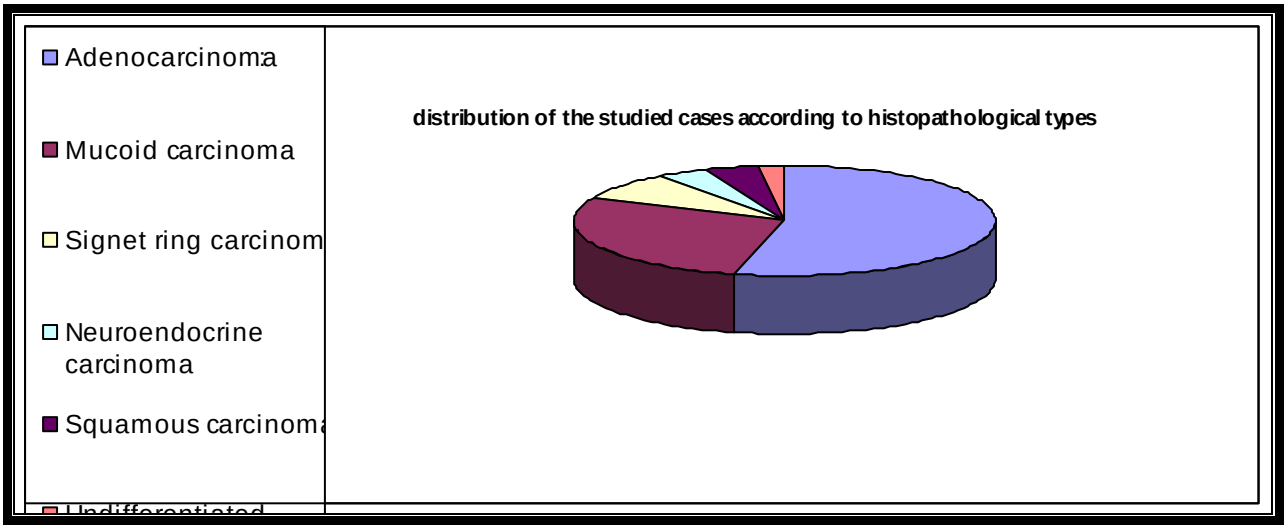
RESULTS

This retrospective study included 56 colorectal cases: 50 cases of colorectal carcinoma and 6 cases of chronic non-specific inflammation taken as a control. Among the 50 examined cases of colorectal carcinoma : 27cases were adenocarcinoma (20 cases grade II & 7 cases grade III), 14 cases mucoid carcinomas (9 cases grade II & 5 cases grade III), 4 cases signet ring carcinomas, two cases were squamous carcinoma, two cases were neuroendocrine carcinoma and one case was undifferentiated carcinoma, **(Table 8 & Graph 1).**

Table (8) distribution of the studied cases according to histopathological types:

Histopathologic type	No.	%
Adenocarcinoma	27	54%
Mucoid carcinoma	14	28%
Signet ring carcinoma	4	8%
Neuroendocrine carcinoma	2	4%
Squamous carcinoma	2	4%
Undifferentiated carcinoma	1	2%
Total	**50**	**100%**

Graph (1) distribution of the studied cases according to histopathological types



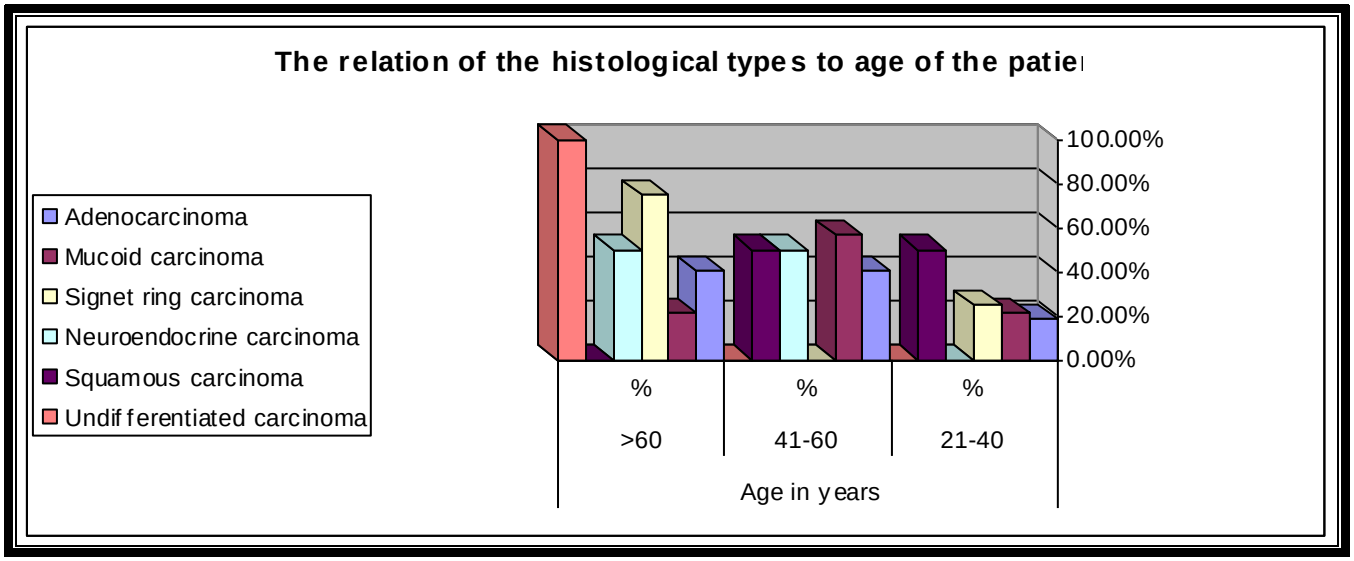
The relation of the histological types to age of the patient:

Age of the studied cases ranged between 21 and 77 years. The mean age was 52.2±15.6 years. Among the studied cases, 10 cases (20%)were between age 21-40 years, 21 cases (42%) were between age of (40-60)years and 19 cases were older than 60 years. There is no significant statistical correlation between histological type of the CRC and age groups (p= 0.923), **Table (9) & Graph (2).**

Table (9): Relation of histopathological types of colorectal carcinoma to age of the patients.

Type	*No. of cases*	Age in years					
		21-40		41-60		>60	
		No.	%	No.	%	No.	%
Adenocarcinoma	27	5	18.6%	11	40.7%	11	40.7%
Mucoid carcinoma	14	3	21.4%	8	57.2%	3	21.4%
Signet ring carcinoma	4	1	25%	0	0%	3	75%
Neuroendocrine carcinoma	2	0	0%	1	50%	1	50%
Squamous carcinoma	2	1	50%	1	50%	0	0%
Undifferentiated carcinoma	1	0	0%	0	0%	1	100%
Total	50	10	20%	21	42%	19	38%

Graph (2): Relation of histopathological types of studied cases to age of the patients



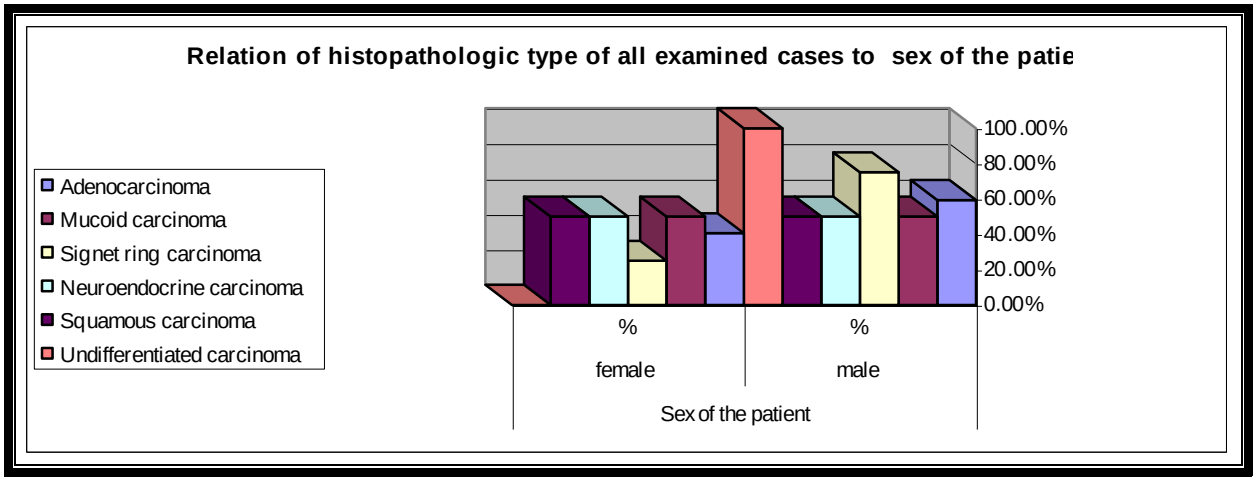
The relation of the histological types to sex of the patient:

The studied cases were: 26 cases were male (52%) and 24 cases were female (48%) in ratio of 13:12. Statistically there was no significant correlation between histological type of the CRC and sex (p= 0.442). **Table (10) and graph (3).**

Table (10) : Relation of histopathologic type of malignant tumor to sex of the patient.

Histopathologic type	No. of cases	Sex of the patient			
		♂		♀	
		No.	**%**	**No.**	**%**
Adenocarcinoma	27	16	59.3%	11	40.6%
Mucoid carcinoma	14	7	50%	7	50%
Signet ring carcinoma	4	3	75%	1	25%
Neuroendocrine carcinoma	2	1	50%	1	50%
Squamous carcinoma	2	1	50%	1	50%
Undifferentiated carcinoma	1	1	100%	0	0%
	50	**26**	**52%**	**24**	**48%**

Graph (3): Relation of histopathologic type of all examined cases to and sex of the patients.



The relation of histopathologic type to tumor site:

Out of 50 cases of coloretal carcinoma: 17 cases (34%) were in ascending colon, 5 cases (10%) were in transverse colon, 10 cases (20%) were in descending colon and 18 cases (36%) were in rectosigmoid colon. There was no significant statistical correlation between histopathologic type of malignant tumor and its site (p= 0.575), **Table (11) &Graph (4).**

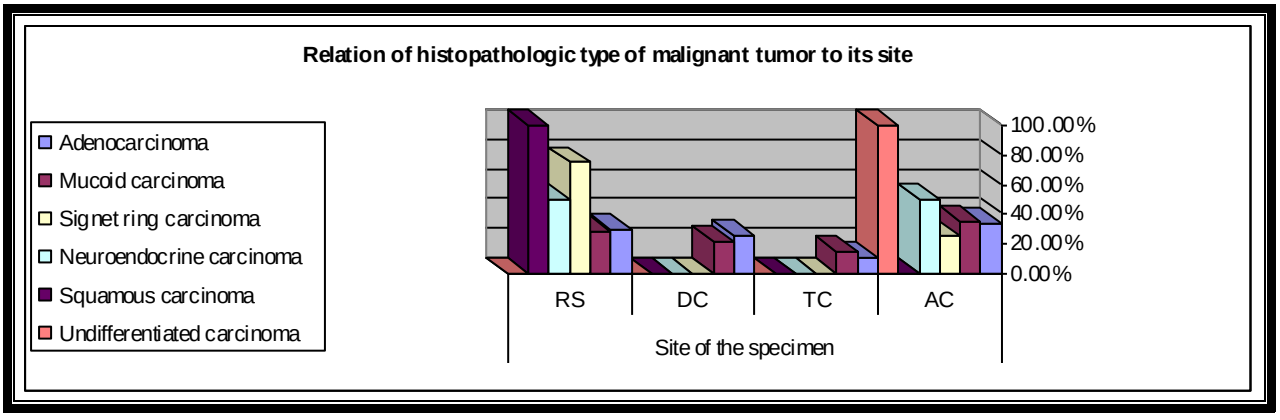
Table (11): Relation of histopathologic type to tumor site

Histopathologic type	No. of cases	Site of the tmor							
		AC		**TC**		**DC**		**RS**	
		No.	**%**	**No.**	**%**	**No.**	**%**	***No.***	***%***
Adenocarcinoma	27	9	33.3%	3	11.1%	7	25.9%	8	29.7%
Mucoid carcinoma	14	5	35.7%	2	14.3%	3	21.4%	4	28.6%
Signet ring carcinoma	4	1	25%	0	0%	0	0%	3	75%
Neuroendocrine carcinoma	2	1	50%	0	0%	0	0%	1	50%
Squamous carcinoma	2	0	0%	0	0%	0	0%	2	100%
Undifferentiated carcinoma	1	1	100%	0	0%	0	0%	0	0%
	50	**17**	**34%**	**5**	**10%**	**10**	**20%**	**18**	**36%**

AC = ascending colon. TC = transverse colon.,

DC = descending colon. RS = recto-sigmoid colon.

Graph (4): Relation of histopathologic type of malignant tumor to its site



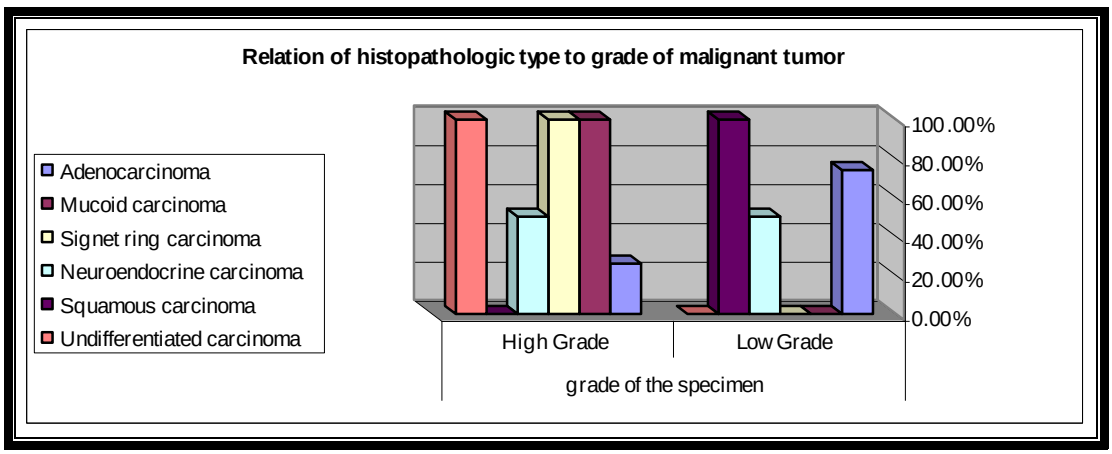
The relation of histopathologic type to grade of malignant tumor :

Out of 50 cases of colorectal carcinoma: 23 cases were low grade (46%) & 27 cases were high grade (54%) . Statistcally there was significant correlation between histopathologic type of malignant tumor and its grade (p= 0.064),as most adenocarcinoma cases (74.1%)and all cses of squamous carcinoma were low grade, while all cases of mucoid and signet ring carcinoma were high grade, **Table (12) & Graph (5).**

Table (12): Relation of histopathologic type to grade of malignant tumor:

Histopathologic type	No. of cases	grade of the tumor			
		Low Grade		High Grade	
		No.	%	No.	%
Adenocarcinoma	27	20	74.1%	7	25.9%
Mucoid carcinoma	14	0	0%	14	100%
Signet ring carcinoma	4	0	0%	4	100%
Neuroendocrine carcinoma	2	1	50%	1	50%
Squamous carcinoma	2	2	100%	0	0%
Undifferentiated carcinoma	1	0	0%	1	100%
Total	**50**	**23**	**46%**	**27**	**54%**

Graph (5): Relation of histopathologic type to grade of malignant tumor:



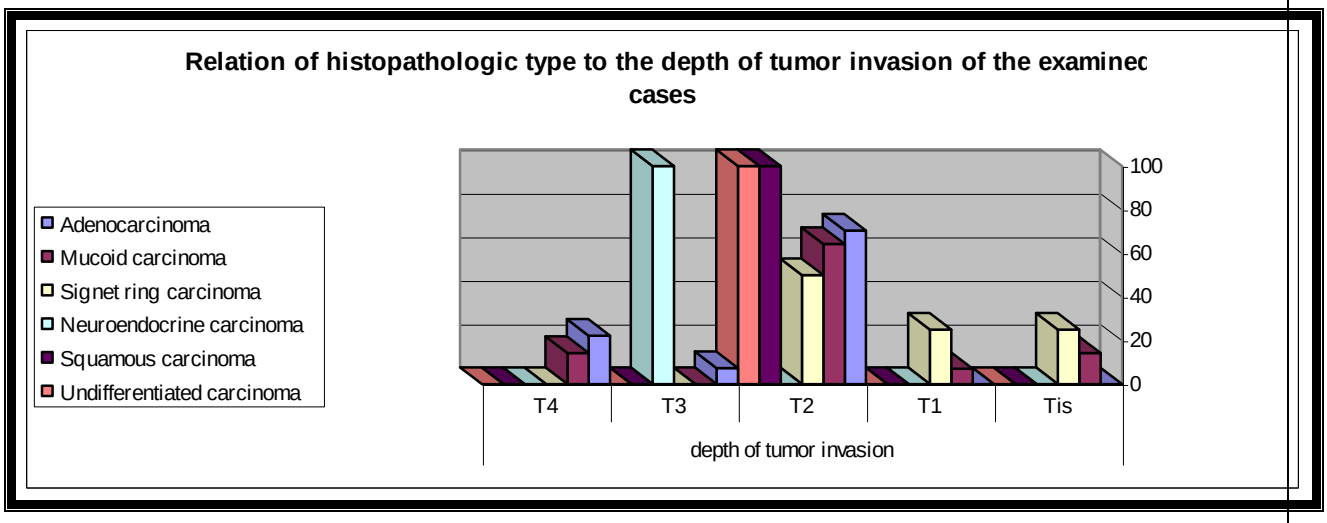
The relation between histopathologic type of malignancy and depth of tumor invasion (T of TNM) :

Out of studied cases of colorectal carcinoma: 3 cases(6%) were Tis, 2 cases (6%) were T1, 33 cases (66%) were T2, 4 cases (8%) were T3 and 8 cases (16%) were T4. There was no significant statistical correlation between histological type of the CRC and depth of tumor invasion (p= 0.237), **Table (13) & Graph (6).**

Table (13): Relation between histopathologic type and depth of tumor invasion:

Histopathologic type	No. of cases	depth of tumor invasion									
		Tis		T1		T2		T3		T4	
		No.	%	No.	%	No.	%	No.	%	No.	%
Adenocarcinoma	27	0	0	0	0	19	70.4	2	7.4	6	22.2
Mucoid carcinoma	14	2	14.3	1	7.1	9	64.3	0	0	2	14.3
Signet ring carcinoma	4	1	25	1	25	2	50	0	0	0	0
Neuroendocrine carcinoma	2	0	0	0	0	0	0	2	100	0	0
Squamous carcinoma	2	0	0	0	0	2	100	0	0	0	0
Undifferentiated carcinoma	1	0	0	0	0	1	100	0	0	0	0
	50	**3**	**6**	**2**	**4**	**33**	**66**	**4**	**8**	**8**	**16**

Graph (6): Relation between histopathologic type and depth of tumor invasion:



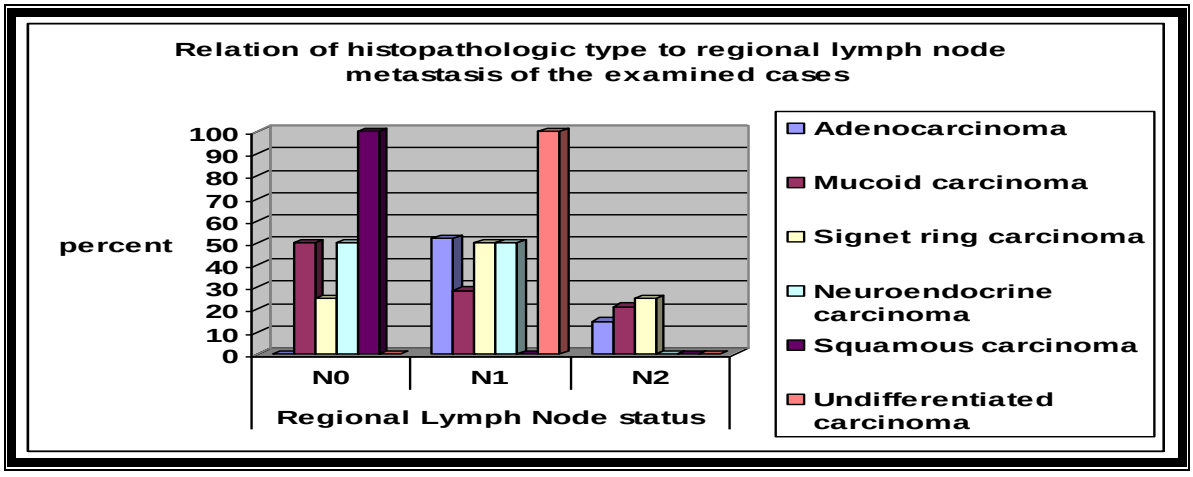
The relation of histopathologic type and the regional lymph node status :

Out of 50 cases of CRC : 22 cases (44%) showed 1-3 regional lymph node metastasis (N1), and 8 cases (16%) showed 4 or more regional lymph node metastasis (N2),while 20 cases (33.3%) showed no regional lymph node metastasis (N0). There was no significant statistical correlation between histological type of the CRC and regional lymph node metastasis of the examined cases (p= 0.528), **Table (14) and Graph (7).**

Table (14): Relation of histopathologic type to regional lymph node metastasis :

Histopathologic Type	No. of cases	Regional Lymph Node status					
		N0		N1		N2	
		No.	%	No.	%	No.	%
Adenocarcinoma	27	9	33 .3	14	51.9	4	14.8
Mucoid carcinoma	14	7	50	4	28.6	3	21.4
Signet ring carcinoma	4	1	25	2	50	1	25
Neuroendocrine carcinoma	2	1	50	1	50	0	0
Squamous carcinoma	2	2	100	0	0	0	0
Undifferentiated carcinoma	1	0	0	1	100	0	0
	50	**20**	**40**	**22**	**44**	**8**	**16**

Graph (7): Relation of histopathologic type to regional lymph node metastasis of the examined cases:



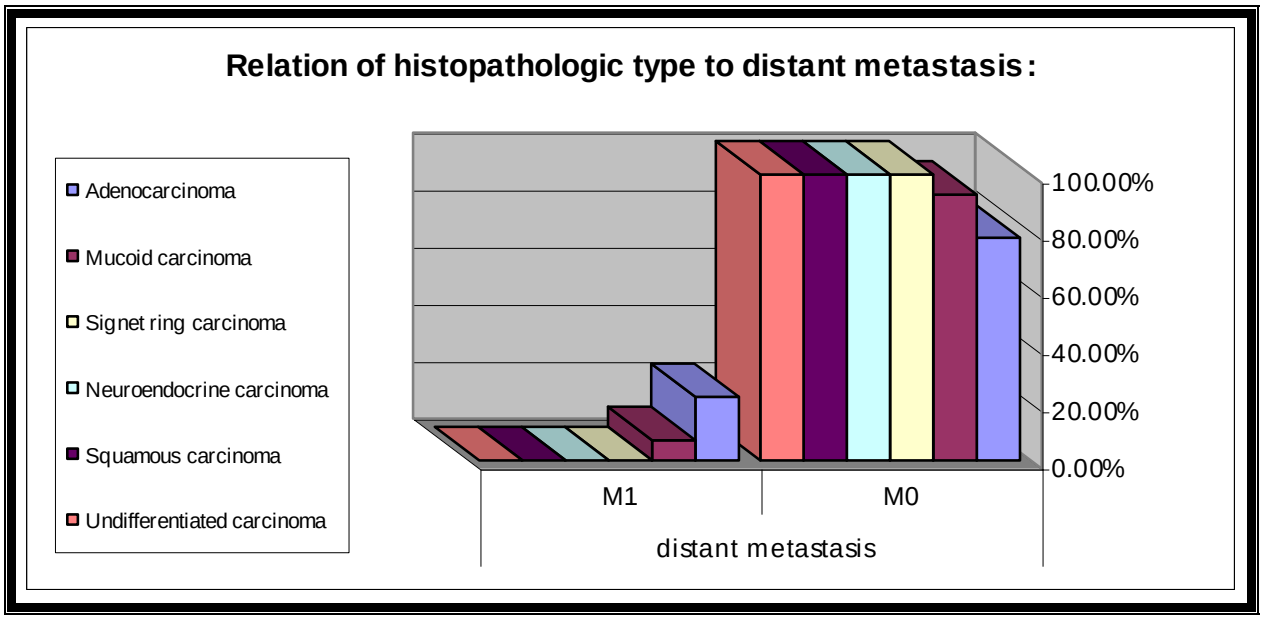
The relation of histopathologic type and distant metastasis:

Distant metastasis could be detected in 7/50 cases (14%) (M1):, but could not be detected in 43 cases (86%) (M0). There is no significant correlation between histological type of the CRC and distant metastasis of the examined cases (p= 0.110), **Table (15) & Graph (8).**

Table (15): Relation of histopathologic type to distant metastasis:

Histopathologic Type	No. of cases	distant metastasis			
		M0		M1	
		No.	%	No.	%
Adenocarcinoma	27	21	77.8%	6	22.2%
Mucoid carcinoma	14	13	92.9%	1	7.1%
Signet ring carcinoma	4	4	100%	0	0%
Neuroendocrine carcinoma	2	2	100%	0	0%
Squamous carcinoma	2	2	100%	0	0%
Undifferentiated carcinoma	1	1	100%	0	0%
	50	**43**	**86%**	**7**	**14%**

Graph (8): Relation of histopathologic type to distant metastasis:



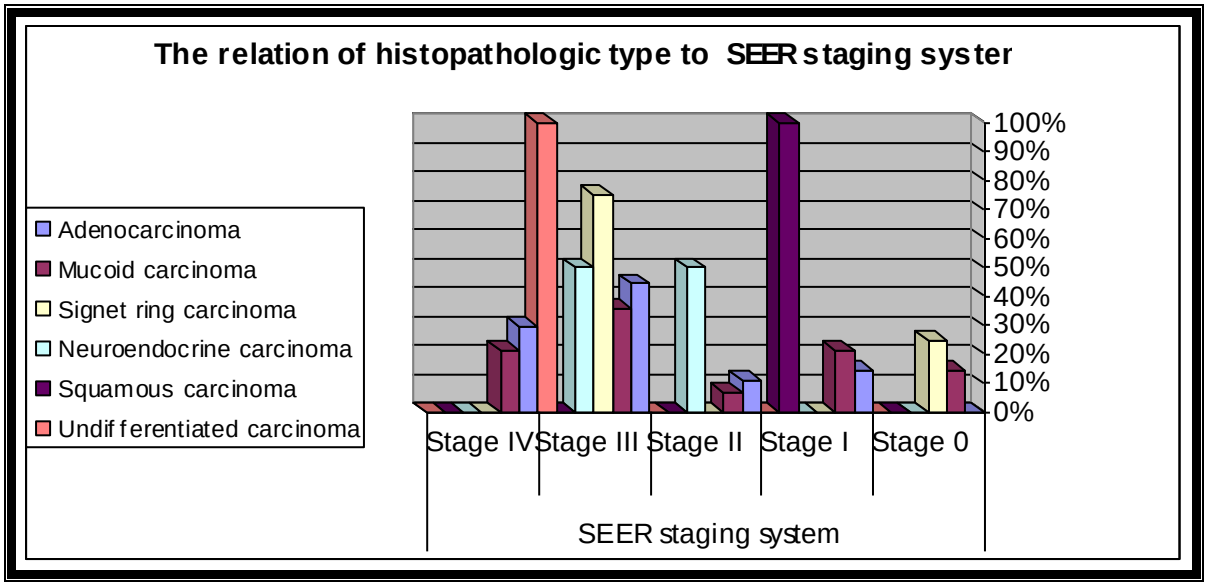
The relation of histopathologic type to SEER (Surveillance Epidemiology and End Results) staging system:

Colorectal carcinoma cases (50) included: 3 cases (6%) were in (Stage 0), 9 cases (18%) were in (Stage I), 5 cases (10%)were in (Stage II), 22 cases (44%)were in (Stage III) and 11cases (22%) were in (Stage IV). There was statistically significant correlation between histological type of the CRC and SEER staging system (p= 0.078), **Table (16) & Graph (9).**

Table (16): The relation of histopathologic type to SEER staging system:

Histopathologic Type	No. of cases	SEER staging system									
		Stage 0		Stage I		Stage II		Stage III		Stage IV	
		NO	%	NO	%	NO	%	NO	%	NO	%
Adenocarcinoma	27	0	0%	4	14.8%	3	11.1%	12	44.5%	8	29.6%
Mucoid carcinoma	14	2	14.3%	3	21.4%	1	7.1%	5	35.8%	3	21.4%
Signet ring carcinoma	4	1	25%	0	0%	0	0%	3	75%	0	0%
Neuroendocrine carcinoma	2	0	0%	0	0%	1	50%	1	50%	0	0%
Squamous carcinoma	2	0	0%	2	100%	0	0%	0	0%	0	0%
Undifferentiated carcinoma	1	0	0%	0	0%	0	0%	1	100%	0	0%
Total	**50**	**3**	**6%**	**9**	**18%**	**5**	**10%**	**22**	**44%**	**11**	**22%**

Graph (9): The relation of histopathologic type to SEER staging system



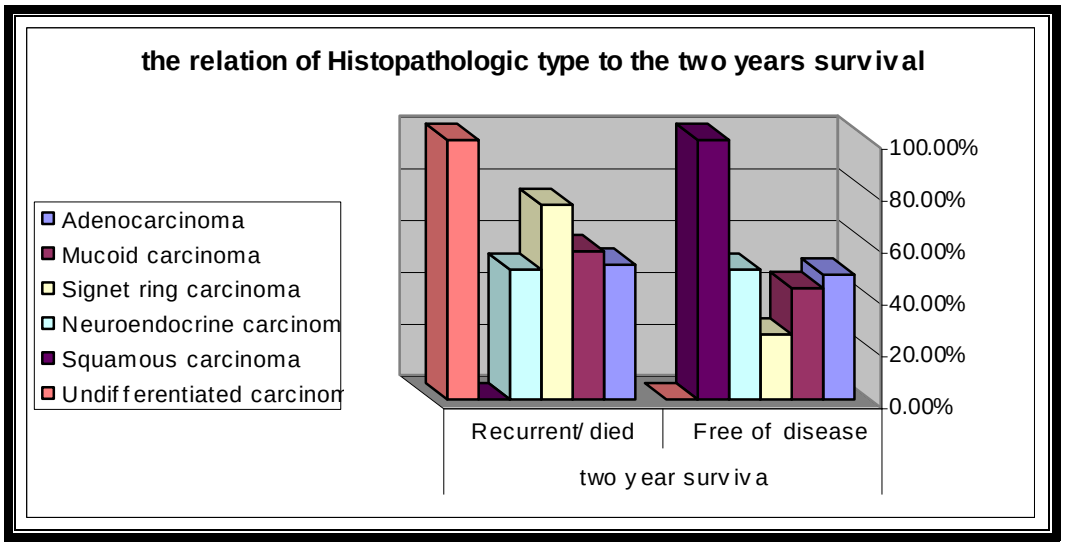
The relation between histopathological types and two years survival of the studied cases:

Among the 50 CRC cases, 23 cases (46%) were free of disease after two years while 27 cases (54%) showed disease recurrence or died within 2 years. There was no significant correlation between the relation of histopathologic type to the two year survival (p= 0.974), **Table (117) & Graph (10).**

Table (17) the relation of Histopathologic type to the two years survival :

Histopathologic type	*No. of cases*	two years survival			
		Free of disease		Recurrent /died	
		No.	%	No.	%
Adenocarcinoma:	27	13	48.1%	14	51.9%
Mucoid carcinoma	14	6	42.9%	8	57.1%
Signet ring carcinoma	4	1	25%	3	75%
Neuroendocrine carcinoma	2	1	٥٠%	1	٥٠%
Squamous carcinoma	2	2	100%	0	0%
Undifferentiated carcinoma	1	0	0%	1	100%
	50	**23**	**46%**	**27**	**54%**

Graph (10) the relation of Histopathologic type to the two years survival:



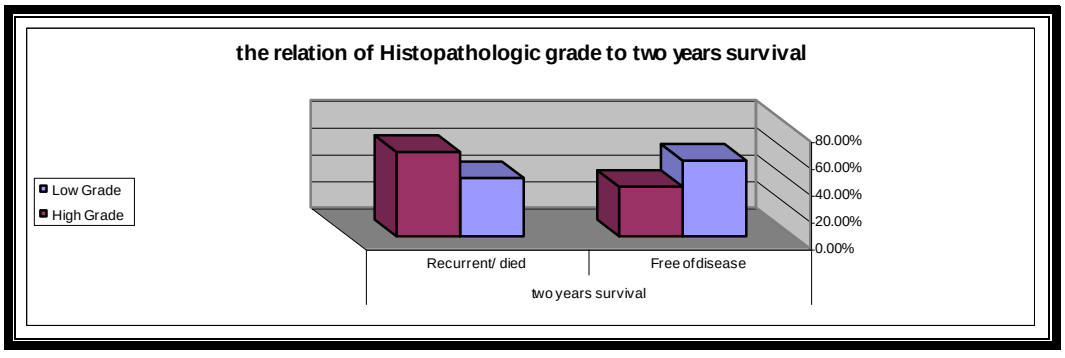
The relation between Histopathologic grade and two years survival:

Out of 23 cases of low grade tumor: 13 cases (56.5%) were free of disease after two years while 10 cases (43.5%) showed disease recurrence or died within 2 years. Out of 27 cases of high grade tumor: 10 cases (37%) were free of disease after two years while 17 cases (63%) showed disease recurrence or died within 2 years. There was no significant correlation between histopathologic grade of the tumor and the two year survival of the studied cases (p= 0.175), **Table (18) & Graph (11).**

Table (18) the relation of Histopathologic grade to the two years survival :

Histopathologic grade	No. of cases	two years survival			
		Free of disease		Recurrent / died	
		No.	%	No.	%
Low Grade	23	13	56.5%	10	43.5%
High Grade	27	10	37%	17	63%
	50	23	46%	27	54%

Graph (11) the relation of Histopathologic grade to two years survival :



The relation between depth of tumor invasion and two years survival:

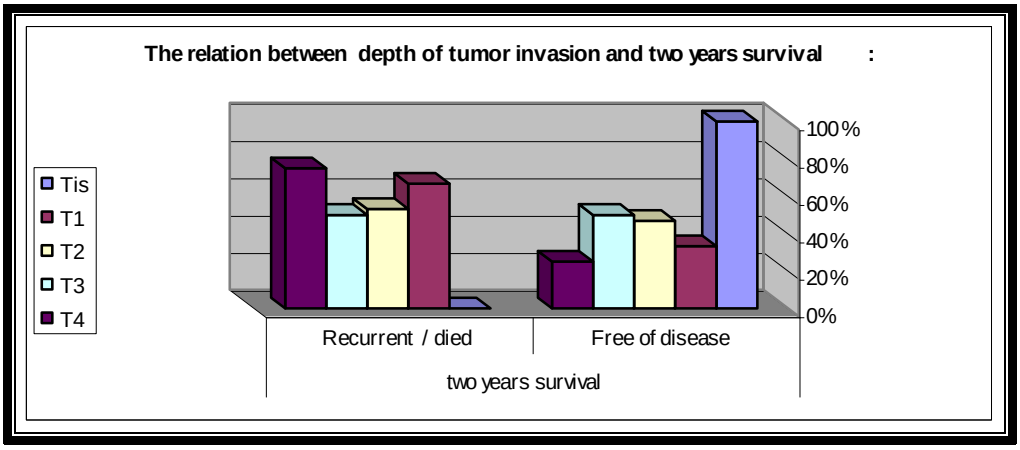
All 3 cases of Tis: (100%) were free of disease after two years. Out of 3 cases of T1: one case (33.3%) were free of disease after two years & 2 cases (66.7%) showed disease recurrence and the other died within 2 years. Out of 32 cases of T2: 15 cases (46.8%) were free of disease after two years & 13 cases (40.6%) showed disease recurrence or died within 2 years. Out of 4 cases of T3: 2 cases

(50%) was free of disease after two years. & 2 cases (50%) died within 2 years. Out of 8 cases of T4: 2 cases (25%) were free of disease after two years & 6 cases (75%) showed disease recurrence or died within 2 years. There was significant correlation between depth of tumor invasion and two years survival (p= 0.084), **Table (19) & Graph (12).**

Table (19): The relation of depth of tumor invasion to two years survival:

Depth of invasion	No. of Cases	two years survival			
		Free of disease		Recurrent / died	
		no	%	no	%
Tis	3	3	100%	0	0%
T1	3	1	33.3%	2	66.7%
T2	32	15	46.8%	17	53.2%
T3	4	2	50%	2	50%
T4	8	2	25%	6	75%
Total	**50**	**23**	**46%**	**27**	**54%**

Graph (12):The relation of depth of tumor invasion to two years survival:



<u>The relation between lymph node metastasis and two years survival:</u>

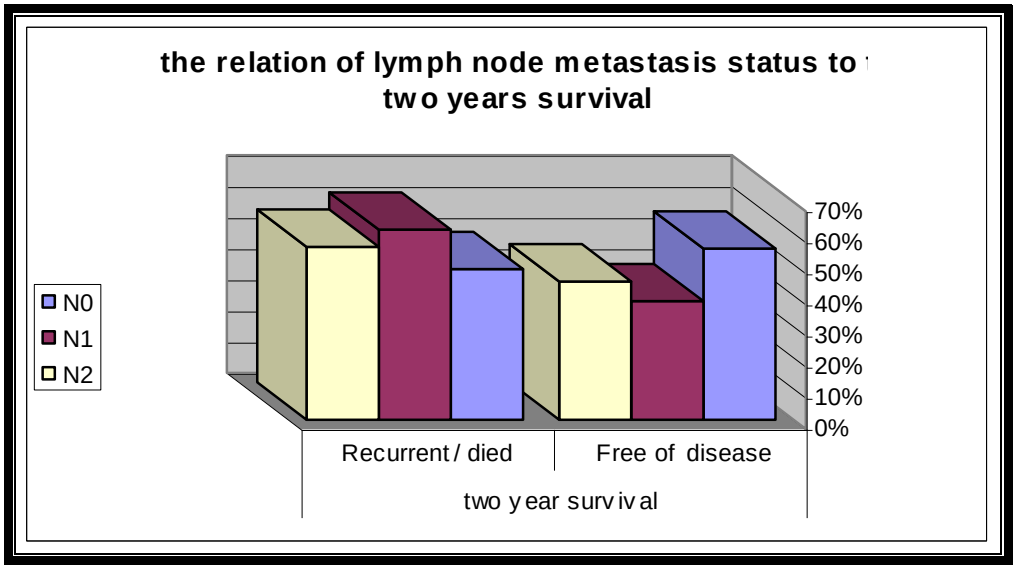
Out of 20 cases without lymph node metastasis(N0): 11 cases (55%) were free of disease after two years while 9 cases (45%) had disease recurrence or died within

2 years. Out of 21 cases with (N1) lymph node metastasis: 8 cases (38.1%) were free of disease after two years while 13 cases (61.9%) had disease recurrence or died within 2 years. Out of 9 cases with (N2) lymph node metastasis: 4 cases (44.4%) were free of disease after two years while 5 cases (55.6%) had disease recurrence or died within 2 years. There was no significant correlation between lymph node metastasis of the studied cases and the two years survival (p= 0.461), **Table (20)&Graph (13).**

Table (20) the relation of lymph node metastasis to the two year survival :

Nodal Metastasis	No. Of Cases	two years survival			
		Free of disease		Recurrent / died	
		No.	%	No.	%
N0	20	11	55%	9	45%
N1	21	8	38.1%	13	61.9%
N2	9	4	44.4%	5	55.6%
	50	23	46%	27	54%

Graph (13) the relation of lymph node metastasis to the two years survival



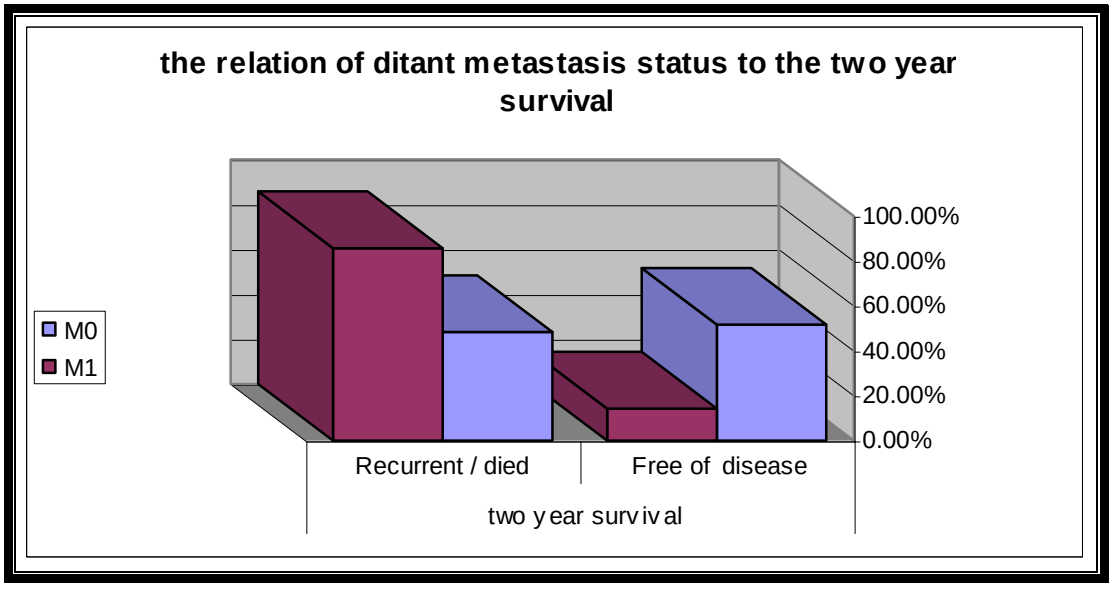
The relation between distant metastasis and two years survival of the studied cases:

Out of 43 cases without distant metastasis(M0): 22 cases (51.6%) were free of disease after two years while 21 cases (48.4%) showed disease recurrence or died within 2 years. Out of 7 cases with distant metastasis(M1): one case (14.3%) was free of disease after two years while 6 cases (85.7%) showed disease recurrence or died within 2 years. There was significant correlation between distant metastasis status of the studied cases and the two years survival (p= 0.072), **Table (21)&Graph (14).**

Table (21) the relation of distant metastasis status to the two years survival :

Distant Metastasis	No. Of Cases	two years survival			
		Free of diseas		Recurrent / died	
		No.	%	No.	%
M0	43	22	51.6%	21	48.4%
M1	7	1	14.3%	6	85.7%
	50	23	46%	27	54%

Graph (14) the relation of distant metastasis status to the two years survival



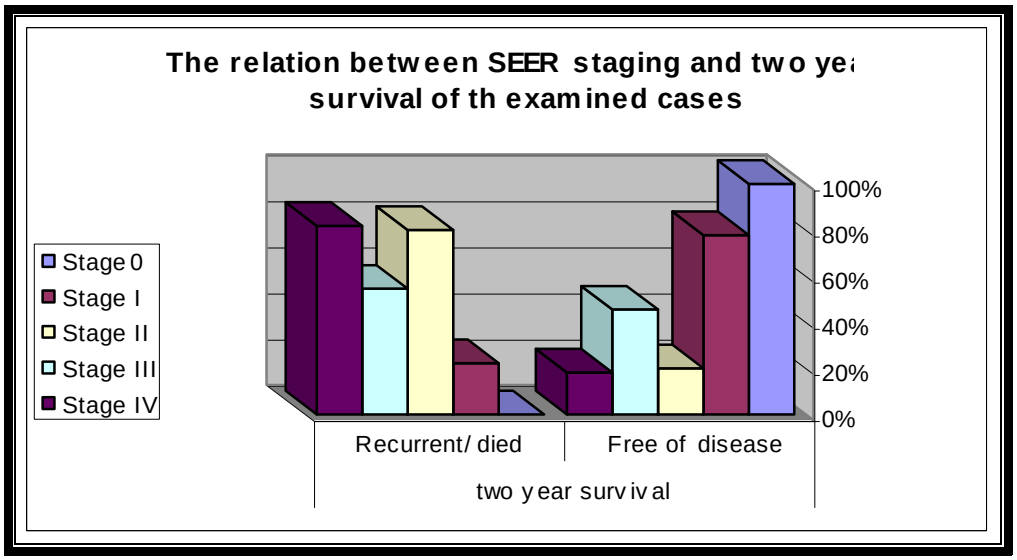
The relation between SEER staging and two years survival of the examined cases:

All 3 cases with (Stage 0): (100%) were free of disease. Out of 9 cases with (Stage I): 7 cases (77.8%) free of disease & 2 cases (22.2%) one showed disease recurrence and the other died within two years. Out of 5 cases with (Stage II): 1 case (20%) was free of disease & 4 case (80%)showed disease recurrence/ died. Out of 22 cases with (Stage III): 10 cases (45.5%) were free of disease & 12 cases (54.5%) showed disease recurrence/ died. Out of 11 cases with (Stage D): 2 cases (18.2%) free of disease & 9 cases (81.8%) recurrence/ died. There was high significant correlation between two year survival of the examined cases and SEER staging (p= 0.003), **Table (22)&Graph (15).**

Table (22) The relation between SEER staging and two years survival of the examined cases:

SEER staging	No. of cases	two years survival			
		Free of disease		Recurrent / died	
		no	%	no	%
Stage 0	3	3	100%	0	0%
Stage I	9	7	77.8%	2	22.2%
Stage II	5	1	20%	4	80%
Stage III	22	10	45.5%	12	54.5%
Stage IV	11	2	18.2%	9	81.8%
Total	50	23	46%	27	54%

Graph (15) The relation between SEER staging and two years survival of the examined cases:



PAS staining results

Control case of PAS (capillary hemangioma) showed continuous bright red basement membrane staining, figure (27).

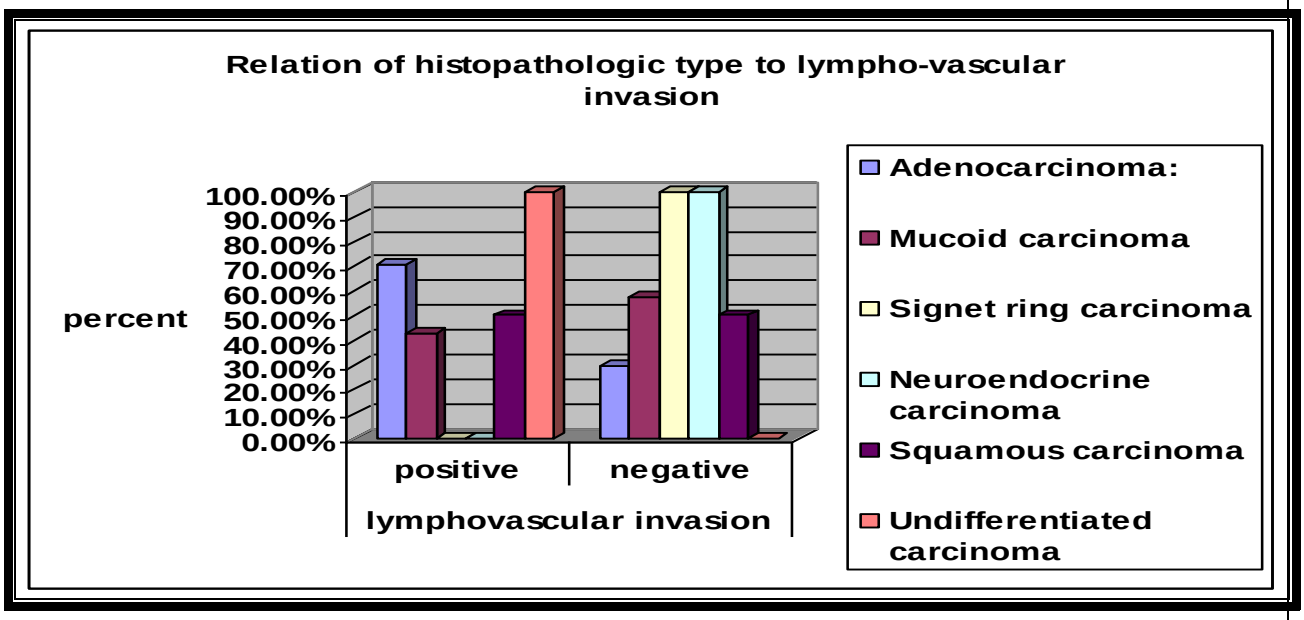
The relation of histopathologic type to tumor lymphovascular invasion:

Adenocarcinoma (27 cases): showed lymphovascular invasion in 19 cases (70.4%) while 8 cases (29.6%)were negative. Mucoid carcinoma cases (14 cases): lymphovascular invasion was detected in 6 cases (42.8%) while no lymphovascular invasion in 8 cases (57.2%). Signet ring carcinoma cases (4 cases): showed no lymphovascular invasion (100%). Neuroendocrine carcinoma (2 cases): showed no lymphovascular invasion (100%). Squamous cell carcinoma (2 cases): lymphovascular invasion was detected in one case (50%) and was negative in the other case (50%). Undifferentiated carcinoma (one case): showed lymphovascular invasion (100%). There was significant correlation between histological type of the CRC and lymphovascular invasion (p= 0.093), **Table (23) & Graph (16) and figures (28-32).**

Table (23): Relation of histopathologic type to lymphovascular invasion:

Histopathologic type	No. Of Cases	Lymphovascular invasion			
		+ve		-ve	
		No.	%	No.	%
Adenocarcinoma	27	19	70.4%	8	29.6%
Mucoid carcinoma	14	6	42.8%	8	57.2%
Signet ring carcinoma	4	0	0%	4	100%
Neuroendocrine carcinoma	2	0	0%	2	100%
Squamous carcinoma	2	1	50%	1	50%
Undifferentiated carcinoma	1	1	100%	0	0%
	50	**27**	**54%**	**23**	**46%**

Graph (16): Relation of histopathologic type to lympho-vascular invasion:



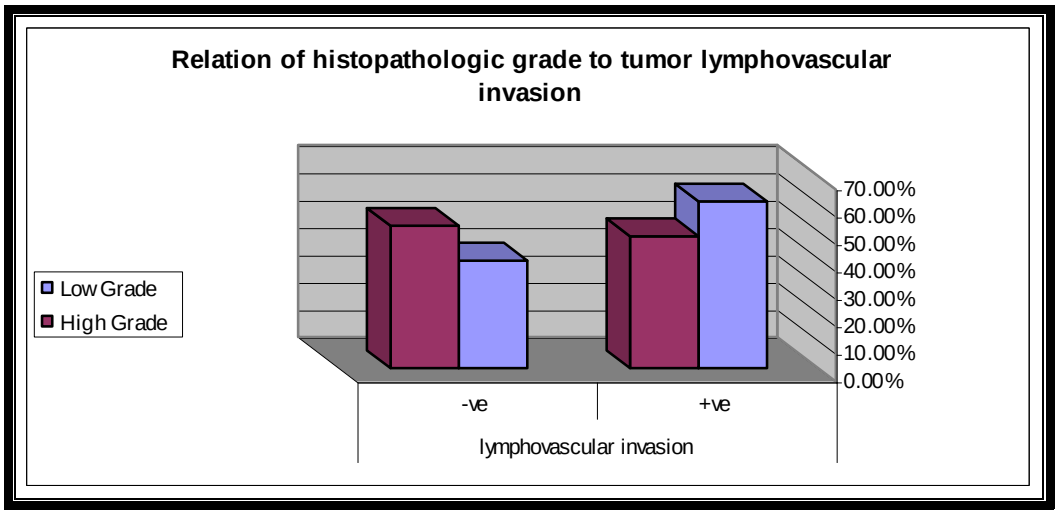
The relation of histopathologic grade to tumor lymphovascular invasion:

Out of 23 cases of low grade tumor: lymphovascular invasion was detected in 14 cases (60.8%) while 9 cases (39.2%)were negative. Out of 27 cases of high grade tumor: lymphovascular invasion was detected in 13 cases (48.1%) while 14 cases (51.9%) were negative. There was no significant correlation between histological grade of the CRC and lymphovascular invasion (p= 0.379), **Table (24) &Graph (17).**

Table (24): Relation of histopathologic grade to tumor lymphovascular invasion

Histopathologic grade	No. of cases	lymphovascular invasion			
		+ve		-ve	
		No.	%	No.	%
Low Grade	23	14	60.8%	9	39.2%
High Grade	27	13	48.1%	14	51.9%
	50	**27**	**54%**	**23**	**46%**

Graph (17): Relation of histopathologic grade to tumor lymphovascular invasion



The relation of depth of tumor invasion and lymphovascular invasion :

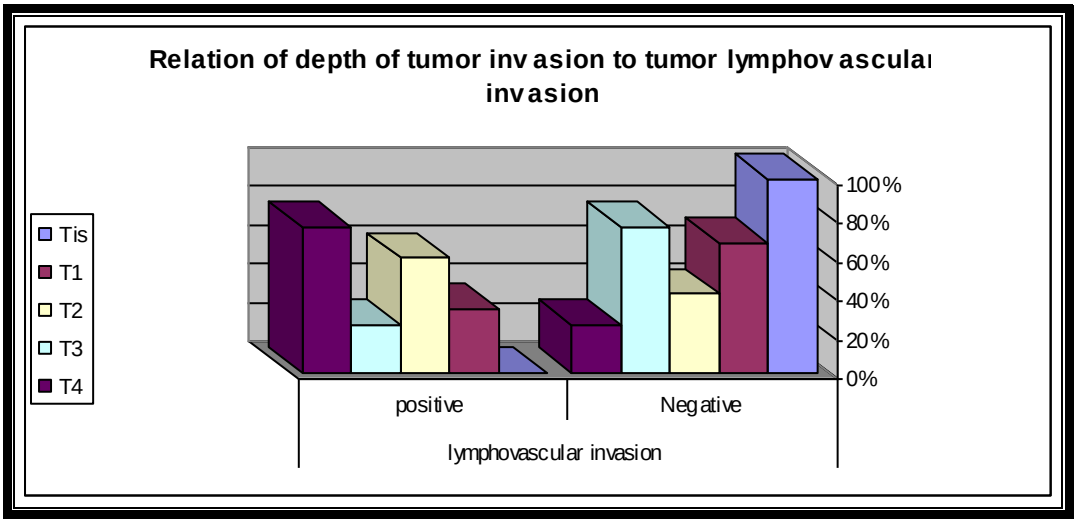
All 3 cases of Tis: (100%) showed negative lymphovascular invasion. Out of 3 cases of T1: one case (33.3%) showed lymphovascular invasion & 2 cases (66.7%) showed no lymphovascular invasion. Out of 32 cases of T2: 19 cases (59.4%) showed lymphovascular invasion & 13 cases (40.6%) showed no lymphovascular invasion. Out of 4 cases of T3: one case (25%) showed lymphovascular invasion & 3 cases (75%) showed no lymphovascular invasion. Out of 8 cases of T4: 6 cases (75%) showed lymphovascular invasion & 2 cases (25%) showed no lymphovascular invasion. There was no significant correlation

between depth of tumor invasion and tumor lymphovascular invasion in the studied cases (p= 0.816), **table (25) and& graph (18).**

Table (25): Relation of depth of tumor invasion to tumor lymphovascular invasion:

Depth of invasion	No. of Cases	Lymphovascular invasion			
		positive		Negative	
		No.	%	No.	%
Tis	3	0	0%	3	%100
T1	3	1	33.3%	2	66.7%
T2	32	19	59.4%	13	40.6%
T3	4	1	25%	3	75%
T4	8	6	75%	2	25%
Total	**50**	**27**	**54%**	**23**	**46%**

Graph (18): Relation of depth of tumor invasion to tumor lymphovascular invasion:



<u>Relation of regional lymph node status to tumor lymphovascular invasion of the studied cases :</u>

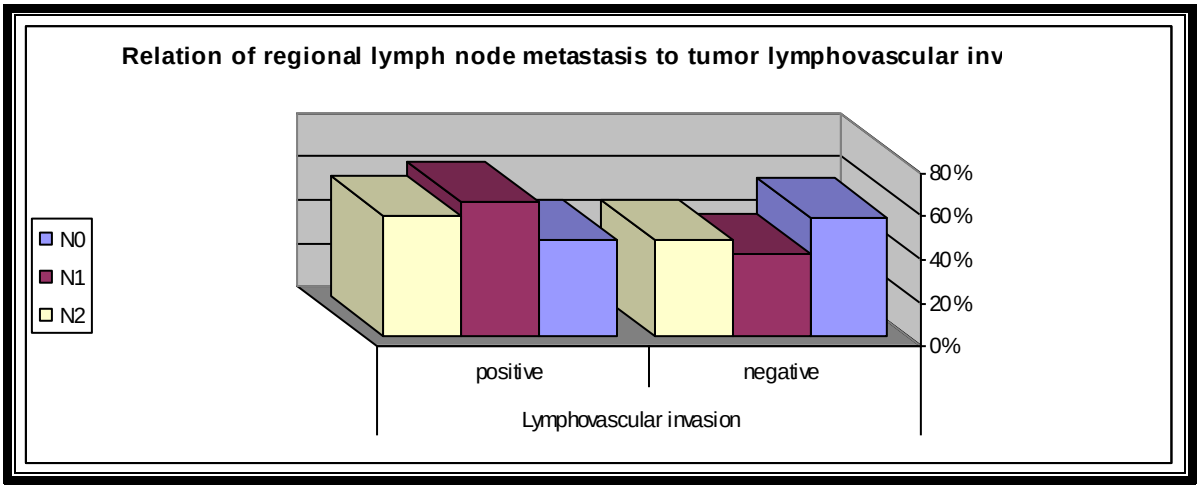
Out of 20 cases with negative lymph node metastasis (N0): 11 cases (55%) showed no lymphovascular invasion while 9 cases (45%) showed lymphovascular invasion. Out of 21 cases with (1-3) positive lymph node metastasis (N1): 8 cases

(38.1%) showed no lymphovascular invasion while 13 cases (61.9%) showed lymphovascular invasion. Out of 9 cases with (more than 4) positive lymph node metastasis (N2): 4 cases (44.4%) showed no lymphovascular invasion while 5 cases (55.6%) showed lymphovascular invasion. There is no significant correlation between lymphovascular invasion of the CRC and number of regional lymph node metastasis of the examined cases (p= 0.461), table (26) & graph (19).

Table (26): Relation of tumor lymphovascular invasion to regional lymph node metastasis of the studied cases:

Lymph node Metastasis	No. of Cases	Lymphovascular invasion			
		Negative		positive	
		No	%	no	%
N0	20	11	55%	9	45%
N1	21	8	38.1%	13	61.9%
N2	9	4	44.4%	5	55.6%
Total	**50**	**23**	**46%**	**27**	**54%**

Graph (19): Relation of regional lymph node metastasis to tumor lymphovascular invasion of the examined cases:



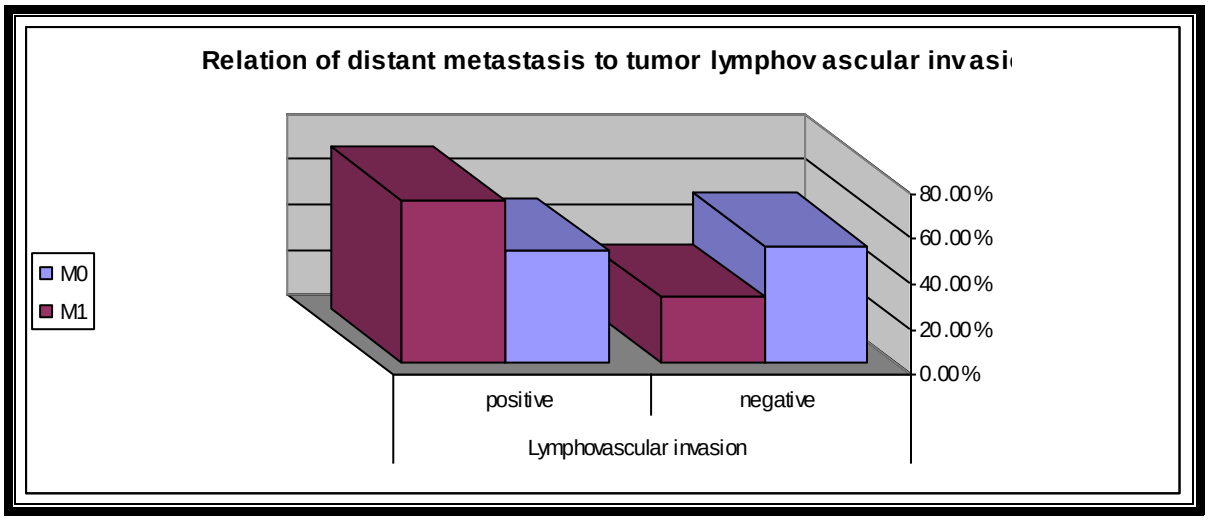
The relation of distant metastasis to tumor lymphovascular invasion of the studied cases:

Out of 43 cases without distant metastasis (M0): 22 cases (45%) showed lymphovascular invasion while 21 cases (55%) were negative. Out of 7 cases with distant metastasis (M1): 5 cases (71.4%) showed lymphovascular invasion while 2 cases (28.6%) were negative. There is no significant correlation between Relation of distant metastasis to tumor lymphovascular invasion of the examined cases (p= 0.328), **table (27) and graph (20).**

Table (27): Relation of tumor lymphovascular invasion to distant metastasis of the examined cases:

Distant metastasis	no. of cases	lymphovascular invasion			
		negative		positive	
		no	%	no	%
M0	43	21	48.8%	22	51.2%
M1	7	2	28.6%	5	71.4%
Total	**50**	**23**	**46%**	**27**	**54%**

Graph (20): Relation of distant metastasis to tumor lymphovascular invasion of the examined cases:



The relation of SEER staging system to tumor lymphovascular invasion:

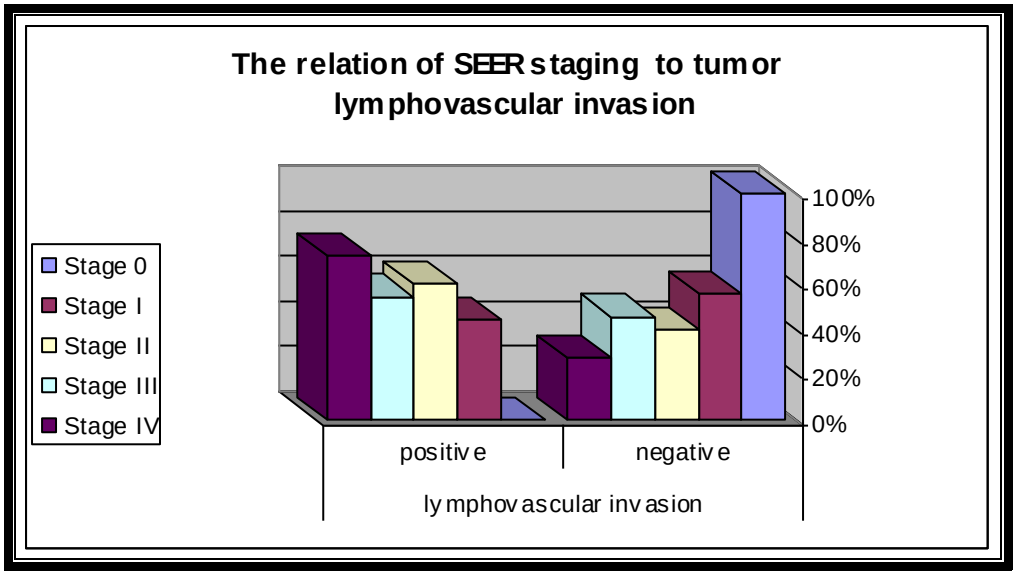
All 3 cases in Stage 0 : (100%) were free of lymphovascular invasion . lymphovascular invasion were detected in 4/9 cases (44.4%) of Stage I cases, 3/5

cases (60%) of Stage II cases, 12/22 cases (54.5%) of Stage III cases, and 5/11 cases (72.7%) of Stage IV cases. There was high significant correlation between SEER staging and lymphovascular invasion (p= 0.047), **table(28)graph(21).**

Table (28): The relation of SEER staging system to tumor lymphovascular invasion:

SEER staging	No. of cases	lymphovascular invasion			
		negative		positive	
		no	%	no	%
Stage 0	3	3	100%	0	0%
Stage I	9	5	55.6%	4	44.4%
Stage II	5	2	40%	3	60%
Stage III	22	10	45.5%	12	54.5%
Stage IV	11	3	27.3%	8	72.7%
Total	**50**	**23**	**46%**	**27**	**54%**

Graph(21): The relation of SEER staging system to tumor lymphovascular invasion:



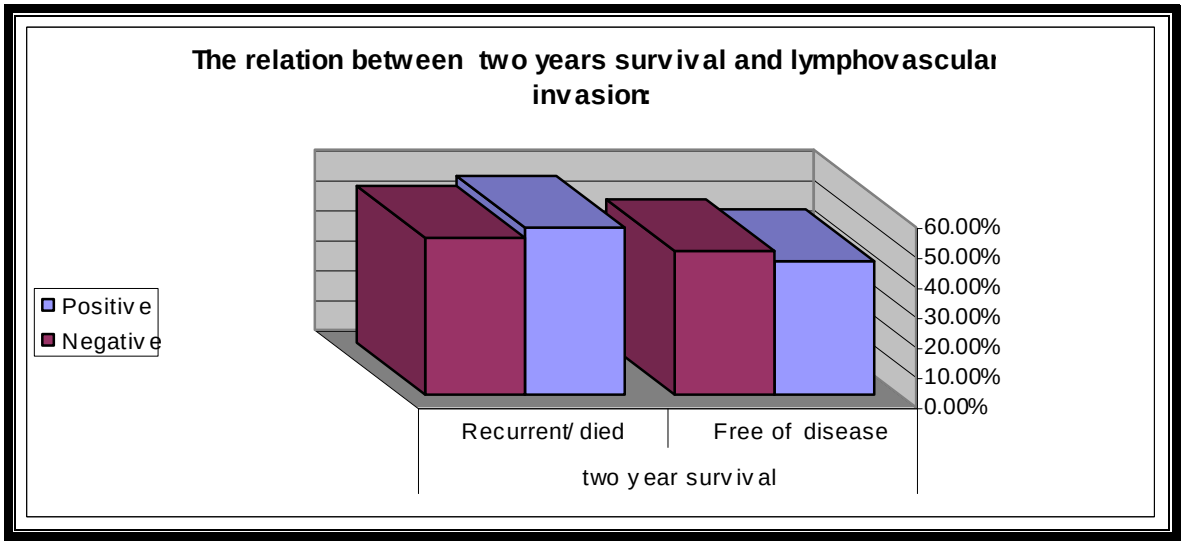
The relation of lymphovascular invasion to two years survival :

Out of 27 cases with positive lymphovascular invasion : 12 cases (44.4%) were free of disease & 2 cases (55.6%) were died. Out of 23 cases with negative lymphovascular invasion: 11 cases (47.8%) were free of disease & 12 cases (52.2%) were recurrente or died. There was no significant correlation between lymphovascular invasion of the studied cases and the two year survival (p= 0.816), **table (29)&graph (22).**

Table (29) The relation of lymphovascular invasion to two years survival :

Lymphovascular invasion	No. Of Cases	two years survival			
		Free of disease		Recurrent / died	
		no	%	no	%
Positive	27	12	44.4%	15	55.6%
Negative	23	11	47.8%	12	52.2%
Total	**50**	**23**	**46%**	**27**	**54%**

Graph(22)The relation of lymphovascular invasion to two years survival:



Immunohistochemical staining Results

Nm23 expression in control cases: (choronic non-specific colitis) showed nm23 expression as a diffuse granular brown intracytoplasmic color, figure(9).

Nm23 expression of the studied cases : twenty three cases (64%) were nm23 positive : showing a diffuse granular brown cytoplasmic color of all malignant cells, 18 cases (36%) were nm23 negative.

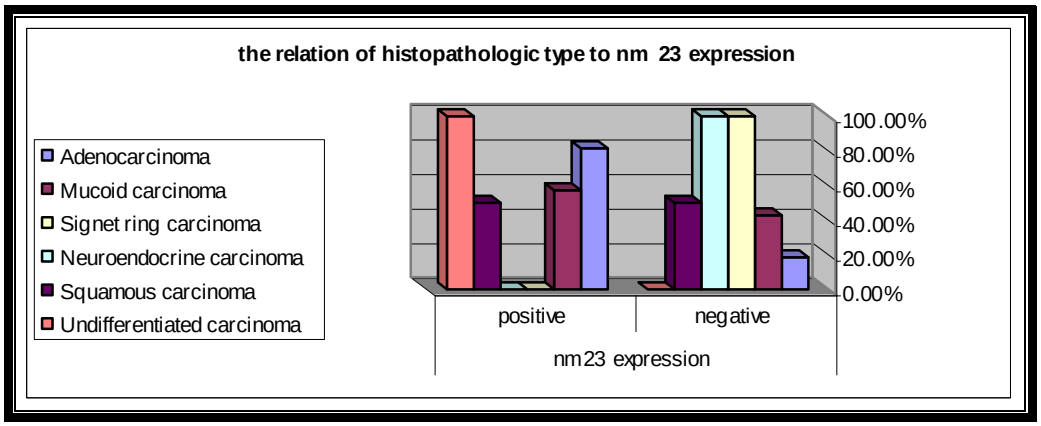
The relation of histopathologic type to nm23 expression :

There was high significant statistical correlation between histological type of the CRC and nm23 expression of the studied cases (p= 0.011), as most of adenocarcinoma cases (81.5%), mucoid carcinoma cases (57.2%) and Undifferentiated carcinoma case (100%) were positive (+ve). In the other hand all cases of Signet ring carcinoma (100%) and Neuroendocrine carcinoma cases were negative (-ve) (100%). Squamous cell carcinoma illustrate (50%) was positive. **table (30) , graph (23) and figures** (11-26).

Table (30) the relation of histopathologic type to nm23 expression:

Histopathologic type	No. Of Cases	Nm23 expression			
		Negative		positive	
		No	%	no	%
Adenocarcinoma	27	5	18.5%	22	81.5%
Mucoid carcinoma	14	6	42.8%	8	57.2%
Signet ring carcinoma	4	4	100%	0	0%
Neuroendocrine carcinoma	2	2	100%	0	0%
Squamous carcinoma	2	1	50%	1	50%
Undifferentiated carcinoma	1	0	0%	1	100%
	50	**18**	**36%**	**32**	**64%**

Graph (23) the relation of histopathologic type to nm23 expression:



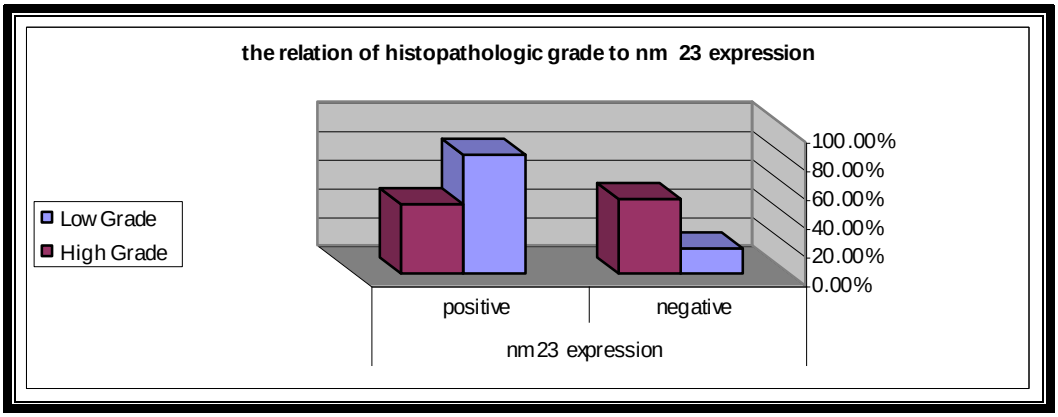
The relation of histopathologic grade to nm23 expression of the studied cases

Out of 23 cases of low grade tumor: positive immunostaining for nm23 could be detected in: 19 cases (82.6%).Out of 27 cases of high grade tumor: positive positive immunostaining for nm23 could be detected in 13 cases (48.2%). There was high significant correlation between histological grade of the CRC and nm23 expression of the studied cases (p= 0.022), **table (31) and graph (24).**

Table (31) the relation of histopathologic grade to nm23 expression :

Histopathologic grade	No. of cases	nm23 expression			
		negative		positive	
		no	%	no	%
Low Grade	23	4	17.4%	19	82.6%
High Grade	27	14	51.8%	13	48.2%
	50	**18**	**36%**	**32**	**64%**

Graph (24) the relation of histopathologic grade to nm23 expression :



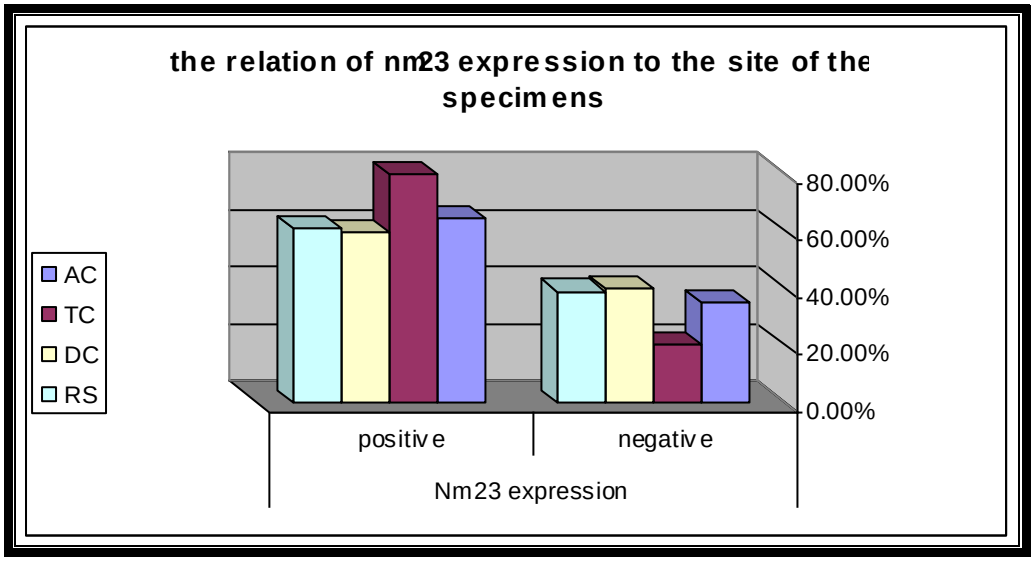
The relation of nm23 expression to the site of the tumor:

Out of 17 cases of the ascending colon (AC): 11 cases (64.7%) were positive while 6 cases (35.3%) were negative. Out of 5 cases of the transverse colon (TC): 4 cases (80%) were positive while 1 case (20%) were negative. Out of 10 cases of the descending colon (DC): 6 cases (60%) were Positive while 4 cases (40%) were negative.Out of 18 cases of the rectosigmiod (RS): 9 cases (61.1%) were positive while 7 cases (38.9%) were negative. There was no significant correlation between nm23 expression of the studied cases and the site of the tumor (p= 0.376), **table (32) and graph (25).**

Table (32) the relation of nm23 expression to the site of the tumor

Tumor Site	No. Of Cases	Nm23 expression			
		Negative		positive	
		No	%	No	%
AC	17	6	35.3%	11	64.7%
TC	5	1	20%	4	80%
DC	10	4	40%	6	60%
RS	18	7	38.9%	11	61.1%
	50	**18**	**36%**	**32**	**64%**

Graph (25) the relation of nm23 expression to the site of the tumor



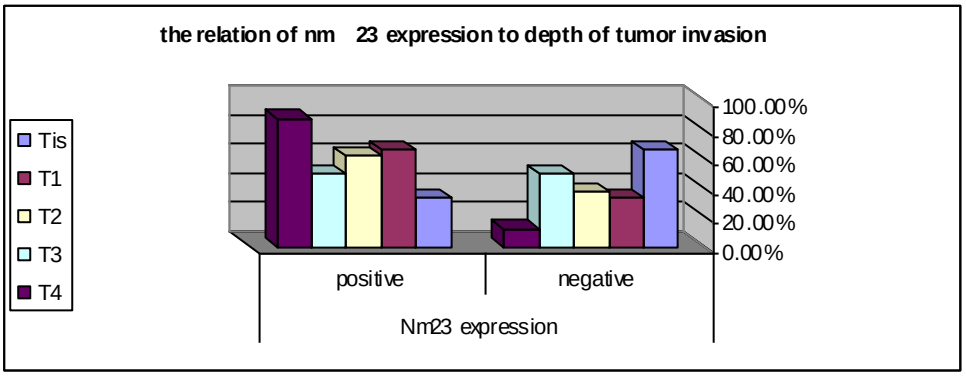
The relation of nm23 expression to the depth of tumor invasion:

Although as the deeper the tumor invasion , the higher nm23 expression was detected as in Tis cases nm23 expression was detected in (33.3%), nm23 expressionwas detected in 66.6%, 62.5%, 50% in T1,T2,T3 respectively and nm23 expression was detected in 87.5% of T4, but there was no significant statistical correlation between nm23 expression of the studied cases and depth of tumor invasion of the specimen (p= 0.144), **table (33) and graph (26).**

Table (33) the relation of nm23 expression to depth of tumor invasion

Depth of Tumor invasion	No. Of Cases	Nm23 expression			
		Negative		positive	
		No	%	no	%
Tis	3	2	66.6%	1	33.3%
T1	3	1	33.3%	2	66.6%
T2	32	12	37.5%	20	62.5%
T3	4	2	50%	2	50%
T4	8	1	12.5%	7	87.5%
	50	**18**	**36%**	**32**	**64%**

Graph (26) the relation of nm23 expression to depth of tumor invasion



The relation of nm23 expression to the lymphovascular invasion :

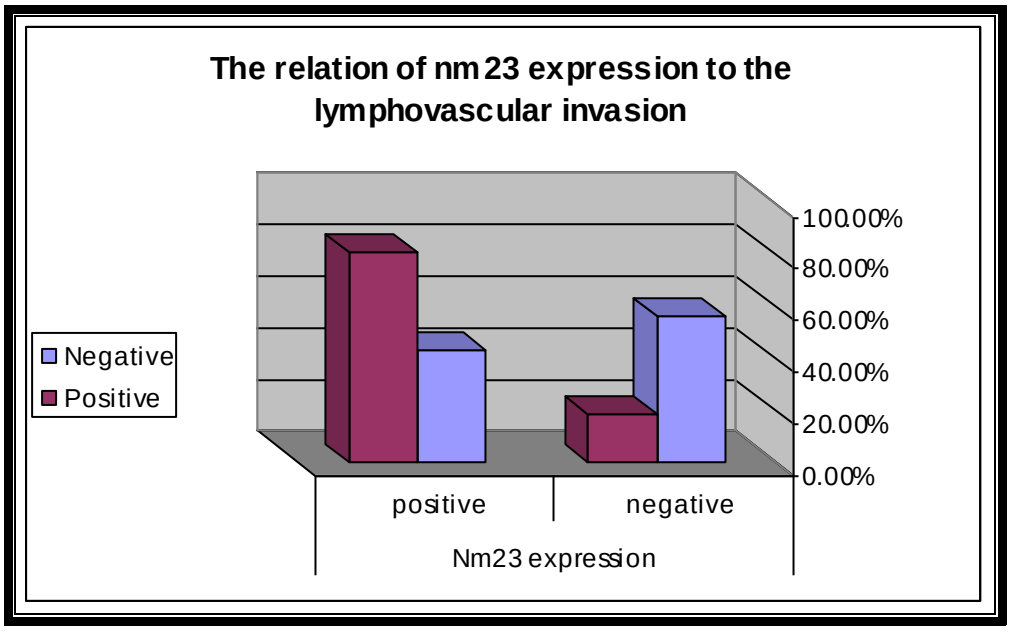
Out of 27cases with positive lymphovascular invasion: (81.5%) were positive for nm2. Out of 23 cases with negative lymphovascular invasion: (43.5%) were positive for nm2. There was high significant statistical correlation between nm23

expression of the studied cases and the lymphovascular invasion (p= 0.005), **table (34) and graph (27).**

Table (34) the relation of nm23 expression to the lymphovascular invasion

lymphovascular invasion	No. of cases	Nm23 expression			
		negative		positive	
		no	%	no	%
Negative	23	13	56.5%	10	43.5%
Positive	27	5	18.5%	22	81.5%
	50	**18**	**36%**	**32**	**64%**

Graph (27): The relation of nm23 expression to the lymphovascular invasion



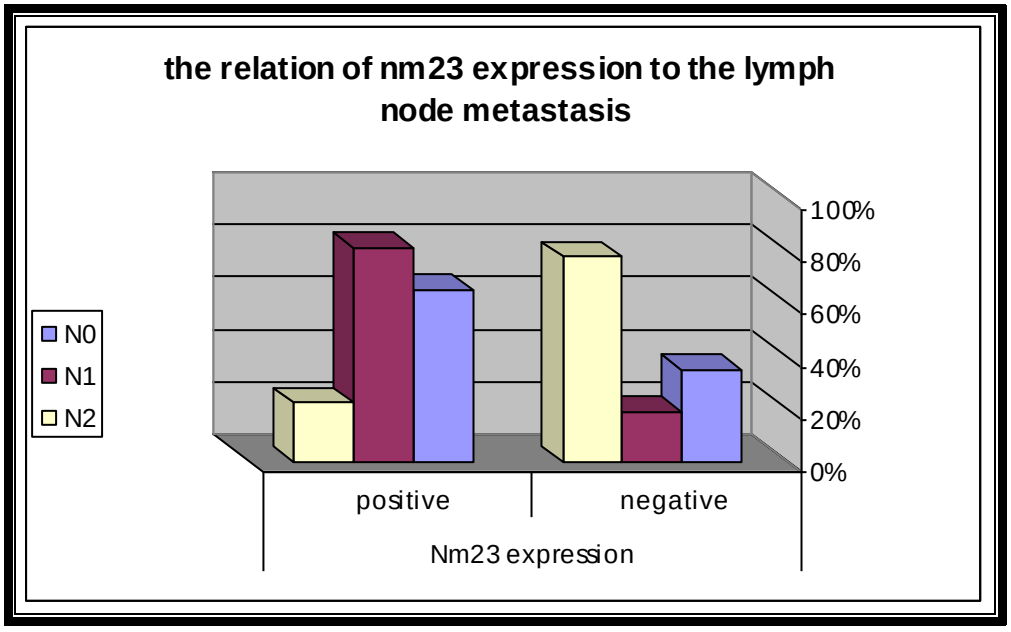
The relation of nm23 expression to the lymph node metastasis:

Out of 20 cases with negative lymph nodes (N0): (65%) were positive for nm23.Out of 21 cases with detected (1-3)positive lymph nodes (N1): (81%) were positive for nm23.Out of 9 cases with detected (>4) positive lymph nodes (N2): (22.2%) were positive for nm23. There was no significant statistical correlation between nm23 expression of the studied cases and the lymph node status (p= 0.114), **table (35) and graph (28).**

Table (35) the relation of nm23 expression to the lymph node metastasis

Lymph node metastasis	No. of cases	Nm23 expression			
		negative		positive	
		no	%	no	%
N0	20	7	35%	13	65%
N1	21	4	19%	19	81%
N2	9	7	77.8%	2	22.2%
	50	**18**	**36%**	**32**	**64%**

Graph (28) the relation of nm23 expression to the lymph node metastasis



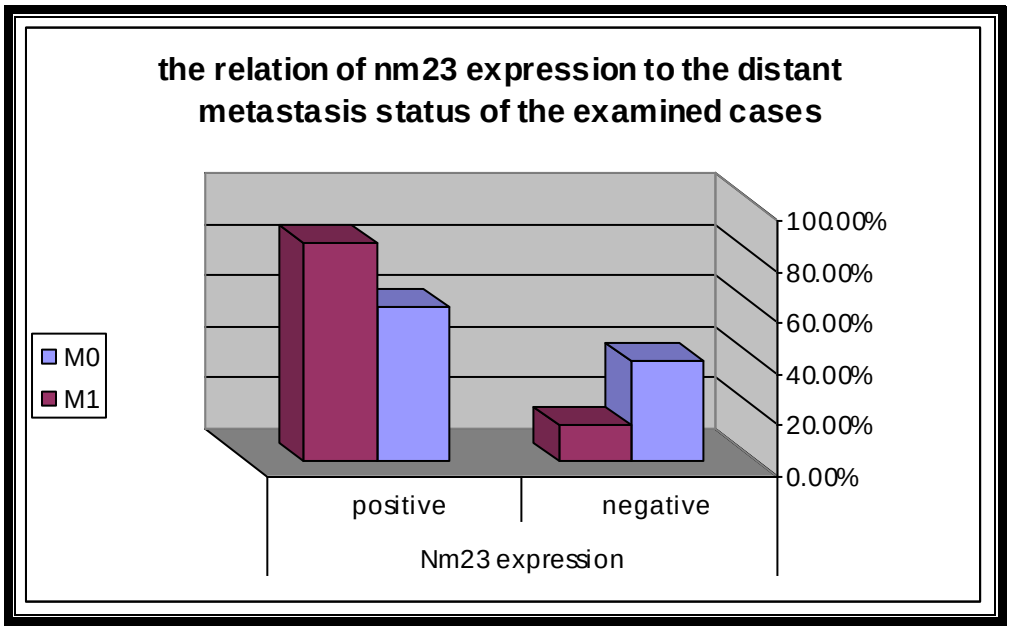
<u>The relation of nm23 expression to the distant metastasis status:</u>

Out of 43 cases with out distant metastasis (M0): 26 cases show positive expression for nm23(60.5%), but 17 cases shows negative expression (39.5%). Out of 7 cases with distant metastasis (M1): 5 case shows positive expression for nm23 (71.4%) but 2 cases shows negative expression (28.6%) . There was no significant statistical correlation between nm23 expression of the studied cases and the distant metastasis status (p= 0.205), **Table (36) & Graph (29).**

Table (36) the relation of nm23 expression to the distant metastasis status :

Distant metastasis	No. of cases	Nm23 expression			
		negative		positive	
		no	%	no	%
M0	43	17	39.5%	26	60.5%
M1	7	2	14.3%	5	85.7%
	50	**18**	**36%**	**32**	**64%**

Graph (29) the relation of nm23 expression to the distant metastasis status of the examined cases:



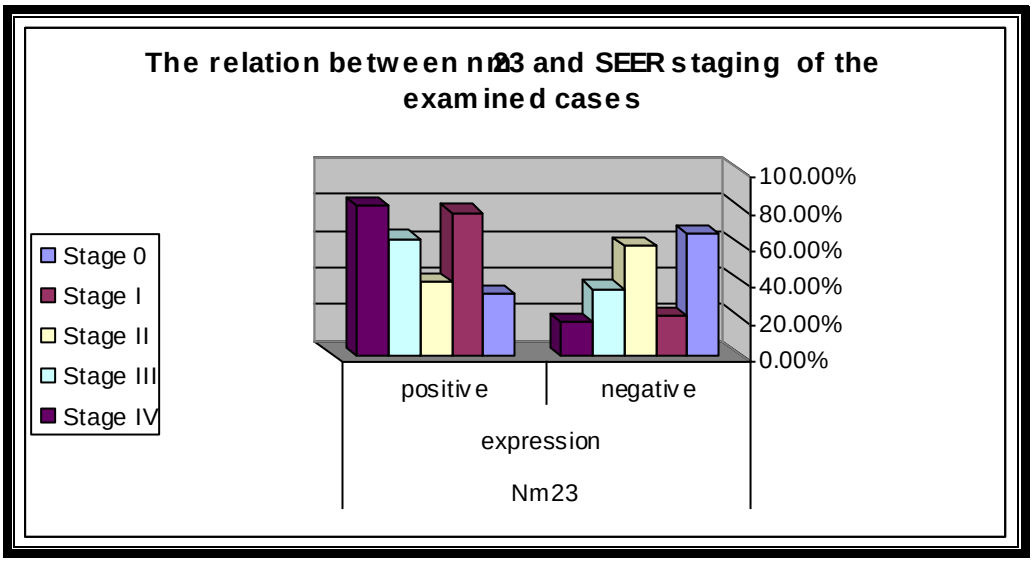
<u>The relation between nm23 and SEER staging of the examined cases:</u>

Although there was a high statistically significant correlation between nm23 expression of Stage(0)cases: (33.3%) in comparison with (Stage IV) cases: (81.8%) , but there was no significant statistical correlation between Nm23 expression of the examined cases and SEER staging (p= 0.403), **table (37)&graph (30).**

Table (37) The relation between nm23 expression and SEER staging of the examined cases:

SEER staging	No. of cases	Nm23 expression			
		positive		negative	
		no	%	no	%
Stage 0	3	1	33.3%	2	66.6%
Stage I	9	7	77.8%	2	22.2%
Stage II	5	2	40%	3	60%
Stage III	22	14	63.6%	8	36.4%
Stage IV	11	9	81.8%	2	18.2%
	50	**32**	**64%**	**18**	**36%**

Graph (30) The relation between nm23 and SEER staging of the examined cases:



<u>The relation of Nm23 expression to two years survival :</u>

Out of 32 cases with positive nm23 expression : 14 cases (43.7%) were free of disease & 18 cases (56.3%) were recurrente or died. Out of 18 cases with negative nm23 expression : 9 cases (50%) were free of disease & 9 cases (50%) were

recurrente or died. There was no significant statistical correlation between nm23 expression of the studied cases and the two year survival (p= 0.678), **table (38)&graph (31).**

Table (38) The relation of Nm23 expression to two year survival :

NM23 expression	No. Of Cases	two year survival			
		Free of disease		Recurrent / died	
		no	%	no	%
Positive	32	14	43.7%	18	56.3%
Negative	18	9	50%	9	50%
	50	**23**	**36%**	**27**	**64%**

Graph (31) the relation of nm23 expression to two year survival :

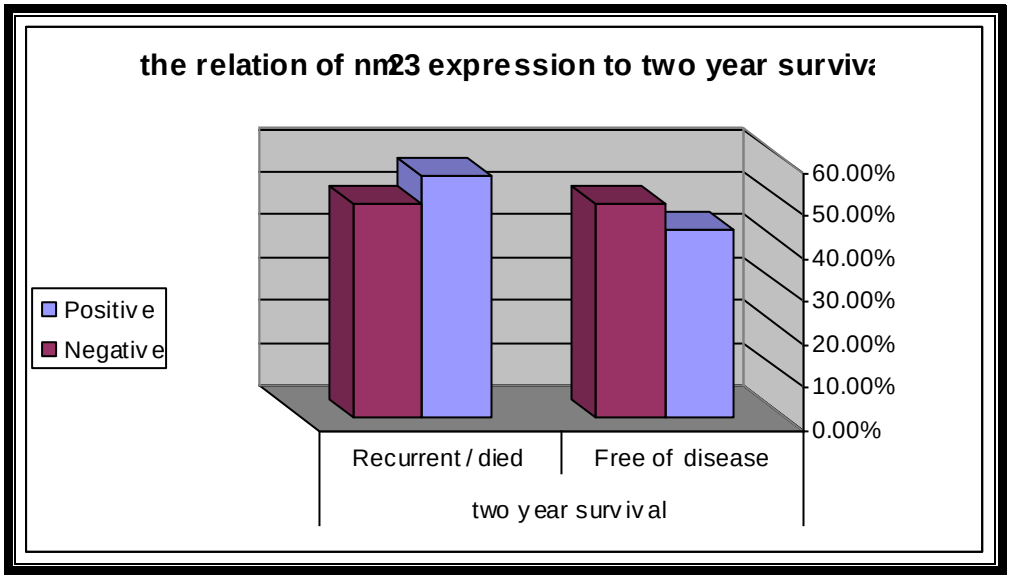


Table (39) The summary of P value of lymphovascular invasion& Nm23 expression in ralation to varies studied pathological varient:

There was a significant statistical correlation between nm23 expression and histopathological type, grade and lymphovascular invasion. There was a significant statistical correlation of lymphovascular invasion to histopathological type, depth of invasion and SEER stage.

Pathological varient	P value	
	Nm23 expression	lymphovascular invasion(PAS)
Tumor Site	0.727 Non-significant	0.312Non-significant
Histopathological Type	0.022 Significant	0.093 significant
Tumor Grade	0.011 Significant	0.175 Non-significant
Depth of invasion	0.144 Non-significant	0.084 significant
Lymph node metastasis	0.114 Non-significant	0.461 Non-significant
Distant metastasis	0.205 Non-significant	0.328Non-significant
lymphovascular invasion	0.005 Significant	X
SEER stage	0.403 Non-significant	0.047 Significant
Two years survival	0.678 Non-significant	0.816 Non-significant

Fig. (8): Chronic non-specific colitis showing glandular colonic epithelium with intracellular mucin giving the cytopasm amphophilic appearance and basal nucleus. The mucosa and submucosa are infilterated by chronic inflammatory cells mainly lymphocytes (H&E x 100).

Fig (9): Chronic non-specific colitis showing diffuse granular cytoplasmic expression of nm23 protein (+ve) (ABC x 200).

Fig (10): low grade adenocarcinoma of the colon. Showing some tubules are simple, others are complex or slightly irregular with loss of nuclear polarity. A solid sheet of malignant cells is seen (H&E x 100).

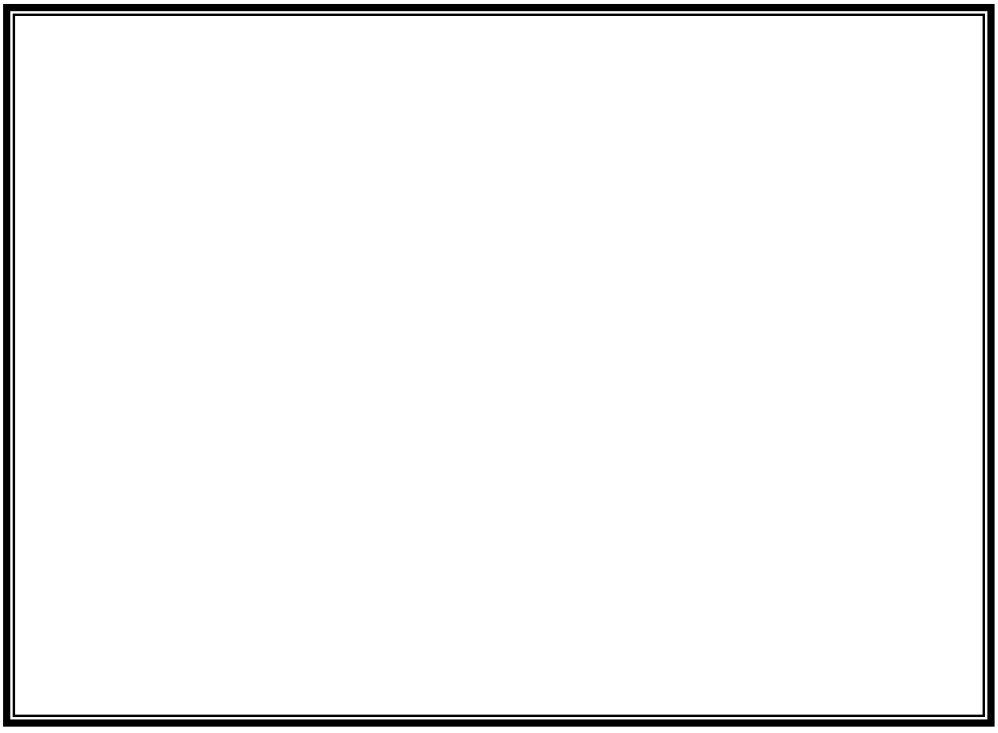


Fig (11): low grade adenocarcinoma of the colon, showing positive expression of nm23 immunostaining which is diffuse cytoplasmic (ABCx200).

Fig (1٢): high grade adenocarcomain of the colon showing majority of tumor is sheets of cells without gland formation (H&E x 200).

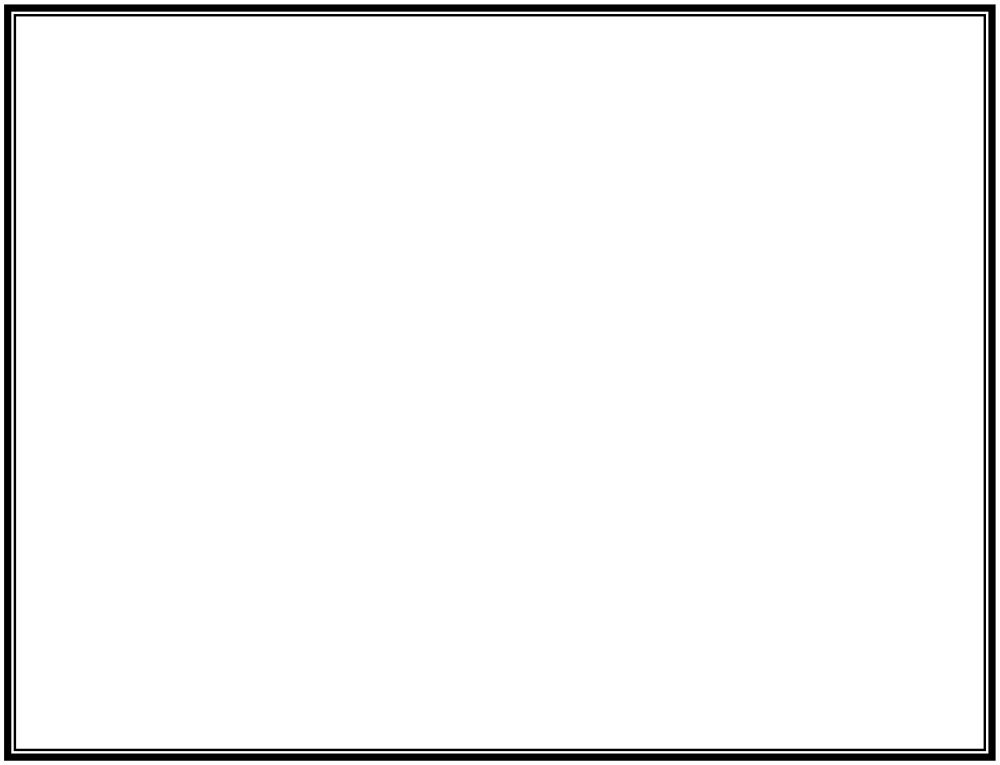


Fig (13): high grade adenocarcinoma of the colon, showing positive nm23 staining which is diffuse cytoplasmic.(ABC X 200)

Fig (14): Mucoid carcinoma of the colon. The malignant cells disposed in irregular clusters surrounded by mucin lakes comprising 50% or more of tumor mass with nuclear polymorphism. (H&E x 200).

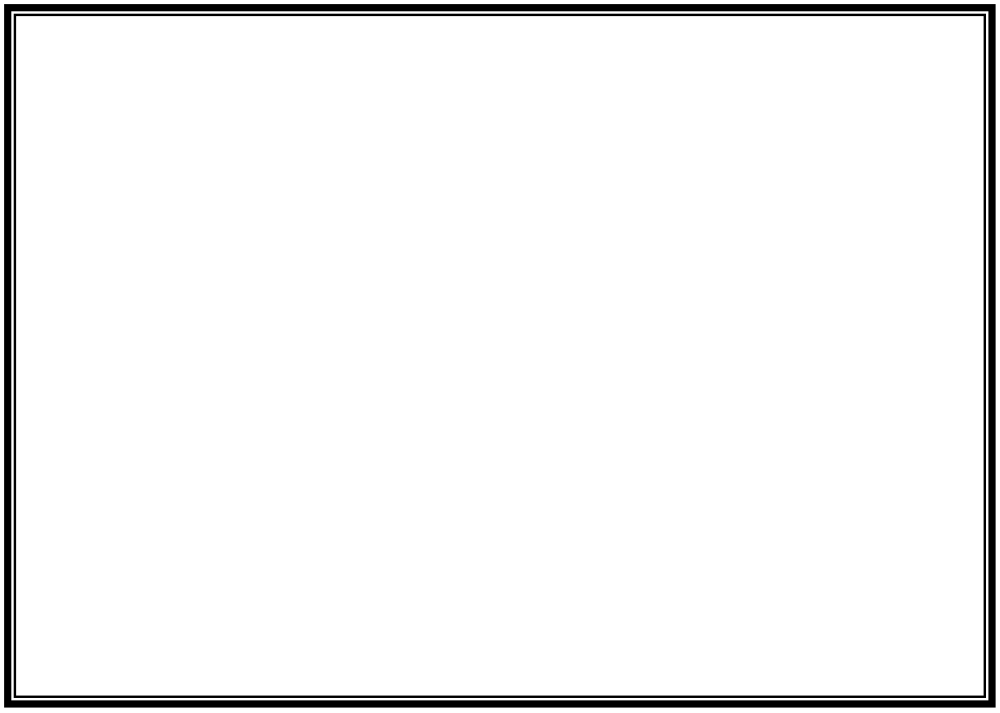


Fig (15): Mucoid carcinoma of the colon positive for nm23 staining which is diffuse cytoplasmic (ABC X 200)

Fig (16): Signet ring carcinomacarcinoma of the colon showing The malignant growth comprises diffuse growth of signet ring cells (>50% of tumor cells) with little glandular formation; cells have intracellular mucin that displaces nucleus to one side (H&E x 100).

Fig (17): signet ring carcinomacarcinoma of the colon showing negative nm23 staining (ABC X 200).

Fig (18): Neuroendocrine carcinoma of the colon showing **:** organoid appearance, larger cells than small cell carcinoma, marked nuclear pleomorphism, large irregular hyperchromatic nuclei with prominent nucleoli, frequent mitotic activity. (H&E x 200).

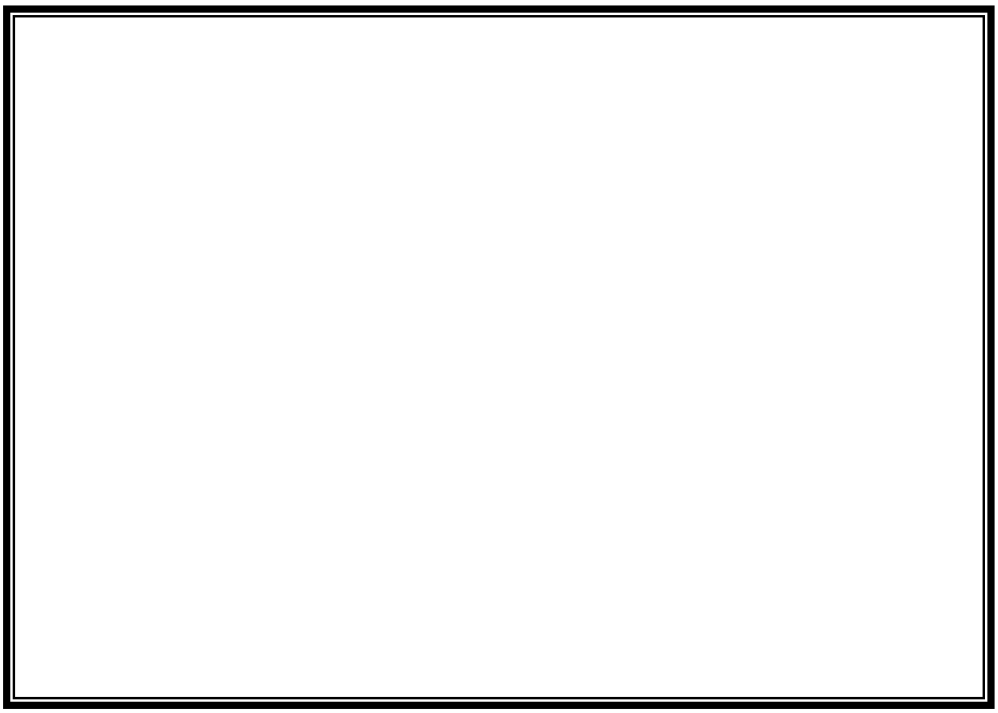


Fig (19): Neuroendocrine carcinoma of the colon showing negative for nm23 staining (ABC X 400)

Fig (20): Squamous cell carcinoma of the colon grade I showing :multiple nests of squamous cells (flatened epithelial cells with pale esinophilic cytoplsm and large open-face nucleus and apparent nucleolus(H&E x 100).

Fig (21): Squamous cell carcinoma of the colon showing positive nm23 immunostaining diffuse cytoplasmic (ABC X 200)

Fig (22): Undifferentiated carcinoma of the colon showing : sheets of tumor cells, no mucin production and no tubule formation; cells are variable in size and shape with eosinophilic cytoplasm, nuclear polymorphism and hyperchromatism (H&E x 100).

Fig (23): Undifferentiated carcinoma of the colon showing positive nm23 staining (ABC X 200)

Fig (24): Capillary hemangioma showing continous red color basement memberane (PAS x 400).

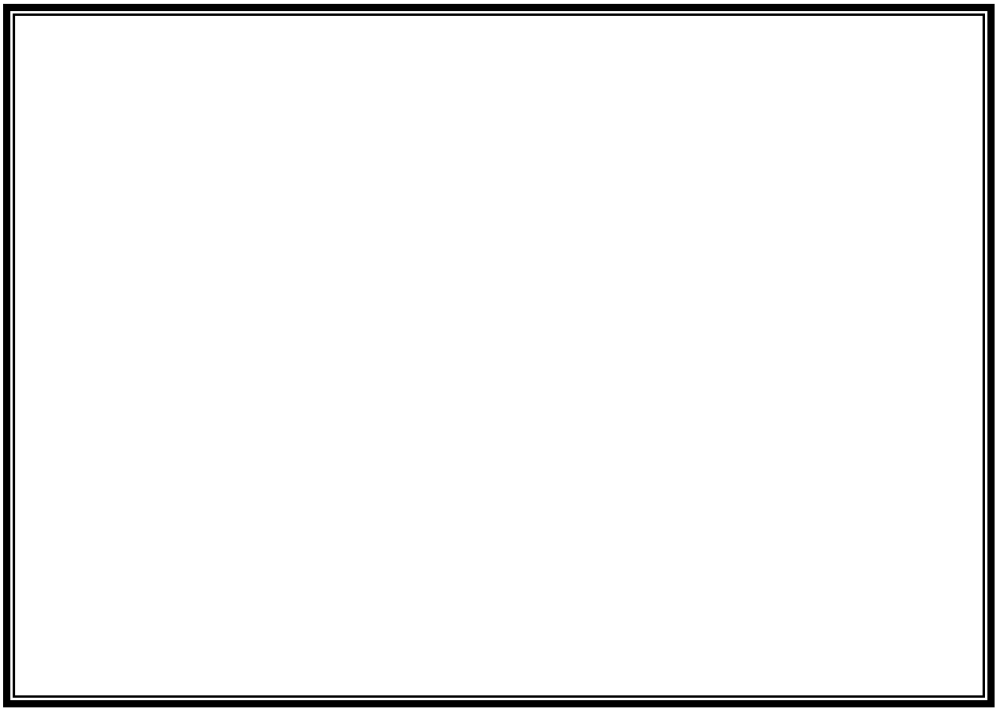


Fig (25): Adenocarcinoma of the colon Showing: tumor vascular invasion (PAS x 100).

Fig (26): Mucoid carcinoma of the colon showing :tumor ovascular invasion (PAS x 100).

Fig (27): Squamous cell carcinoma of the colon showing :tumor vascular invasion (PAS x 200).

Fig (29): Undifferntiated carcinoma of the colon showing tumor vascular invasion (PAS x 100).