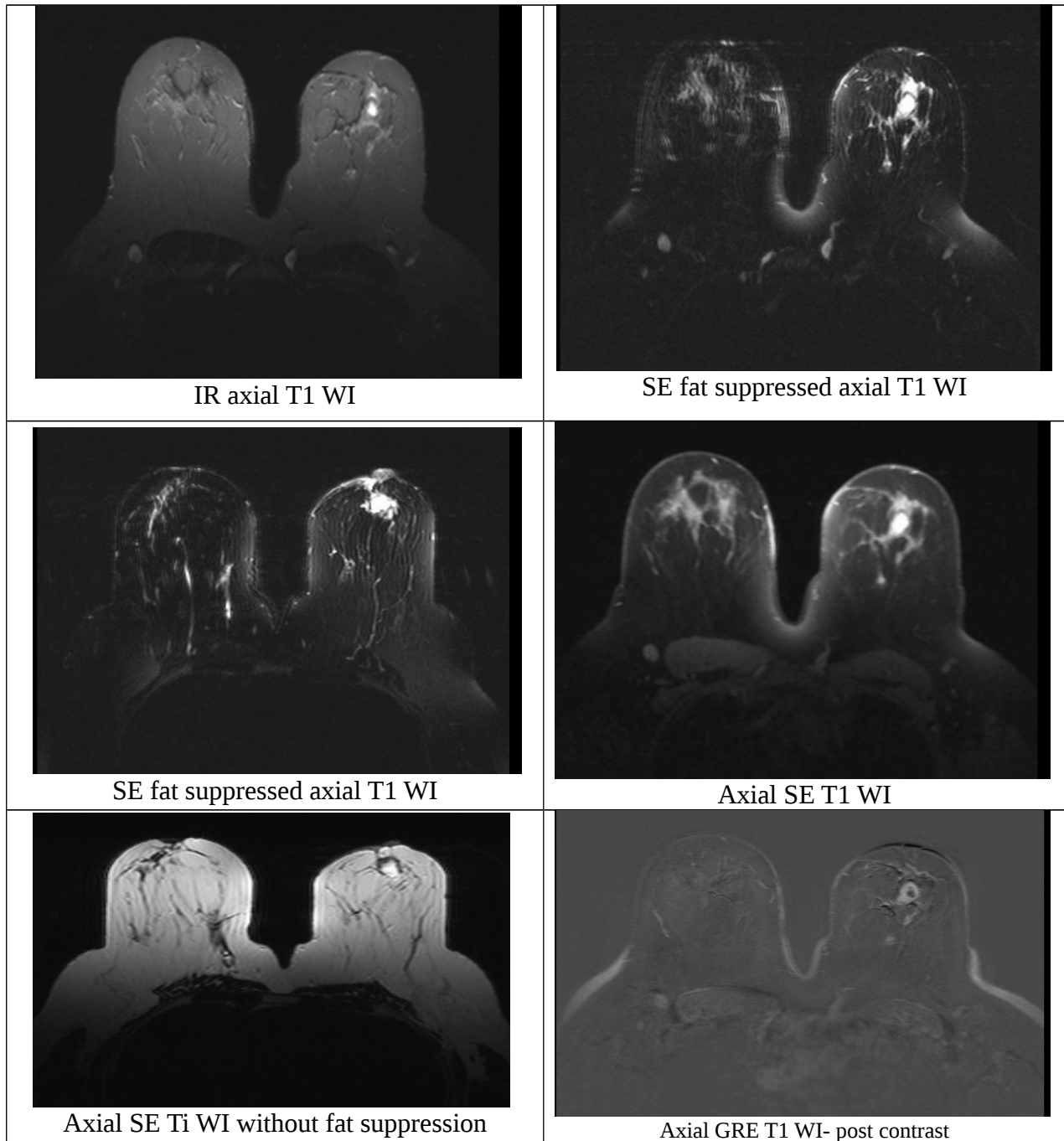
50-year-old woman with left retroareolar irregular outline lesions showing enhancing curve, suspicious of malignancy, from a biopsy proven grade II invasive ductal carcinoma

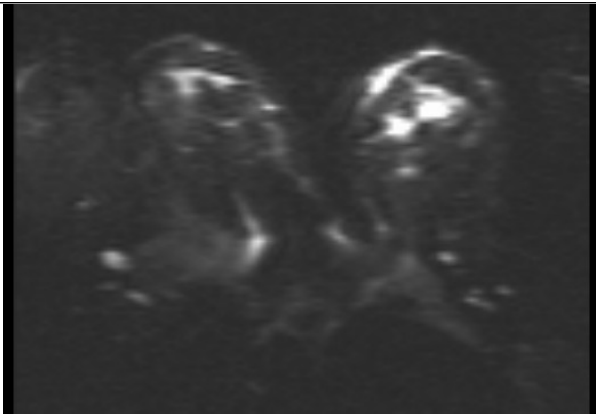




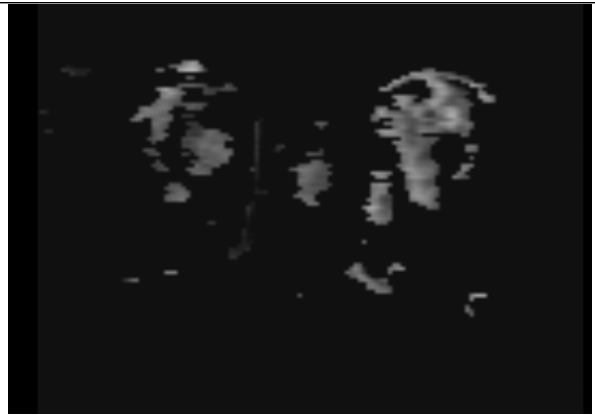
Case 7

30-year-old woman with retroareolar Lt. breast cystic lesion with multiple Lt. breast central lesions with adjacent streaky structures and oblong lesion involving upper medial quadrant of the Lt. breast and evidence of mild Lt. breast skin oedema, all lesions shows gradual pattern of enhancement, pictures likely to represent inflammatory lesions. from a biopsy proven fibroadenoma with extensive stromal mixoid changes.

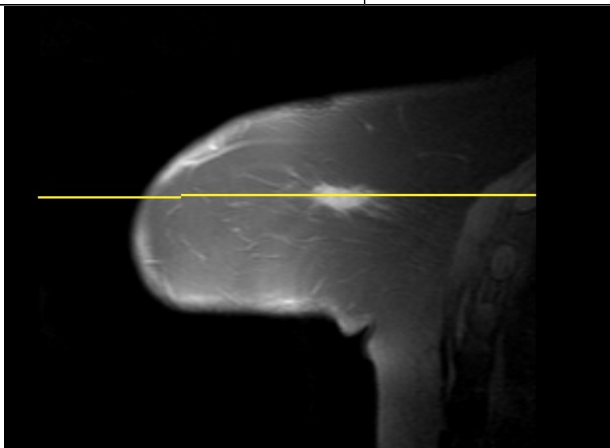
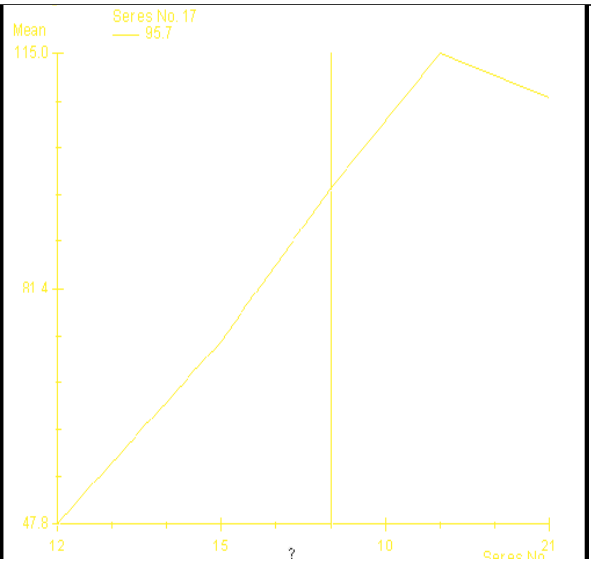
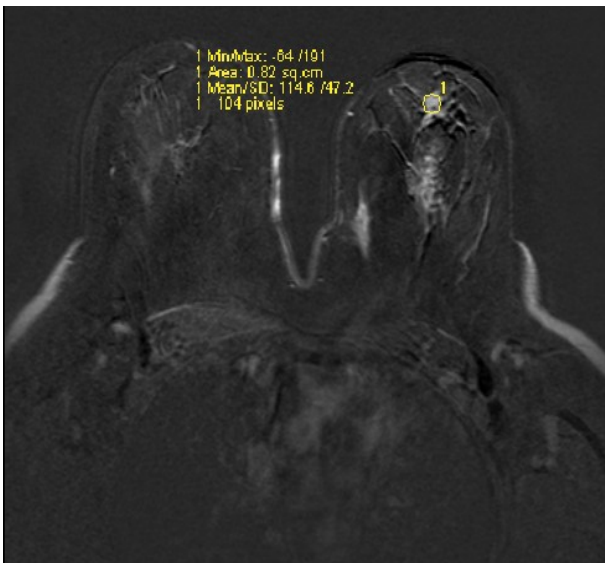




EP axial DWI post contrast

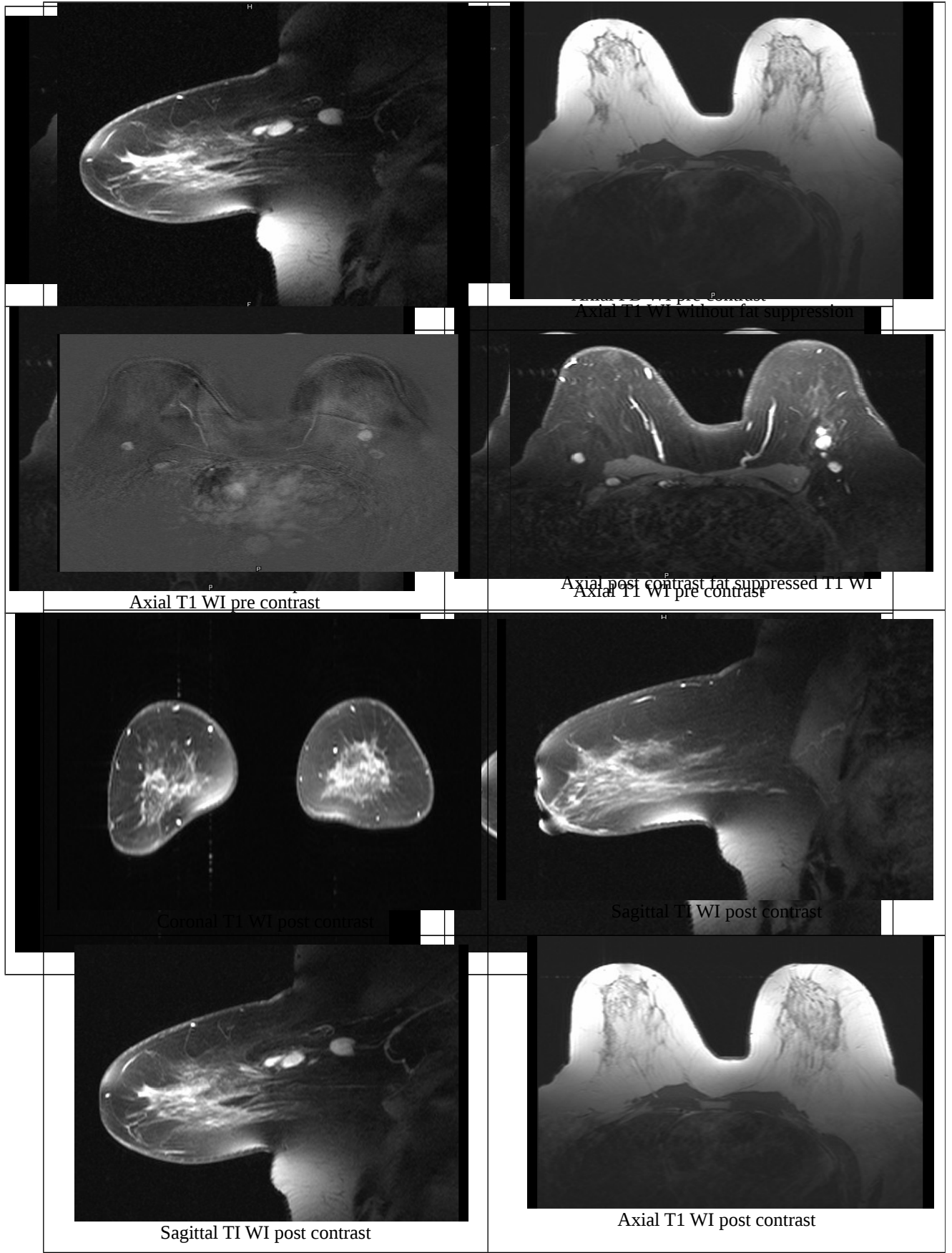


EP DWI (ADC)



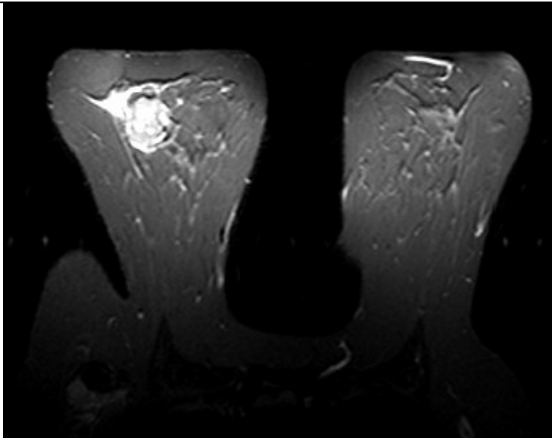
Case 8

48-year-old woman left breast upper lateral quadrant few small masses with bilateral retropectoral and left axillary lymph nodes, with enhancing curve of the sizeable, suggestive of malignancy, from a biopsy proven reactive lymphoid hyperplasia.

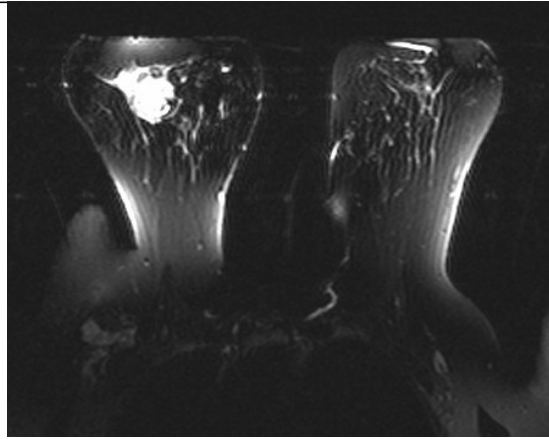


Case 9

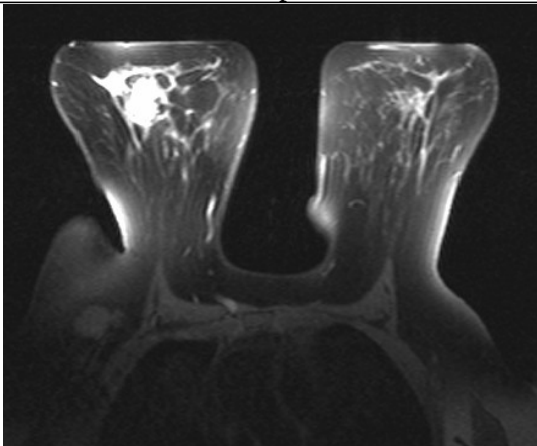
40-year(s)-old woman with upper lateral quadrant Rt. Breast mass with enhancing curve, suspicious of malignancy in a patient with enlarged Rt. Axillary lymph nodes. from a biopsy proven high grade invasive ductal carcinoma with metastatic axillary lymph nodes.



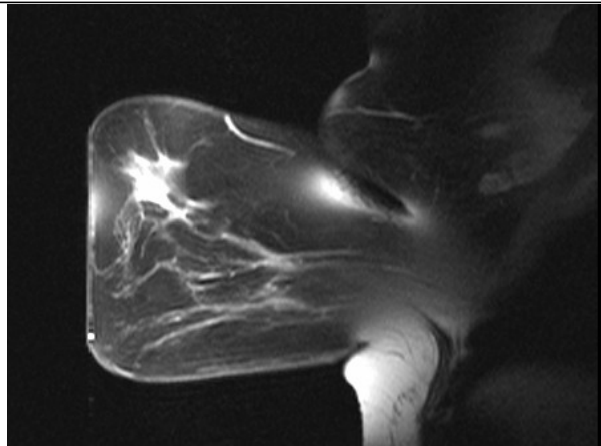
Axial T1 WI pre contrast



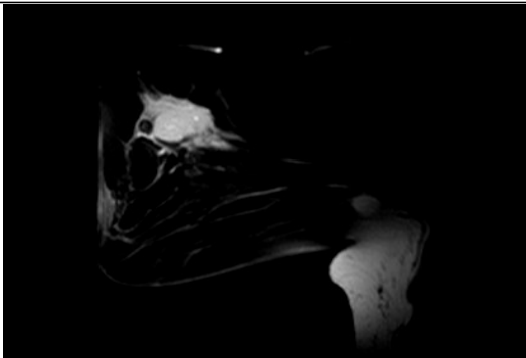
Axial T2 WI pre contrast



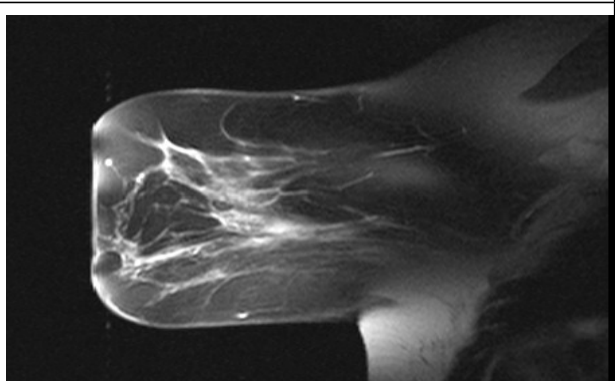
Axial T2 WI pre contrast



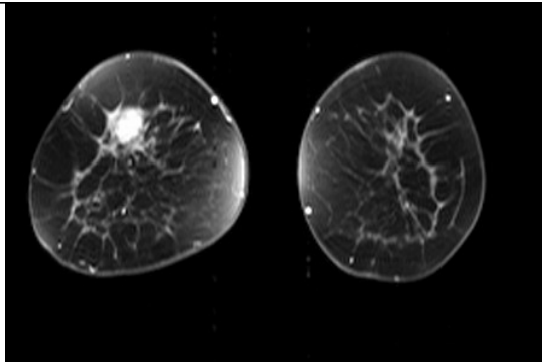
Axial T2 WI pre contrast



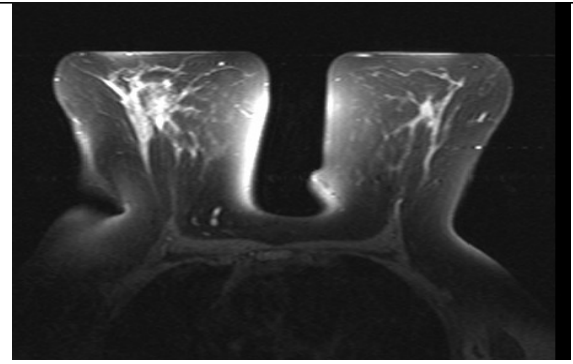
Axial fat suppressed T2 WI pre contrast



Axial T2 WI pre contrast



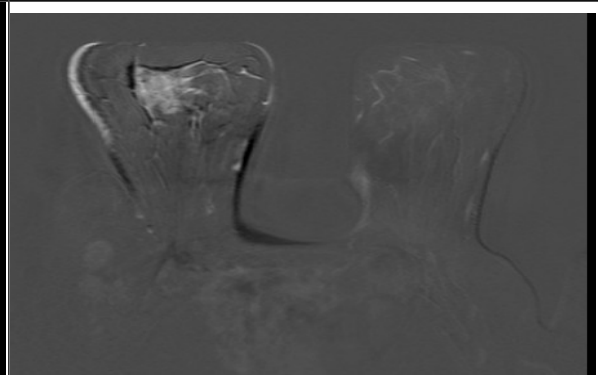
Coronal T1 WI



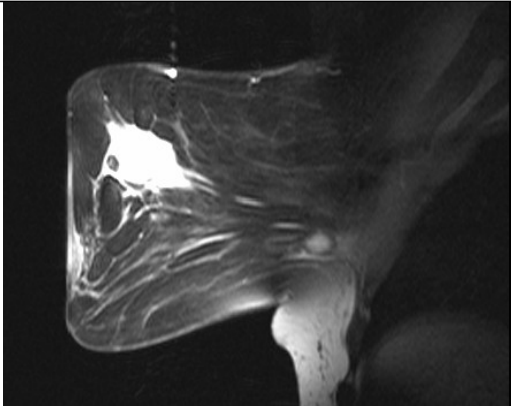
Axial T1 WI pre contrast



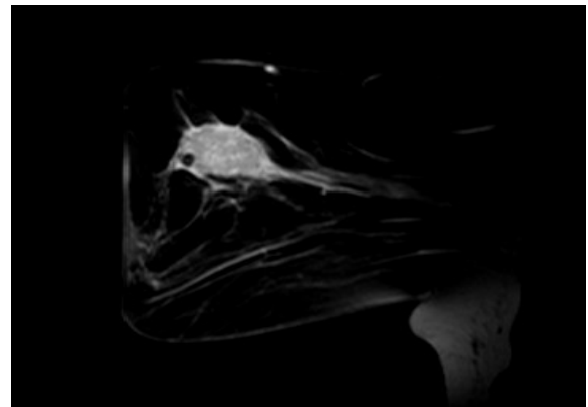
Axial T1 WI pre contrast



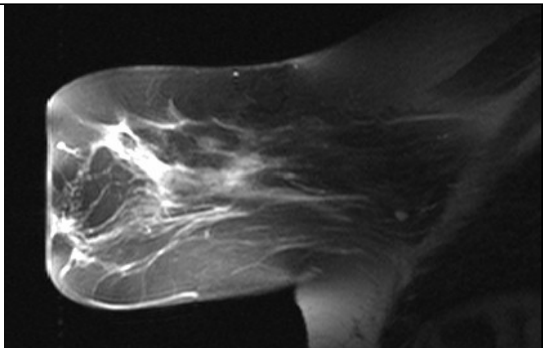
Axial GRE T1 WI post contrast



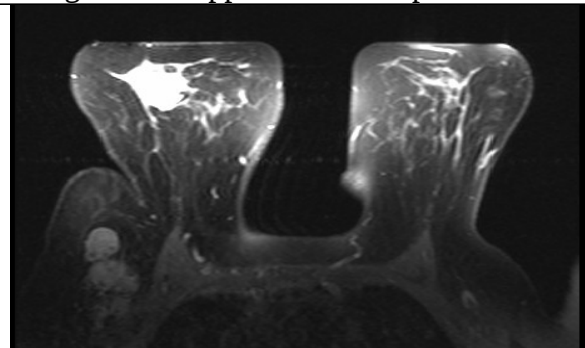
Sagittal T1 WI post contrast



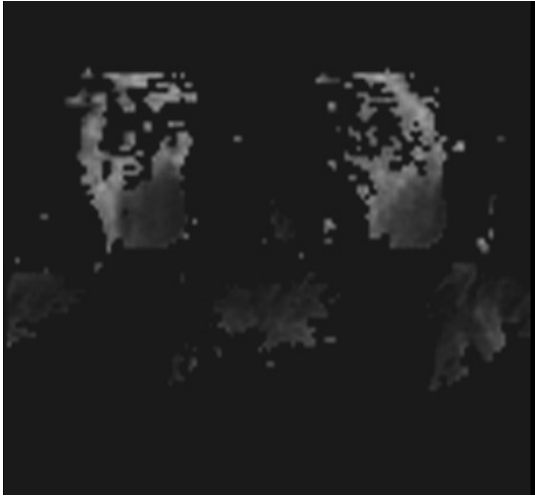
Sagittal fat suppressed T1 WI post contrast



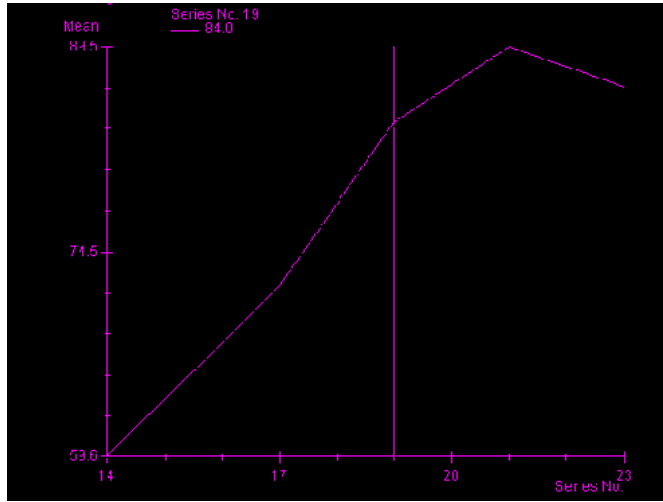
Sagittal T1 WI post contrast



Axial T1 WI post contrast

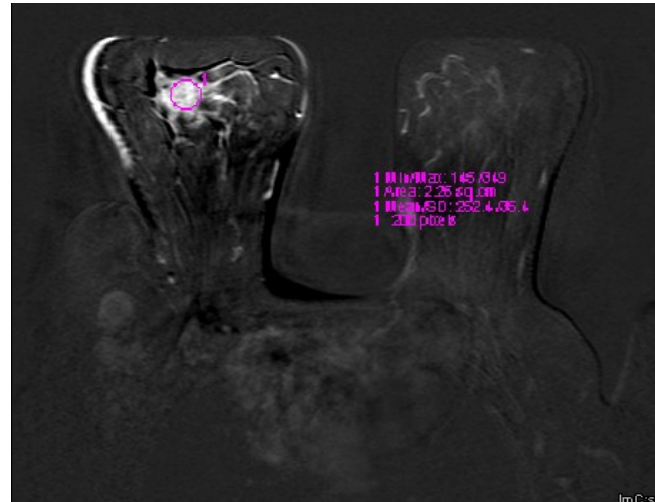
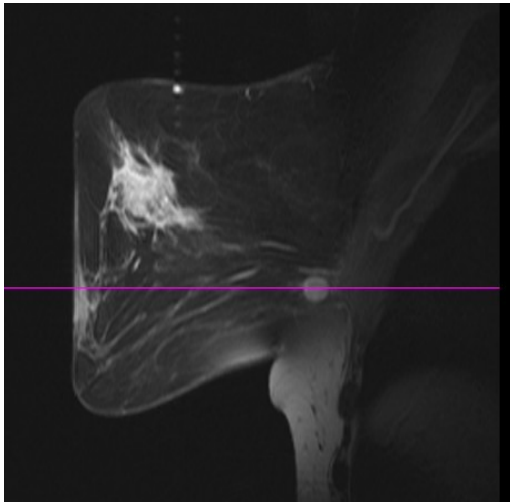


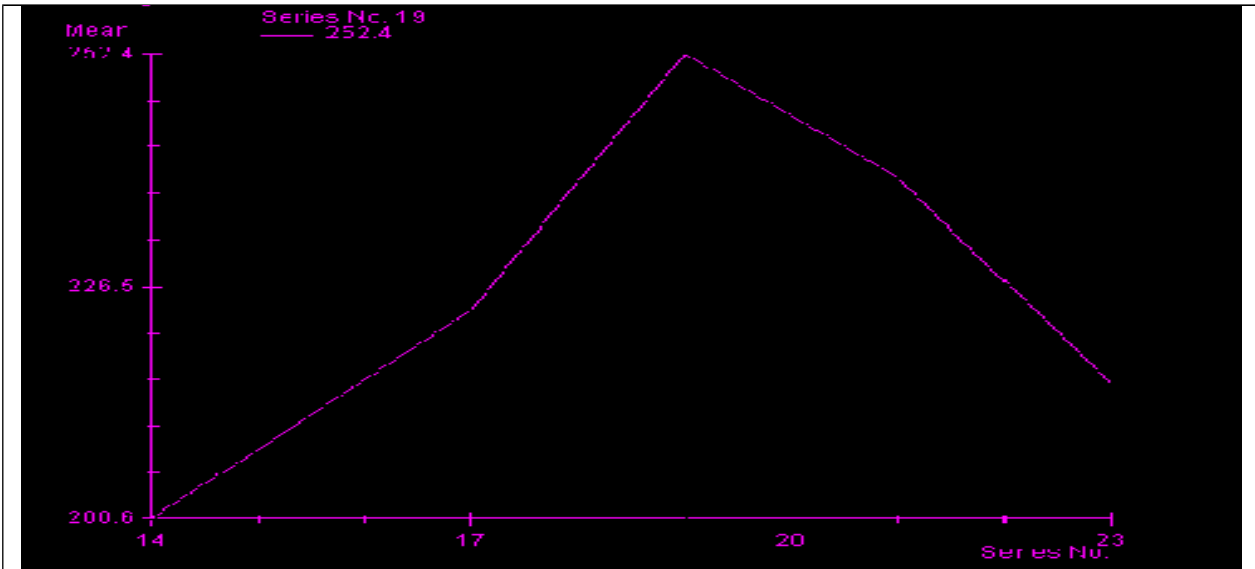
DWI (ADC)



Series No.	ROI 1			ROI 2			ROI 3			ROI 4		
	Mean	SDDev	Area	Mean	SDDev	Area	Mean	SDDev	Area	Mean	SDDev	Area
14	53.6	21.5	0.6									
17	73.1	21.2	0.6									
19	84.0	22.3	0.6									
21	83.5	22.7	0.6									
23	83.6	17.4	0.6									

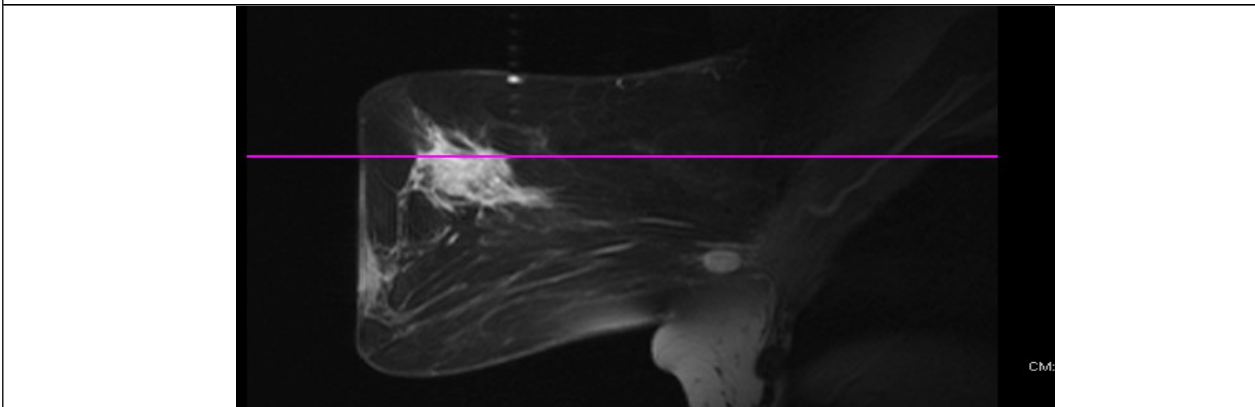
1 of 1





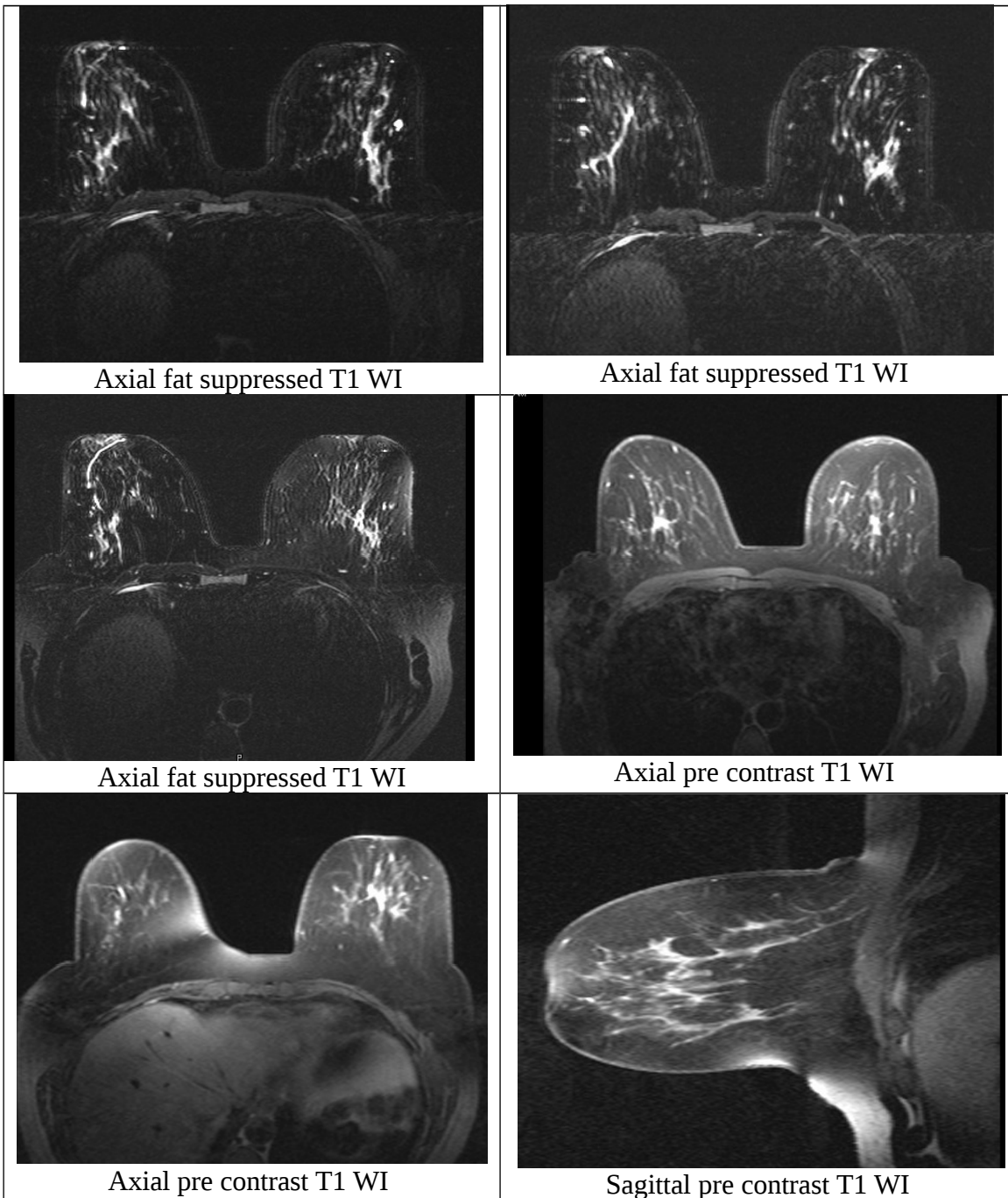
Series No.	ROI 1			ROI 2			ROI 3			ROI 4		
	Mean	SDDev	Area	Mean	SDDev	Area	Mean	SDDev	Area	Mean	SDDev	Area
14	203.6	43.7	2.3									
17	223.9	39.1	2.3									
19	252.4	35.4	2.3									
21	233.7	41.6	2.3									
23	215.7	47.5	2.3									

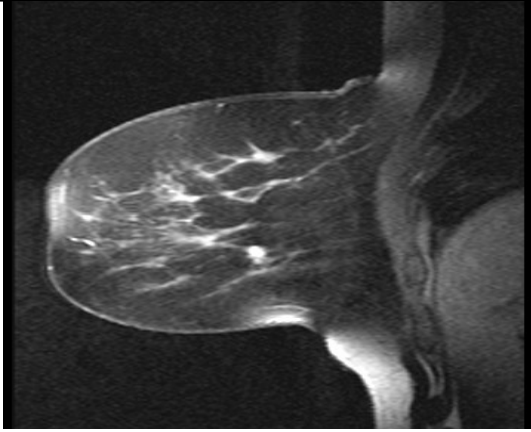
1 of 1



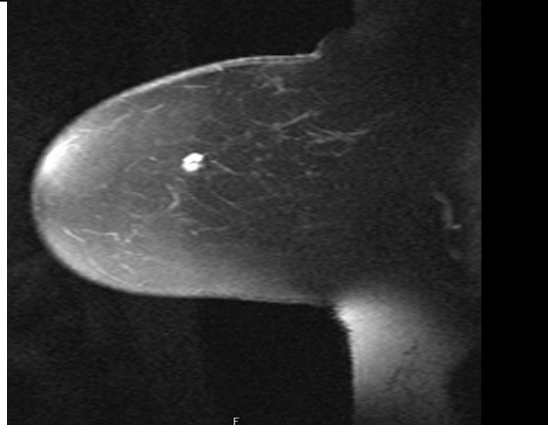
Case 10

50-year(s)-old woman with` Lt. breast lesion in the lower half centralize deep to the skin by about 4 cm. with enhancing curve highly suggestive of malignancy with Lt. axillary lymph node highly suggestive of malignant metastasis, from a biopsy proven invasive well differentiated papillary carcinoma.

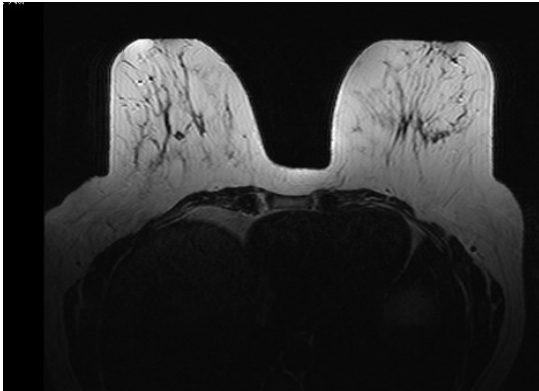




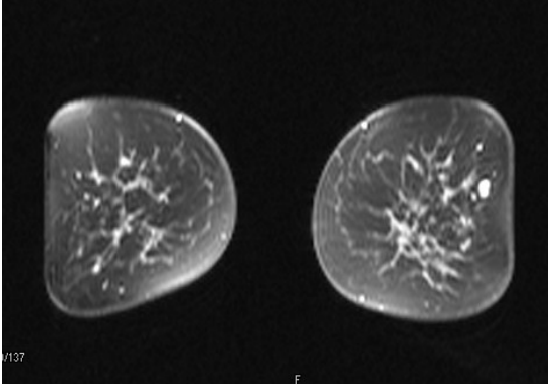
Sagittal pre contrast T1 WI



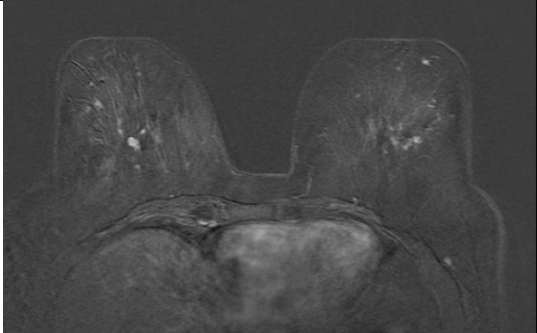
Sagittal pre contrast T1 WI



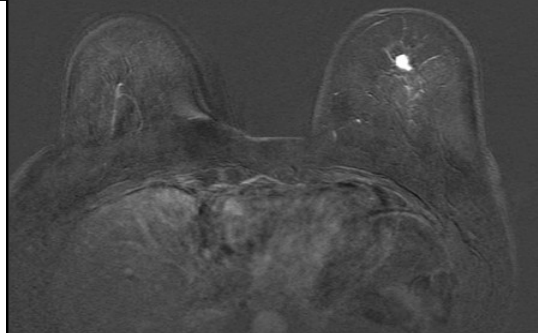
Axial T1 WI



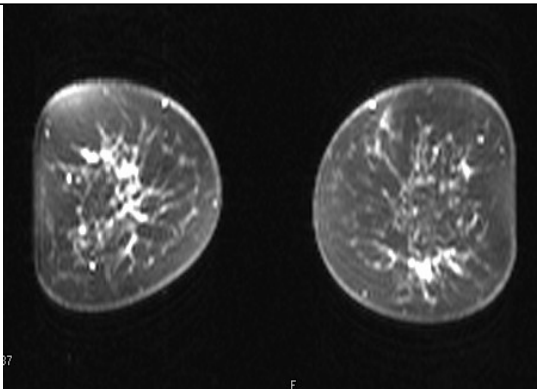
Coronal -pre contrast T1 WI



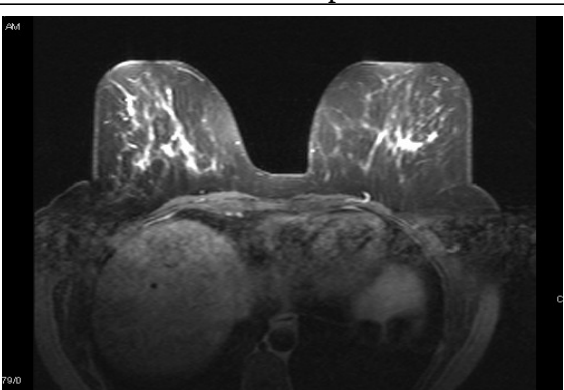
Axial GRE T1 WI pre contrast



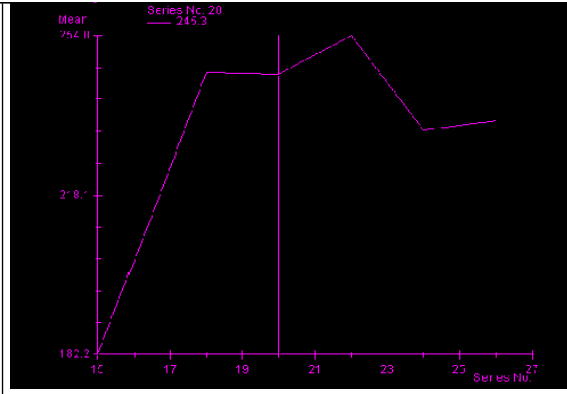
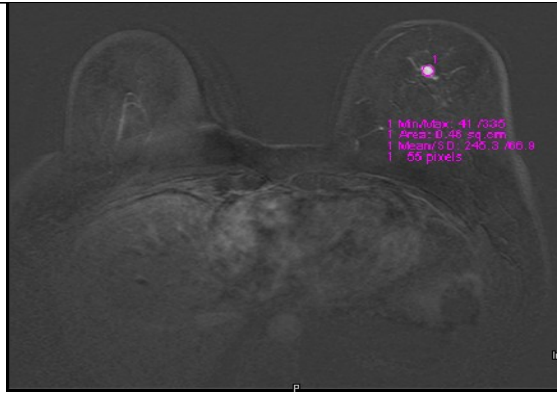
Axial GRE T1 WI pre contrast



Coronal -post contrast T1 WI

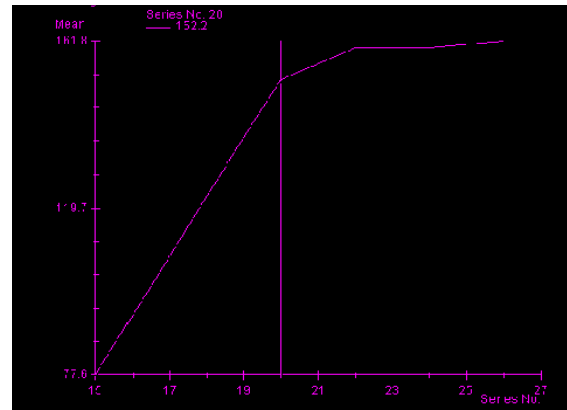
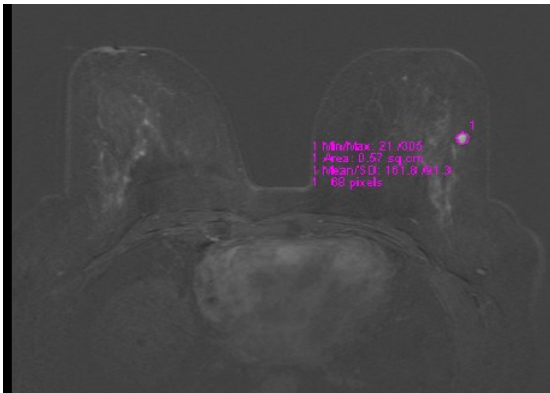


Axial post contrast T1 WI



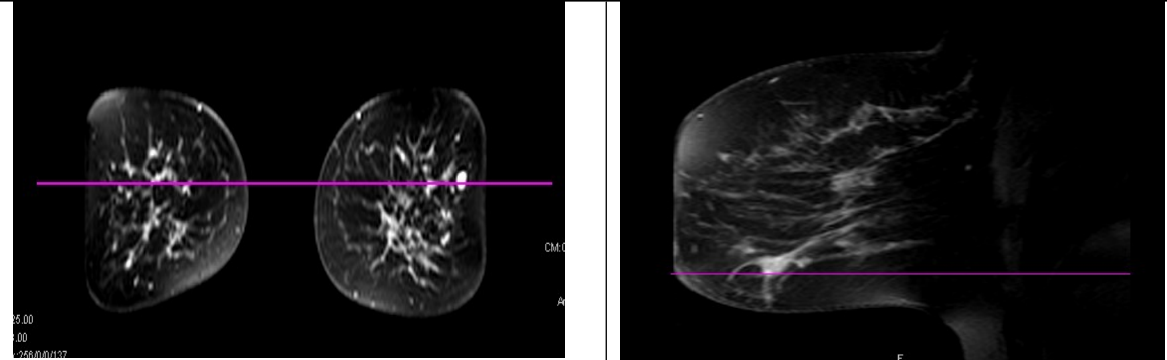
Series No.	ROI 1			ROI 2			ROI 3			ROI 4		
	Mean	SDDev	Area	Mean	SDDev	Area	Mean	SDDev	Area	Mean	SDDev	Area
15	182.2	65.2	0.8									
18	245.8	69.2	0.8									
20	245.3	66.9	0.8									
22	254.0	62.1	0.8									
24	232.6	60.2	0.8									
26	234.7	56.9	0.8									

1 of 1



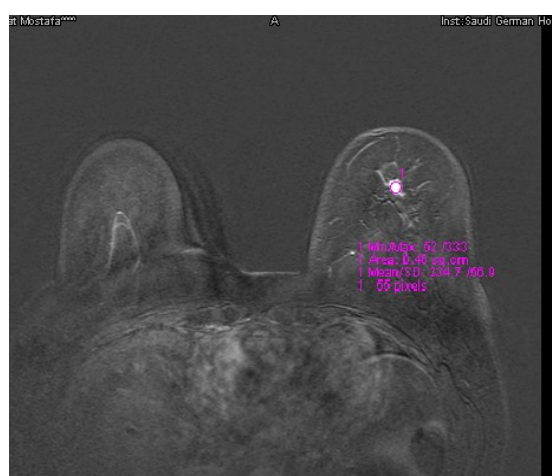
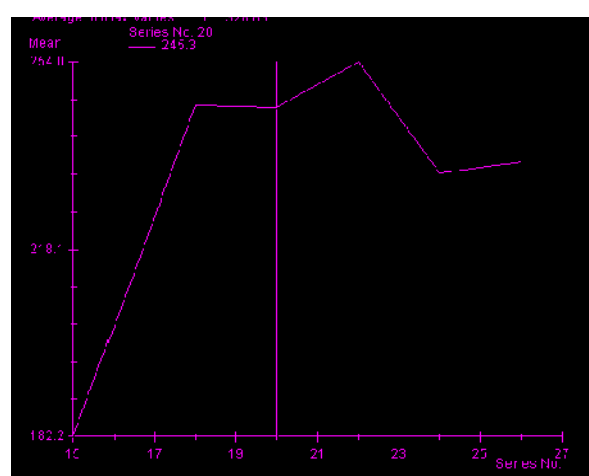
Series No.	ROI 1			ROI 2			ROI 3			ROI 4		
	Mean	SD	Area	Mean	SD	Area	Mean	SD	Area	Mean	SD	Area
15	77.6	43.1	0.6									
18	122.8	80.9	0.6									
20	152.2	88.6	0.6									
22	163.1	91.9	0.6									
24	163.2	92.8	0.6									
26	161.0	91.3	0.6									

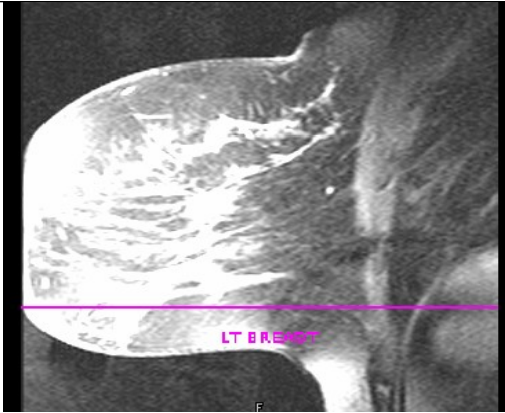
1 of 1



Series No.	ROI 1			ROI 2			ROI 3			ROI 4		
	Mean	SD	Area	Mean	SD	Area	Mean	SD	Area	Mean	SD	Area
15	182.2	65.2	0.6									
18	245.8	69.2	0.6									
20	245.3	66.9	0.6									
22	254.0	62.1	0.6									
24	232.6	59.2	0.6									
26	234.7	56.9	0.6									

1 of 1





Series No.	ROI 1			ROI 2			ROI 3			ROI 4		
	Mean	SDDev	Area	Mean	SDDev	Area	Mean	SDDev	Area	Mean	SDDev	Area
15	172.9	75.8	0.0									
18	250.0	85.1	0.0									
20	243.1	79.9	0.0									
22	257.1	69.5	0.0									
24	233.1	68.0	0.0									

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