THE PROGNOSTIC VALUE OF NEUTROPHIL/LYMPHOCYTE RATIO (NLR), AND MEAN PLATELET VOLUME (MPV) AS BIOMARKERS BEFORE RADIOTHERAPY IN GASTRIC CANCER

E.Elif Özkan, Z. Arda Kaymak Çerkeşli

Suleyman Demirel University, Department of Radiation Oncology, Isparta/ TURKEY

BACKGROUND

- NLR and MPV are proved to have prognostic importance in various cancer types. In this study we aimed to investigate the prognostic value of NLR and MPV before radiotherapy (RT) for post treatment local, distant relapse and overall survival (OS) in gastric cancer patients.

MATERIALS and METHOD

- 61 gastric cancer patients who underwent curative RT were evaluated retrospectively.
- The neutrophil, lymphocyte and MPV values are achieved from the complete blood count test done before radiation treatment.
- RT was given to tumor bed ± gastric remnant and regional lymphatics with 1,8 Gy daily fractions to a total dose of 45 – 50.4 Gy via 3D conformal RT (3DCRT) or Intensity modulated RT (IMRT) technique.
- 7/61 patients were not available for concurrent CT.
- Local or distant metastasis in follow up is regarded as progression.

Statistical Analysis

- Optimal sensitivity and specificity cut-off values for NLR and MPV are investigated with receiver operating curves (ROC) analysis.
- Patients are investigated as two groups determined according to cut-off values.
- OS and progression free survival (PFS) were analyzed with Kaplan-Meier and compared with log rank test.
- The effect of age, T stage, N stage, tumor location, surgery type, histopathological subtype, tumor grade, lymphovascular invasion, concurrent chemo, signet-ring cell component, cerbB2 status, number of dissected LN and metastatic LN on OS is analyzed with multivariate cox regression analysis.

RESULTS

- Median follow up of 24 female (%39,4) and 37 male (%60,6) patients was 21,25 (5,88-91,76) months and 22 of them were alive.
- Median OS and PFS of whole group was 22,96 (5,88-91,83) and 20,73 (1,15-88,51) months respectively.
- A diagnostic cut-off value for NLR in terms of OS or PFS was not available with ROC analysis (AUC: 0,487 and 0,420 respectively).
- Median pretreatment NLR value was 1,66 (0,18-7,36).
- OS and PFS difference between the two groups with lower and higher NLR value than 1,66 was not found statistically significant (p=0,939 and p=0,623 respectively).
- For MPV; a significant cut-off value in terms of PFS was also not available. However; the cut-off was found as 8,45 fL for OS [AUC (95% CI): 0.607, (0.463-0.750)].

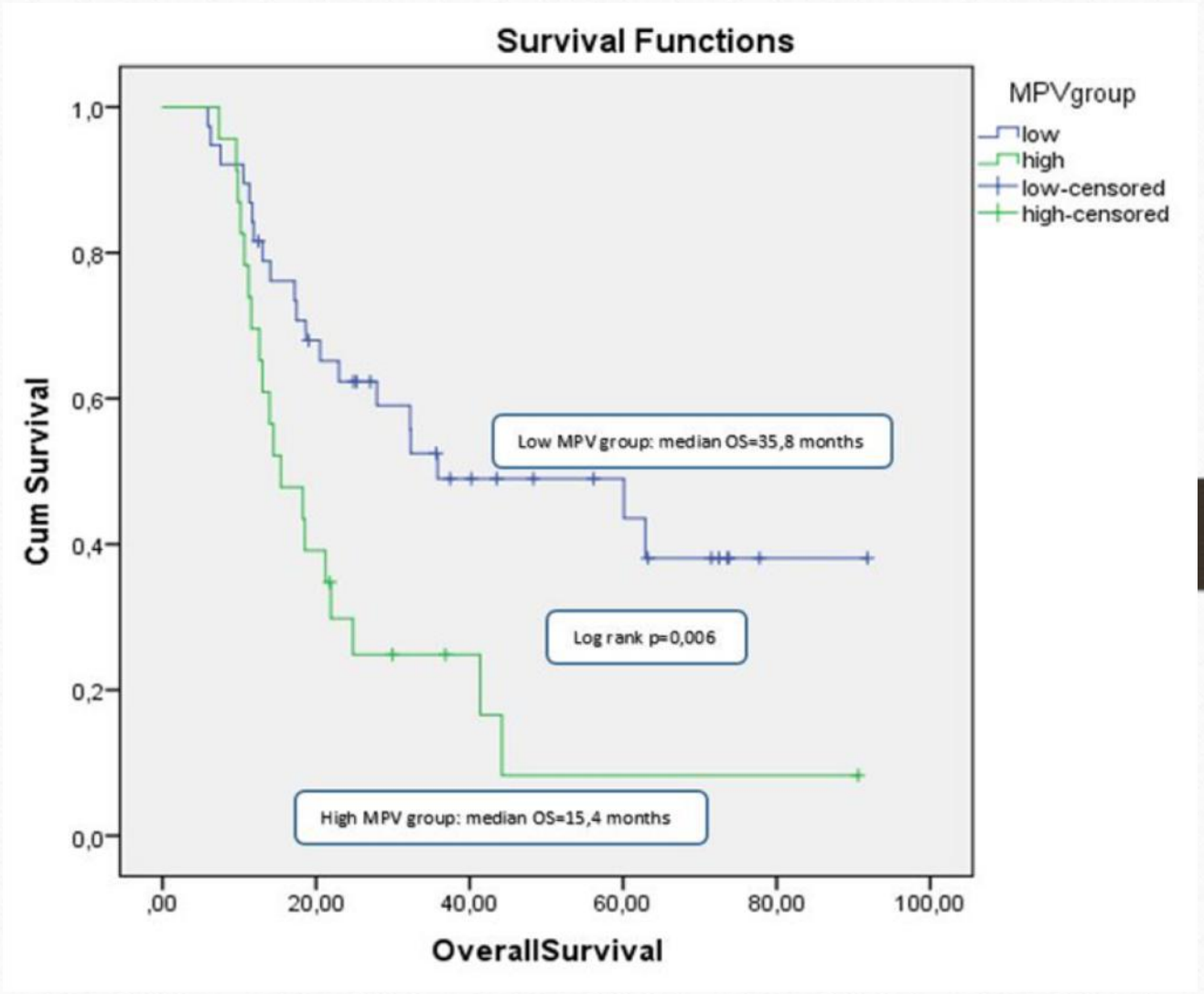
None of patient characteristics in high and low MPV was significantly different

Table 1 Patient charachteristics of low and high MPV groups

	Low MPV(<8,45fL)	High MPV(>8,45fL)	p
Age median (min-max)	62 (43-90)	62 (31-76)	0,493
Sex			
Male	22 (57,9)	15 (65,2)	0,385
Female	16(42,1)	8 (34,8)	
T stage			
T1	0 (0)	1 (4,39)	
T2	2 (5,3)	1 (4,3)	0,638
T3	19 (50)	11 (47,8)	
T4	17 (44,7)	10 (43,5)	
N stage			
N0	7 (18,4)	3 (13)	
N1	5 (13,2)	4 (17,4)	0,638
N2	7 (18,4)	7 (30,4)	
N3	19 (50)	9 (39,1)	
Tumor Location			
GEJ	3 (7,9)	2 (8,7)	
Cardia	3 (7,9)	2 (8,7)	0,916
Corpus	20 (52,6)	12 (52,2)	
Antrum-Pylor	9 (23,7)	5 (21,7)	
Diffuse	3 (7,9)	2 (8,7)	
Surgery			
Total Gastrectomy	16 (42,1)	10 (43,5)	0,923
Subtotal Gastrectomy	21 (55,3)	12 (52,2)	
Inoperable	1 (2,6)	1 (4,3)	
Histophatological subtype			
Adenoca	19 (50)	13 (56,5)	
Diffuse type	10 (26,3)	7 (30,4)	0,553
Intestinal Type	6 (15,8)	3 (13)	
Mixed carsinoma	3 (7,9)	0 (0)	
Grade			
1	12 (31,6)	3 (13)	0,257
2	6 (15,8)	4 (17,4)	
3	20 (52,6)	16 (69,6)	
Concurrent ChemoRT	34 (89,5)	20 (87)	0,534
RT Alone	4 (10,5)	3 (13)	
Lymphovascular invasion			
Yes	28 (73,7)	17 (73,9)	0,614
No	10 (26,3)	6 (26,1)	
Signet-ring cell component			
Yes	4 (10,5)	3 (13)	0,534
No	34 (89,5)	20 (87)	
cerbB2			
Yes	5 (13,2)	2 (8,7)	0,466
No	33 (86,8)	21 (91,3)	
Dissected LN median(min-max)	20 (2-55)	20 (5-44)	0,556
Positive LN median (min-max)	5 (0-42)	5 (0-29)	0,748
Total	38	23	

Variables are presented as number (percentage) or median value (minimum-maximum) as appropriate

Median OS	
MPV>8,45fL (n=23)	15,4 months
MPV<8,45fL (n=38)	35,84 months
P	0,006



RESULTS

- Univariate analysis revealed a significant effect of N stage, LVI and number of metastatic LN (≥5) on OS (p=0.001, 0.02 and 0.001 respectively).
- In multivariate analysis N stage and MPV was found to be significant on OS (p= 0,043 and p=0,001 respectively).

CONCLUSION

- Our results have shown that preradiotherapy MPV is a significant prognostic factor in terms of OS. OS was lower in group with MPV>8,45fL.
- The importance of MPV proceeded after adjuvant CT. Furthermore, as MPV value may be affected by many conditions, combined evaluation with other tumor markers and larger studies with longer follow up is warranted.
- Evaluation of the NLR is also a cost-effective method which can predict prognosis and aggressiveness of tumor. However; in our study we couldn't detect the prognostic importance of postoperative NLR after 1-2 course(s) CT on OS or PFS ingastric cancer patients.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A Single Center Experience of Neoadjuvant Radiotherapy in Rectal Cancer

Pervin Hürmüz[1], Burak Tilki[1], Mustafa Cengiz[1], Ferah Yıldız[1], Gökhan Özyigit[1], Timuçin Erol[3], Ali Konan[3], Faruk Zorlu[1], Şuayib Yalçın[2], Fadıl Akyol[1]

[1]Hacettepe University Faculty of Medicine Department of Radiation Oncology
[2] Hacettepe University Faculty of Medicine Department of Medical Oncology
[3] Hacettepe University Faculty of Medicine Department of General Surgery

Aim

- Neoadjuvan treatment improves outcomes in locally advanced rectal cancer

- Evaluate treatment results in rectal cancer patients treated with neoadjuvant radiotherapy w/wo chemotherapy

Material and Methods

- January 2009 – July 2019
- 197 patients with rectal adenocarcinoma
- Thoracoabdominal CT + Pelvic MRI (86%)
- Radiotherapy:
  - Short course: 25 Gy/5 f
  - Long course: Median 50.4 Gy/ 28 f

Results

Characteristics	%
Age (median, range)	58 (range 24-90 y)
Gender	
-Female	39
-Male	61
Tumor Location	
-Proximal	17
-Middle	36
-Distal	47
Stage (AJCC 8th Ed.)	
-II	18
-III	77
-IV	5

Results

Characteristics	%
RT prescription -Short course -Long course	 9 91
Concomittant chemotherapy (n= 177) - Oral capecitabine - 5 FU (CI) - Others	 49 41 10
Adjuvant chemotherapy - Yes - No	 52 48

Results

- Median time to surgery : 8 weeks (range 2-12 wk)
- 26 pts (23%) did not have surgery
- Sphincter preservation: 53% pts
- Median follow-up: 23 months (range 2-116 mo)
  - Local recurrence: 19 pts
  - Distant metastases: 30 pts

Results

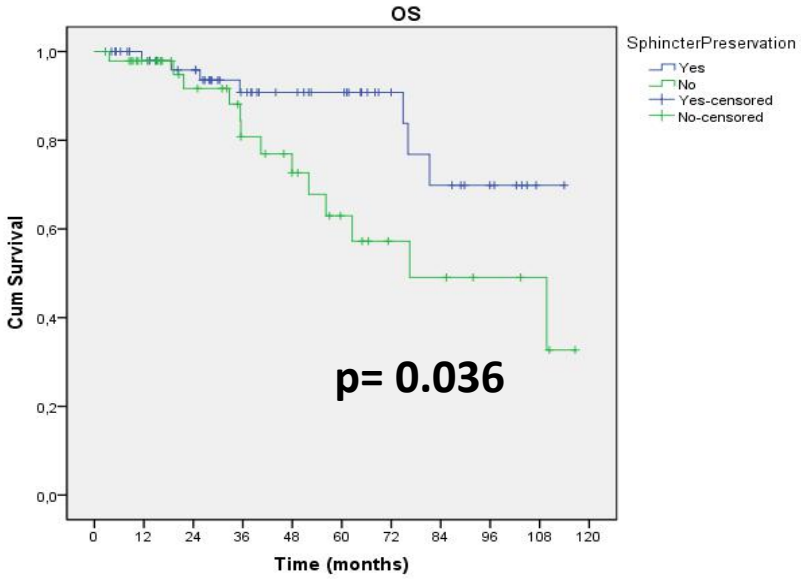
	2 y	5 y
OS	84%	60%
LRC	76%	53%
DMFS	74%	50%

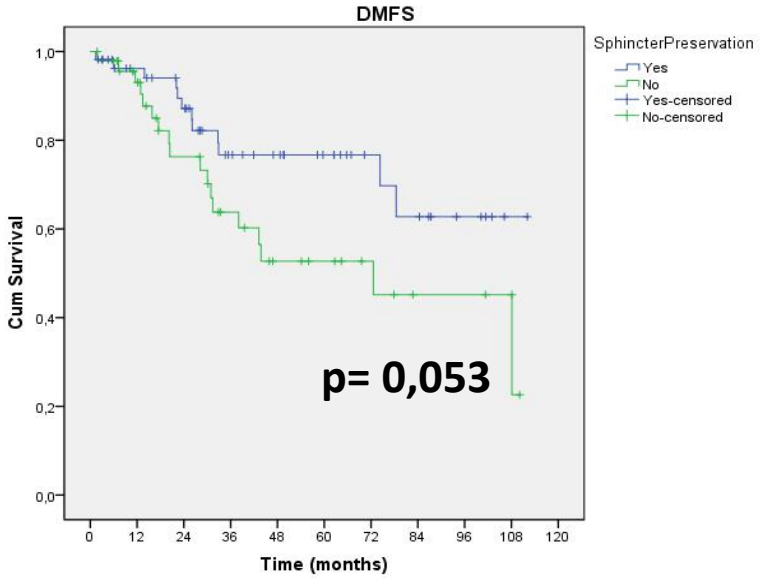
Results

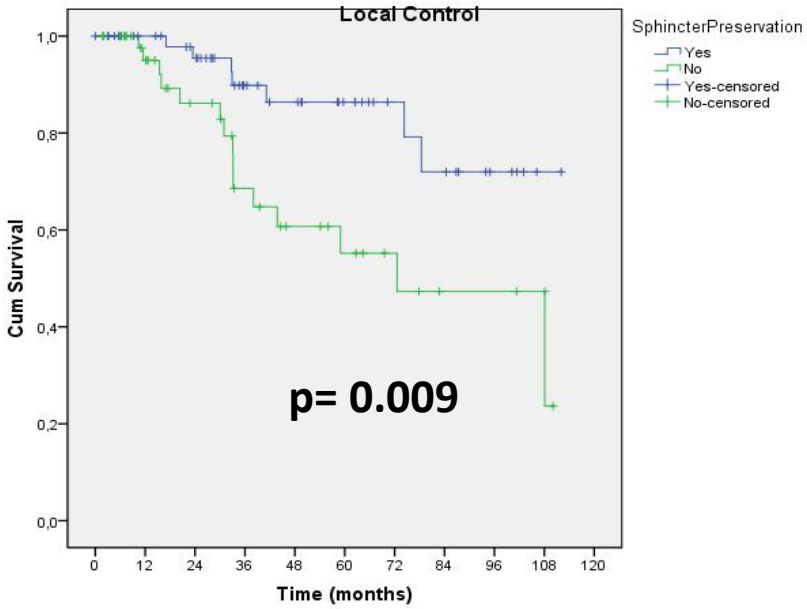
	OS	LRC	DMFS
Age (≤ 65 y vs >65 y)	✓	✓	✓
Presence of surgery	✓	✓	✓
Sphincter preservation	✓	✓	✓
Concomitant chemotherapy	✓	✓	X
pCR	✓	✓	X
Adjuvant chemotherapy	X	✓	✓

✓ : $p<0.05$

Sphincter Preservation







Toxicity

- Acute
  - Grade 1-2 GIS toxicity: 61%
  - Grade 1-2 GUS toxicity 15%
- Late
  - Grade 1-2 GIS toxicity: 2%
  - Grade 1-2 GUS toxicity: 1%
- No grade 3 acute/late GIS and GUS toxicities

Conclusion

Neoadjuvant radiotherapy seems to be an effective and safe treatment that improves treatment outcomes if combined with sphincter preserving surgery and chemotherapy

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The Role of Radiotherapy with/without Chemotherapy in the Treatment of Rectal Cancer: Single Center Experience

Burak Tilki[1], Pervin Hürmüz[1], Mustafa Cengiz[1], Ferah Yıldız[1], Faruk Zorlu[1], Gökhan Özyigit[1], Şuayib Yalçın[2], Fadıl Akyol[1]

[1]Hacettepe University Faculty of Medicine Department of Radiation Oncology
[2] Hacettepe University Faculty of Medicine Department of Medical Oncology

Aim

- Neoadjuvant radiotherapy (RT) or chemoradiotherapy (CRT) followed by surgical resection is the standard treatment for locally advanced rectal adenocarcinoma
- There may be patients who refused to go surgery or not suitable for surgery due to medical comorbidites
- Evaluate our treatment results in rectal cancer patients treated with RT w/wo chemotherapy (ChT) and did not receive surgery

Material and Methods

- May 2009 – December 2018
- 26 patients with rectal adenocarcinoma
- RT prescription
  - Short course= 25 Gy/5 f
  - Long course= 50.4 Gy/ 28 f
- Response: DRE, endoscopy, radiological imaging
  - 6 pts – had endoscopy
  - 20 pts – not accept any invasive examination
  - 21 pts – pelvic MRI

Results

Characteristics	%
Age (median, range)	62 (range 29-88 y)
Gender	
-Female	58
-Male	42
Tumor Location	
-Proximal	24
-Middle	20
-Distal	56
Stage (AJCC 8th Ed.)	
-II	15
-III	66
-IV	19

Results

Characteristics	%
RT prescription -Short course -Long course	 15 85
Concomittant ChT (n=20) - Oral capecitabine - 5 FU (CI)	 70 30

Results

- Median follow-up: 15 mo (range 2-93 mo)
- Local recurrence: 8 pts (30%)

	Median
OS	**26 mo** (95%CI: 18.4-33.9 mo)
LRC	**11.7 mo** (95% CI: 6-17.4 mo)
DMFS	**23.4 mo** (95% CI: 9.9-37 mo)

Results

	OS	LRC	DMFS
Age (≤ 65 y vs >65 y)	✓	X	✓
Adjuvant chemotherapy	✓	✓	X
Concomitant chemotherapy	X	X	✓

✓ : $p<0.05$

Toxicity

- Acute:
  - Grade 1-2 GIS toxicity: 21 pts
  - Grade 1-2 GUS toxicity:3 pts
- Late:
  - Grade 1-2 GIS toxicity: 1 pt
  - Grade 1-2 GUS toxicity: None
- No grade 3 acute or late GIS/GUS toxicities

Conclusion

- Surgery is the first choice of treatment for patients with rectal cancer

- Radiotherapy w/wo chemotherapy seems to be feasible for patients who refused surgery

A rare clinical entity: intracranial hemangiopericytoma presenting with hepatic metastasis

Demet IŞIK BAYRAKTAR[1] , Bahiddin YILMAZ[1], Bilge CAN MEYDAN[2]

1- Departmen of Medical Oncology, Ondokuz Mayıs University, Samsun

2- Departmen of Pathology, Ondokuz Mayıs University, Samsun

Introduction:

- Mesenchymal tumors account for less than 1% of all intracranial neoplasms
- Can be benign or malignant and are located in the meninges rather than the brain parenchyma.
- Solitary fibrous tumors (SFT) /hemangiopericytoma (HPC) are belong to the mesenchymal non-meningothelial tumors(1).

1. Trabelsi S, Mama N, Chourabi M, Mastouri MH, Ladib M, Popov S, Burford A, Mokni M, Tlili K, Krifa H, Jones C, Yacoubi MT, Saad A, Brahim DH: Meningeal hemangiopericytomas and meningomas: A comparative immunohistochemical and genetic study. Asian Pac J Cancer Prev 16: 6871-6876, 2015.

- Central nervous system SFT / HPC is typically in adults, with a mean age of diagnosis of 40-50 years.
- These tumors are located in 70% supratentorial, 15% posterior fossa and 15% spinal.
- Hemangiopericytoma phenotype is considered as malignant tumor.

- Symptoms include headache, focal neurological deficits, epileptic seizures due to mass effect or edema.

- They may often show local recurrence or extracranial spread even after total resection.

- Extra-cranial metastases frequently occur in the bone, lung and liver (2).

2. Ratneswaren T, Hogg FRA, Gallagher MJ, Ashkan K. Surveillance for metastatic hemangiopericytoma-solitary fibrous tumors-systematic literature review on incidence, predictors and diagnosis of extra-cranial disease. J Neurooncol 2018; 138:447.

Clinical case:

- 40 years old male patient,
- Admitted with headache for about 6 months
- Thirteen years ago, a 5x5 cm mass was found on the right tentorial area in Brain Computerized Tomography and total mass excision was performed.
- Pathology result of the first mass excision reported as meningioma(01.2006)

- Total excision pathology of this mass was reported as hemangiopericytoma on 02.2016.
- The patient underwent two additional intracranial mass excision (11.2007 and 11.2009).
- He had cranial radiotherapy between 15.12.2009 and 29.01.2010 due to the presence of a 33x26 mm residual mass in the right temporal region.

- After radiotherapy, PCV chemotherapy was started due to recurrence.
- He received 6 cycles of PCV chemotherapy between 02.2010-11.2010.
- In 2015, cyberknife was applied to the patient due to recurrence

- It was followed up as stable disease until 12.2018, followed by liver metastasis. A mass lesion of 35x30 mm was observed under the capsule of the liver segment 4-8

- On 03.2019, metastasectomy was performed for liver masses.

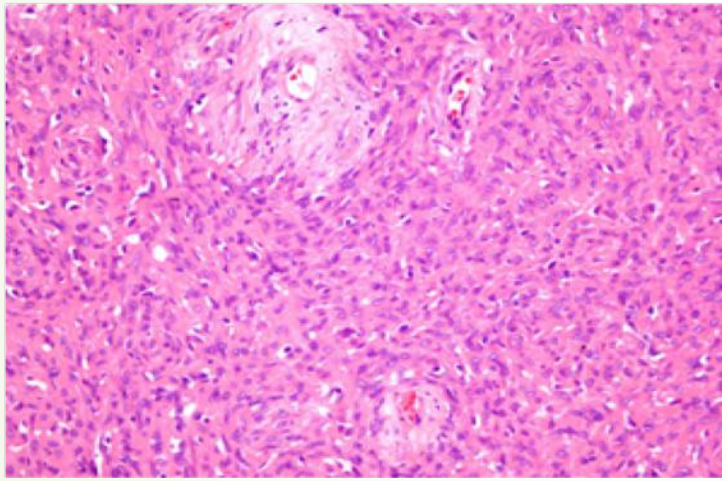
- Pathology: reported to be consistent with hemangiopericytoma metastasis.

- H&E features of tumor are not enough for the correct diagnosis, several immunostaining studies (CD34, EMA, PR, bcl2) should be performed.

- CD34 immunostaining can be very focal positive or even negative at the recurrences and metastases of HPC as seen in our case. Mitotic count of metastatic liver HPC was more increased as compared with the intracranial lesion.

Figure1: Histopathology of IC-HPC

a. Whorl-like pattern and no mitosis in H&E,



b. Focal and weak CD34 immunostaining

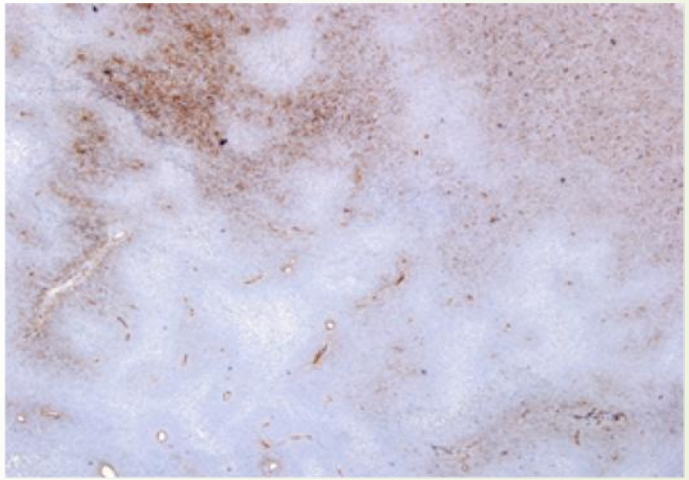
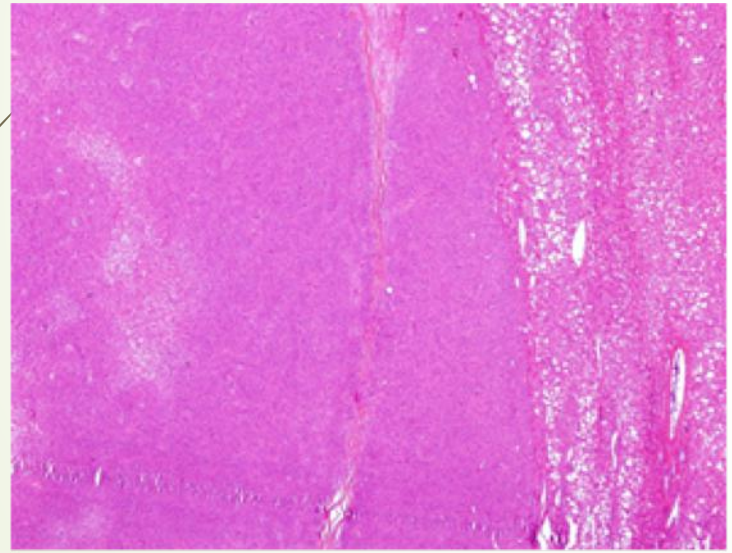
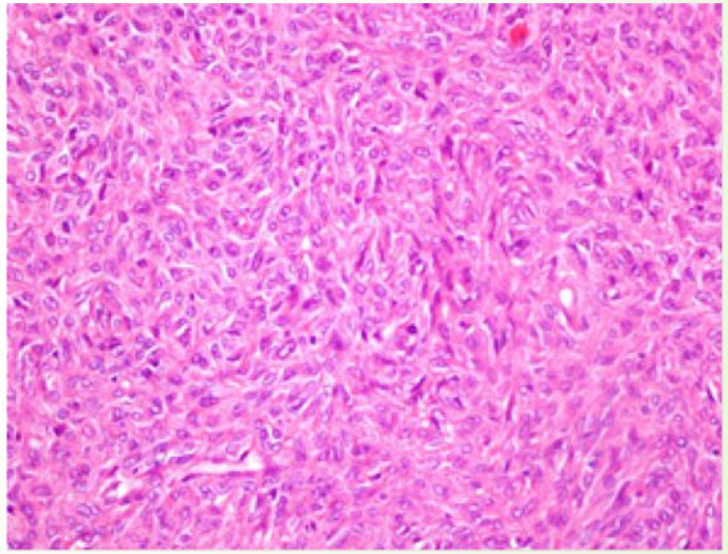


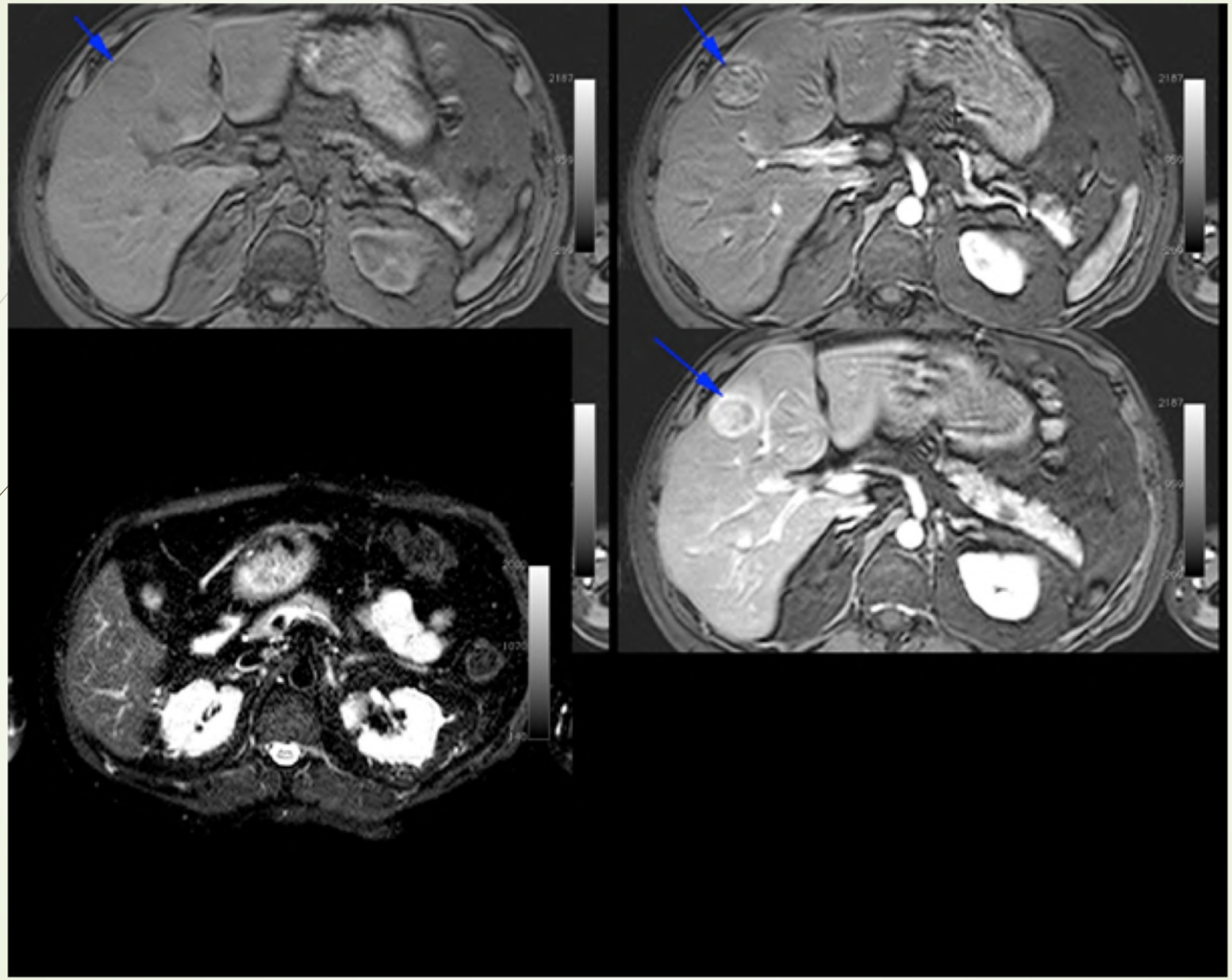
Figure 2: Histopathology of liver metastasis of HPC,

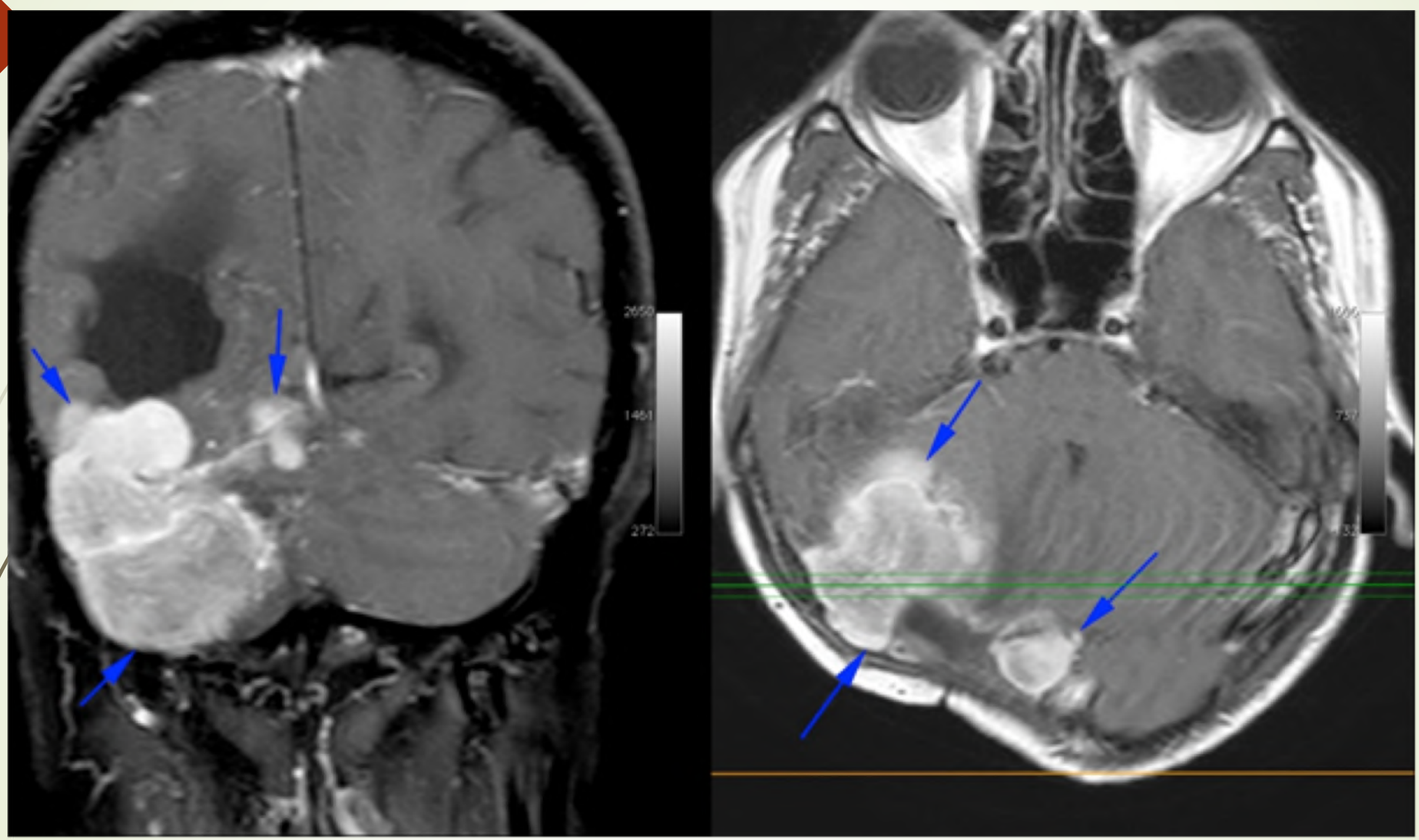
a. No infiltrative borders with steatotic liver



b. Frequent mitosis, H&E







- The patient underwent surgery for the fifth time due to hemangiopericytoma on 05.2019.
- The patient was started on pazopanip after surgery.
- The patient's general condition is moderate and he can walk on his own.
- He has been receiving pazopanip for about 5 months.

Conclusion:

- Extracranial metastasis of brain tumors is a rare condition.
- Hemangiopericytomas are rare malignant tumors of the central nervous system and extracranial metastases are mainly in the bone, lung and liver.
- These metastases can occur even years after diagnosis.

- Intracranial hemangiopericytoma is a very rare dural based tumor but always must be considered in the differential diagnosis of meningioma, because of the dramatic difference in clinical outcomes between these two tumors.

- We presented an intracranial hemangiopericytoma (IC-HPC) case that initially misdiagnosed as a menengioma clinically and histopathologically.

- Even though, after first recurrence, tumor was diagnosed as anaplastic HPC (WHO grade III) and appropriately treated, after five times local recurrence, eventually metastasized to the liver in the 13th year-period.

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