RESULTS

This study included (53) patients attended to the department of Hepatology Gastroenterology and Infectious Diseases Benha university hospitals between July 2008 to January 2010.

Table (1) shows baseline characteristic of the studied patients as regard:

- Gender distribution, females represent 34% (18 patients) and males represent 66% (35 patients).
- Distribution of patients according to METAVIR stage of fibrosis:
  - F0 represent 18.9% (10 patients).
  - F1 represent 22.6% (12 patients).
  - F2 represent 18.9% (10 patients).
  - F3 represent 20.8% (11 patients).
  - F4 represent 18.9 (10 patients).
- Mean age of studied patients 38.02 ± 8.7

Table (2) shows the laboratory findings among the studied patients.

- Mean Hb level (g/dl) was 13.3 ± 1.3 , mean WBCs (/cmm) was 6320.1 ± 2716.2 and mean value of platelet count (/cmm) was 196075 ± 61770
- Mean value of AST (IU/ml) was 51.3 ± 37.02 and the mean of ALT (IU/ml) was 59.3± 37.5. ±
- Mean value of Albumin (g/dl) was 4.17 ± 5.5.
- Mean value of total bilirubin (mg/dl) was 0.81 ± 0.28 and mean value of direct bilirubin (mg/dl) was 0.23 ± 0.17.
- Mean value of Alkaline phosphatase (IU/ml) was 97.2 ± 37.9.
- Mean value of PT (sec) was 13.6 ± 1.14 and mean value of PC(%) was 83.8 ± 10.7.

- Mean value of serum creatinin (mg/dl) was 0.82 ± 0.27 and mean value of blood urea (mg/dl) was 27.1 ± 6.3.
- Mean value of fasting blood sugar (mg/dl) was 88.9 ± 35.7.
- Mean value of HCV RNA by PCR (IU/ml) was 598494. ± 8.86

Table (3) shows no significant difference between studied patients as regards age (P-value ≥ 0.05).

Table (4) and fig. (1) shows significant difference between studied groups as regarding gender (P-value < 0.05) and majority of patients were males in different fibrosis stage.

Table (5) shows statistical significant difference between the studied groups as regarding:

- Albumin and AST:

  Albumin level decreased as fibrosis stage increased while AST level increased with fibrosis progression.

  and no statistical significant difference as regard to other laboratory data.

Table (6) shows the ultrasonographic findings in the studied groups. There was a statistical significant difference between studied groups as regard to liver in ultrasound as there was heptomegaly in [60% in F0, 50% F1, 100% F2, 90.9% F3 and 50% F4] and majority of cases had coarse liver in stage F4. While bright liver was present mainly in stage F2. Also the majority of cases of splenomegaly was present in stage F4 [7 Patients (70%)] .

Table (7) and fig. (2) shows that there was highly statistical significant difference (p-value <0.001) between different fibrosis stages as regard fibroscan and APRI index (p-value <0.01) Also there was statistical significant difference (p-value <0.05) as regard API.

Table (8) and fig. (3 a, b, c, d, e) shows that the fibroscan is a good specific test in exclusion of fibrosis (F0) P-value < 0.05 with specificity (93%) AUROC (0.73) and in detection of advanced fibrosis (F3) (p-value <0.01) and cirrhosis (F4) P-value < 0.001 with sensitivity (90.9%, 90%) and specificity (73.8%, 90.7%) and AUROC (0.79, 0.95) respectively. While its value in detection of intermediate stages (F1, F2) is low AUROC (0.18, 0.34) respectively.

Table (9) and fig. (4 a, b, c) shows that fibroscan is the best significant predictive factor for significant fibrosis (F≥2) according to METAVIR score AUROC (0.77) with sensitivity (87.5%) , specificity (71.1%) and accuracy (77.4%) followed by APRI AUROC (0.74) with sensitivity (75.5%) , specificity (53.3%) and accuracy (74.2%) and API AUROC (0.69).

Table (10) and fig. (5 a, b, c) shows that fibroscan is the best significant predictive factor for advanced fibrosis (F≥3) (p-value <0.01) according to METAVIR score AUROC (0.79) with sensitivity (90.9%) , specificity (73.8%) and accuracy (79.8%) followed by APRI AUROC (0.78) with sensitivity (90.9%) , specificity (57.1%) and accuracy (78.9%) and API

AUROC (0.70) with sensitivity (72.7%) , specificity (40.5%) and accuracy (70.2%).

Table (11) and fig. (6 a, b, c) shows that fibroscan is the best significant predictive factor for liver cirrhosis (F4) (p-value <0.001) according to METAVIR score AUROC (0.95) with sensitivity (90%) , specificity (90.7%) and accuracy (95.2%). While APRI AUROC (0.65) and API AUROC (0.65).

Table (12) and fig. (7 a, b, c) shows :

- Positive correlation between METAVIE stages and age, AST and spleen in U/S.
- Strong positive correlation between METAVIR stages and API, APRI and Fibroscan.
- Negative correlation between METAVIR stages and Hb and albumin.
- No correlation with other variables.

Table (13) shows:

- Positive correlation between API and age.
- Strong positive correlation between API and Spleen in U/S, fibroscan and APRI.
- Negative correlation between API and WBCs.
- Strong negative correlation between API and platelets.
- No correlation with other variables.

Table (14) shows :

- Positive correlation between APRI and fibroscan.
- Strong positive correlation between APRI, AST, ALT and API

- Negative correlation between APRI, Hb and albumin.
- Strong negative correlation between API and platelets.
- No correlation with other variables.

Table (15) shows :

- Positive correlation between fibroscan and AST and APRI index.
- Strong positive correlation between Fibroscan and age, API, spleen in U/S.
- Negative correlation between fibroscan and Albumin.
- No correlation with other variables.

Table (16) this table shows that fibroscan is an independent variable in diagnosis of progressive fibrosis (p-value <0.01) while other studied variable were dependent in diagnosis of fibrosis.

Table (1) : Baseline characteristic of the studied groups.

Variable	No (N=53)	% (100%)
Gender female	18	34.0
male	35	66.0
METAVIR stages		
F0	10	18.9
F1	12	22.6
F2	10	18.9
F3	11	20.8
F4	10	18.9
Age	Mean ± SD	
	38.02 ± 8.7	

This table shows that the majority of cases were males (66%) with mean age 38.02 ± 8.7 and categorized according to METAVIR scoring system.

Table (2) : Laboratory findings among the studied groups.

Studied Variables	Mean ± Std. Deviation
Hb (g/dl)	13.3 ± 1.3
WBCs (/cmm)	6320.1 ± 2716.2
Platelets (/cmm)	196075 ± 61770
AST (IU/ml)	51.3 ± 37.02
ALT (IU/ml)	59.3 ± 37.5
Albumin (g/dl)	4.17 ± 0.55
Total bilirubin (mg/dl)	0.81 ± 0.28
Direct bilirubin (mg/dl)	0.23 ± 0.17
Alkaline phosphatase (IU/ml)	97.2 ± 37.9
PT (sec.)	13.6 ± 1.14
PC (%)	83.8 ± 10.7
Blood urea (mg/dl)	27.1 ± 6.3
Serum creatinin (mg/dl)	0.82 ± 0.27
Fasting blood sugar (mg/dl)	88.9 ± 35.7
(HCVRNA) by PCR (IU/ml)	598494. ± 8.86

Table (3) : Age distribution among the studied groups.

Variable	F0 No. 10 mean±SD	F1 No. 12 mean±SD	F2 No. 10 mean±SD	F3 No. 11 mean±SD	F4 No. 10 mean±SD	Test of significance	P- value
age	36.6±11.9	33.1±8.6	37.7±6.6	39.9±7.6	43.6±4.7	ANOVA test 2.43	> 0.05

This table shows no a statistical significant difference between studied groups as regards age.

Table (4) : Sex distribution among the studied groups.

Gender	METAVIR Score										Test of significance	P-value
	F0 No. 10		F1 No. 12		F2 No. 10		F3 No. 11		F4 No. 10			
	No	%	No	%	No	%	No	%	No	%		
female	0	0.0	3	25.0	4	40.0	7	63.6	4	40.0	X^2 test 10.2	<0.05*
male	10	100.0	9	75.0	6	60.0	4	36.4	6	60.0		
Total	10	100.0	12	100.0	10	100.0	11	100.0	10	100.0		

This table shows that there is a statistical significant difference between studied groups as regards gender.

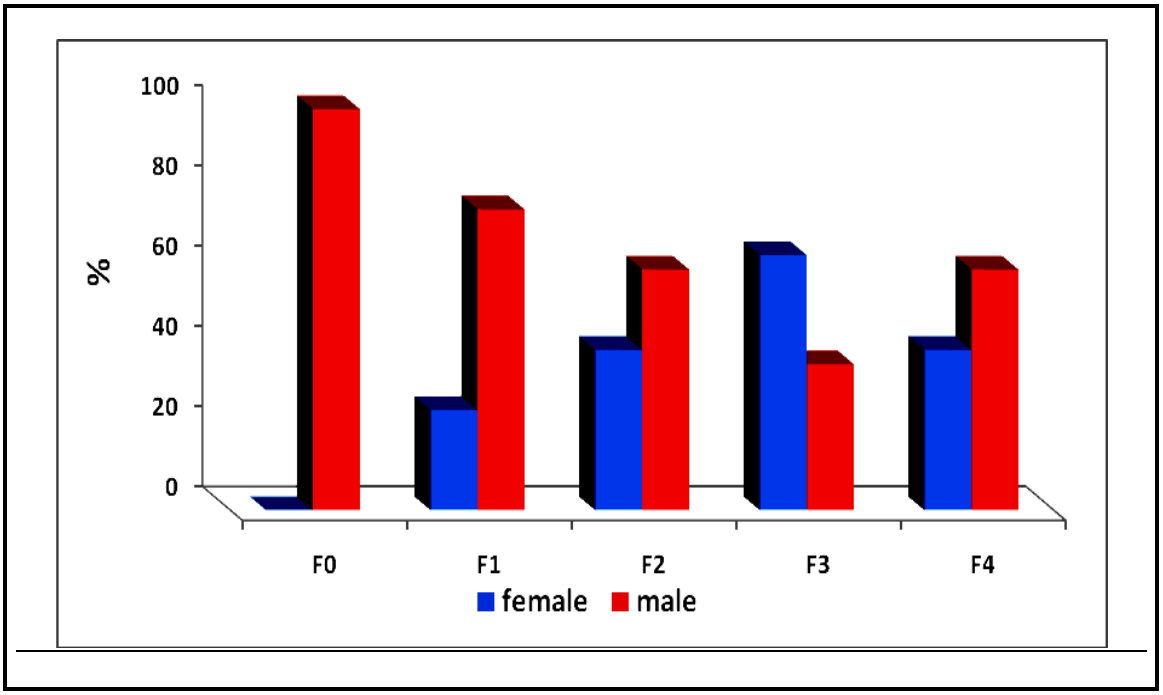


Fig. (1) : Study of Sex difference among the studied groups

Table (5) : Correlation of laboratory findings and fibrosis stages in the studied groups.

Variable	F0 No. 10 mean±SD	F1 No. 12 mean±SD	F2 No. 10 mean±SD	F3 No. 11 Mean±SD	F4 No. 10 mean±SD	Test of significance	P-value
Hb (g/dl)	13.8 ± 1.4	13.3 ± 1.0	13.4 ± 1.1	13.2 ± .96	12.5 ± 1.7	ANOVA test 1.36	> 0.05
Platelets (/cmm)	210400.0 ± 65818.3	216333.3 ± 42651.5	195600.0 ± 41623.2	173636.4 ± 60191.8	182600.0 ± 90218.5	ANOVA test 0.93	> 0.05
WBCs (/cmm)	7860.0 ± 3542.8	5841.7 ± 1910.5	6530.0 ± 1841.5	5578.6 ± 3002.6	5960.0 ± 2898.4	ANOVA test 1.18	> 0.05
Albumin (g/dL)	4.4 ± .55	4.4 ± .31	3.9± .48	4.3±.77	3.8±.36	ANOVA test 2.67	< 0.05*
PT (sec.)	13.3±.87	13.4±.33	13.6±1.0	13.6±1.2	14.2±1.9	ANOVA test 1.01	> 0.05
Total bilirubin (mg/dL)	.84±.19	.75±.21	.87±.41	.78±.34	.82±.2	ANOVA test 0.29	> 0.05
Direct bilirubin (mg/dL)	.26±.20	.16±.07	.23±.16	.22±.196	.29±.19	ANOVA test 0.98	> 0.05
ALT (IU/ml)	43.7±24.8	52.0±25.2	64.6±54.3	65.7±30.6	71.5±46.4	ANOVA test 0.94	> 0.05
AST (IU/ml)	36.1±14.5	37.1±14.1	48.2±28.7	58.2±26.5	78.7±66.6	ANOVA test 2.64	< 0.05*
HCV RNA by (PCR)	650813.8 ±1.16	490656.0 ±6.84	682931.9 ±7.32	517592.6 ±8.93	680133.5 ±1.07	ANOVA test 0.112	> 0.05

This table shows that a statistical significant difference between studied groups as regards serum albumin and AST level.

Table (6) : Comparison of ultrasonographic findings and MATAVIR stages in studied groups.

Liver in US	METAVIR Score										Test of significance	P-value
	F0 No. 10		F1 No. 12		F2 No. 10		F3 No. 11		F4 No. 10			
	No	%	No	%	No	%	No	%	No	%		
Size of liver												
Normal	4	40.0%	6	50.0%	0	0.0%	1	9.1%	5	50.0%	X^2 test 11.2	<0.05*
Enlarged	6	60.0%	6	50.0%	10	100%	10	90.9%	5	50.0%		
Echopattern												
Bright	3	30.0%	5	41.7%	6	60.0%	4	36.4%	2	20.0%	X2 test 19.3	<0.05*
Coarse	5	50.0%	2	16.6%	4	40.0%	7	63.6%	8	80.0%		
Size of spleen												
Normal	6	60.0%	8	66.7%	4	40.0%	5	45.5%	3	30.0%	X^2 test 3.8	>0.05
Enlarged	4	40.0%	4	33.3%	6	60.0%	6	54.5%	7	70.0%		

This table shows that a statistical significant difference between studied groups as regards liver appearance in U/S (liver size and echopattern).

Table (7) : Correlation of non invasive measures of fibrosis and METAVIR scoring system in the studied groups.

Studied Variables	METAVIR Score					Test of significance	P- value
	F0 No. 10 Mean±SD	F1 No. 12 Mean±SD	F2 No. 10 Mean±SD	F3 No. 11 Mean±SD	F4 No. 10 Mean±SD		
Fibroscan (KPa)	7.1±**2.05**	6.5±**1.4**	8.7±**3.8**	22.02±**8.5**	31.3±**5.2**	ANOVA test 52.3	< 0.001***
API	2.9±**2**	1.7±**1.4**	3.4±**1.4**	4.4±**2**	4.1±**1.7**	ANOVA test 4.4	<0.05*
APRI	Mean rank (MR)	Mean rank (MR)	Mean rank (MR)	Mean rank (MR)	Mean rank (MR)	Kruskal wallis test 14.2	<0.01**
	21.2	19.2	22.2	39.4	33.4		

This table shows that highly statistical significant difference between different fibrosis stages as regard fibroscan (p-value < 0.001), APRI index (p-value < 0.01) and API index (p-value < 0.05)

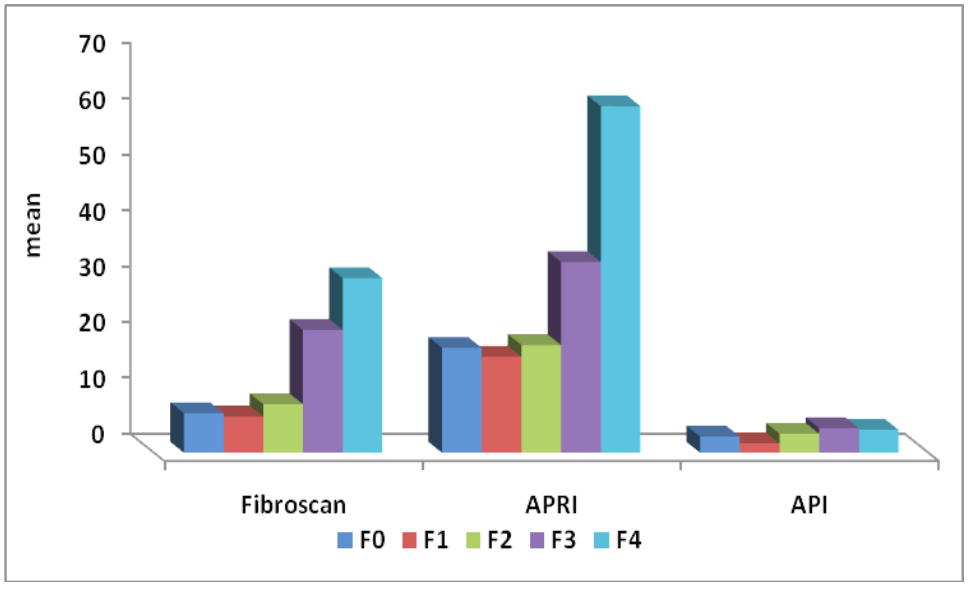


Fig. (2) : Correlation of non invasive measures of fibrosis and METAVIR scoring system in the studied groups.

Table (8) : Sensitivity and specificity of fibroscan in different fibrosis stages according to METAVIR score:

Studied variable	Cut off value	Sensitivity	Specificity	AUC	P-value	95%CI
F0	5.25	20%	93%	0.73	< 0.05*	0.59-0.87
F 1	4.7	91.7%	5%	0.18	0.001**	0.07-0.29
F 2	5.5	90%	14%	0.34	> 0.05	0.18-0.49
F 3	12.7	90.9%	73.8%	0.79	< 0.01*	0.67-0.91
F4	25.1	90%	90.7%	0.95	< 0.001**	0.89-1

Fibroscan is a good test for no or minimal fibrosis (F0, F1). Very good test for advanced fibrosis (F ≥ 3) and cirrhosis (F4) but it can't differentiate intermediate stages of fibrosis.

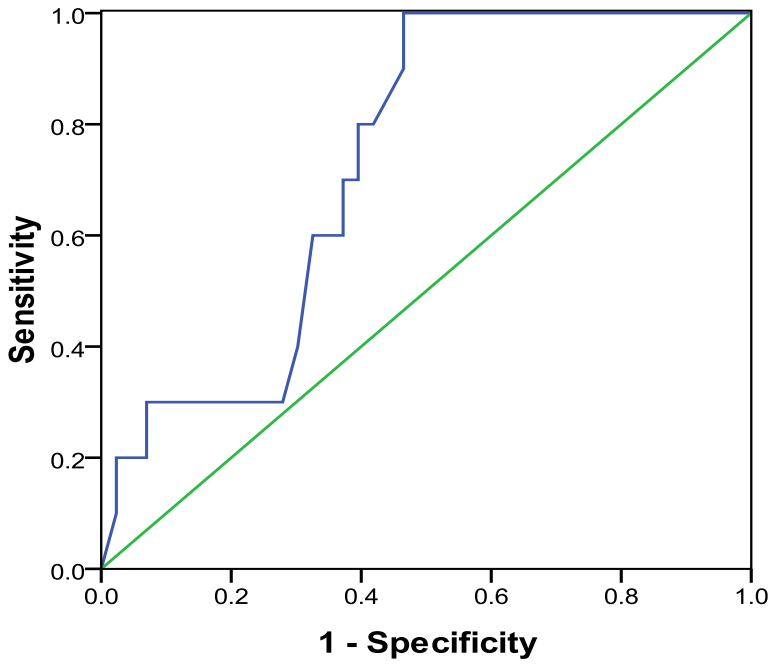


Fig. (3a) : ROC curve showing sensitivity and specificity of fibroscan in F0

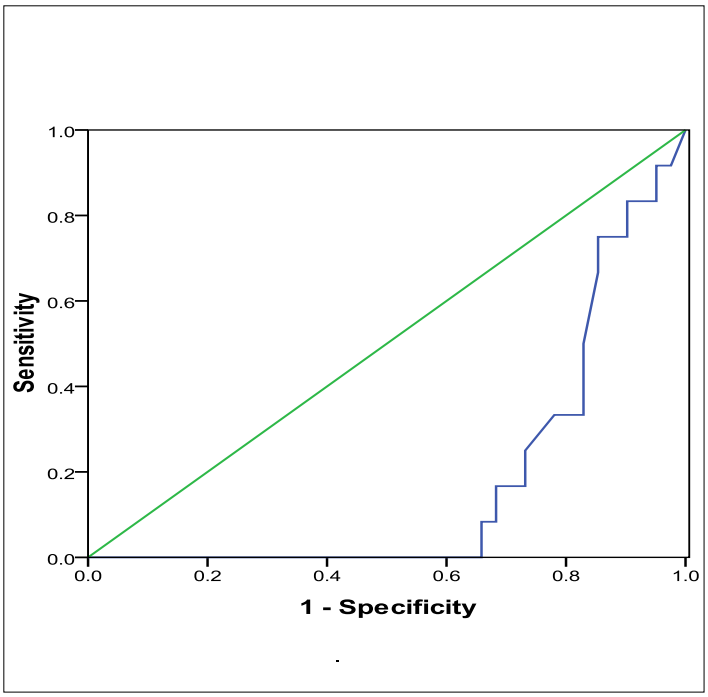


Fig. (3b) : ROC curve showing sensitivity and specificity of fibroscan in F1.

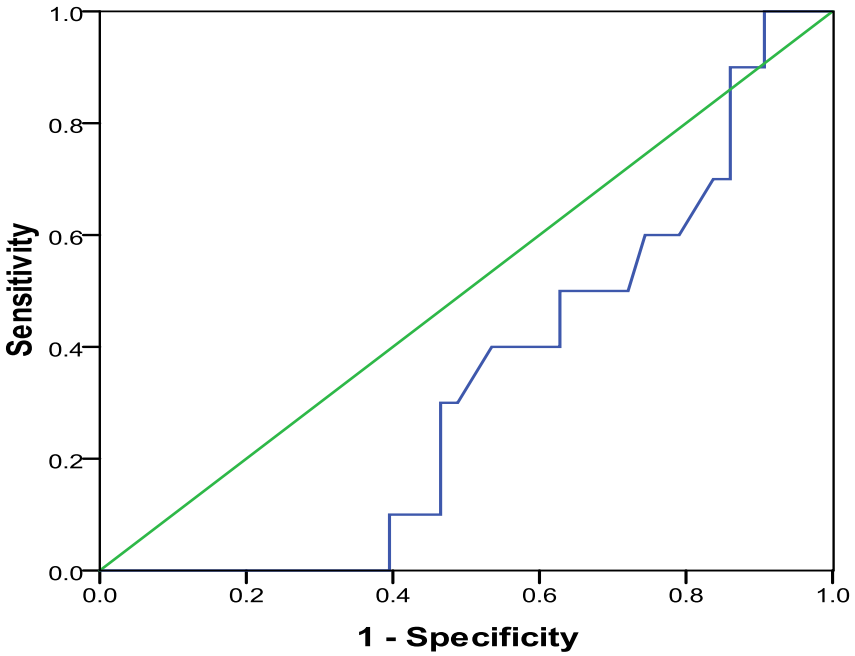


Fig. (3c) : ROC curve showing sensitivity and specificity of fibroscan in F2.

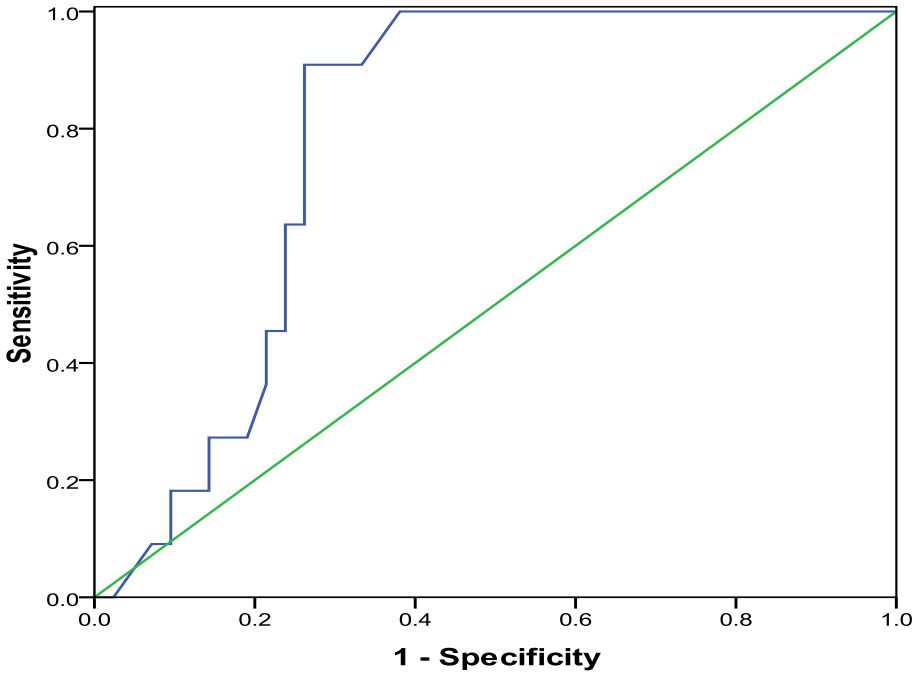


Fig. (3d) : ROC curve showing sensitivity and specificity of fibroscan in F3.

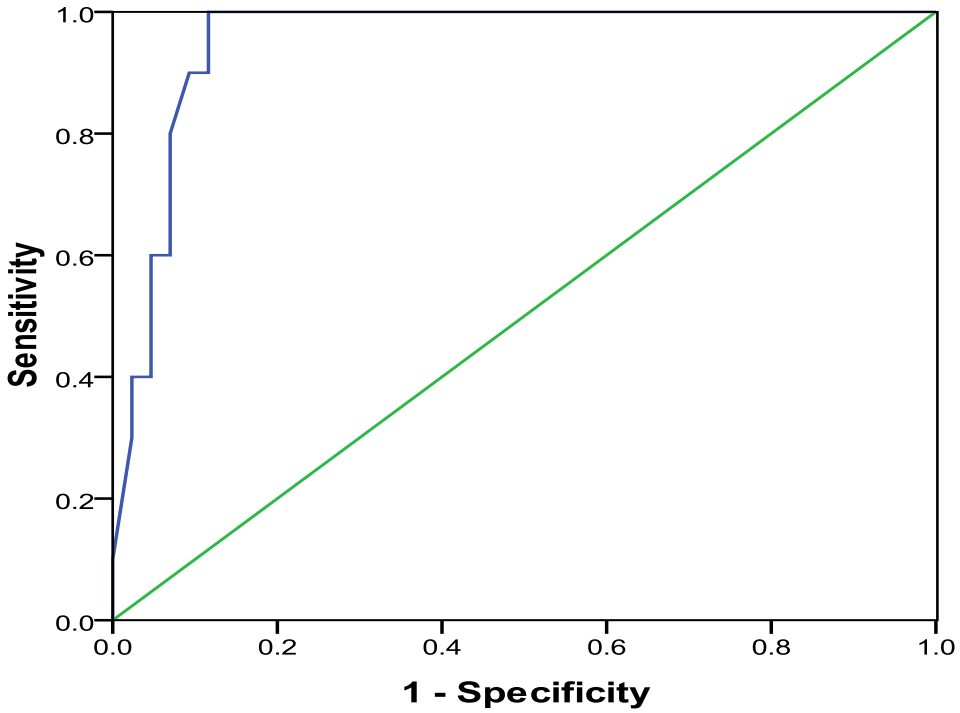


Fig. (3e) : ROC curve showing sensitivity and specificity of fibroscan in F4.

Table (9) : Sensitivity, specificity and accuracy of fibroscan, API, APRI index in detecting significant fibrosis (F≥2) according to MATAVIR score.

Studied variable	Sensitivity	Specificity	AUC	Accuracy	P	95%CI
Fibroscan Cut off level 12.7	**87.5%**	**71.1%**	**0.77**	**77.4%**	**<0.05***	**0.65 -0.9**
API Cut off level 2.5	**62.5%**	**57.8%**	**0.69**	**68.7%**	**>0.05**	**0.47 -0.9**
APRI Cut off level 19.97	**75.5%**	**53.3%**	**0.74**	**74.2%**	**<0.05***	**0.58 -0.9**

Fibroscan, APRI index are good tests for detection of significant fibrosis (F ≥ 2).

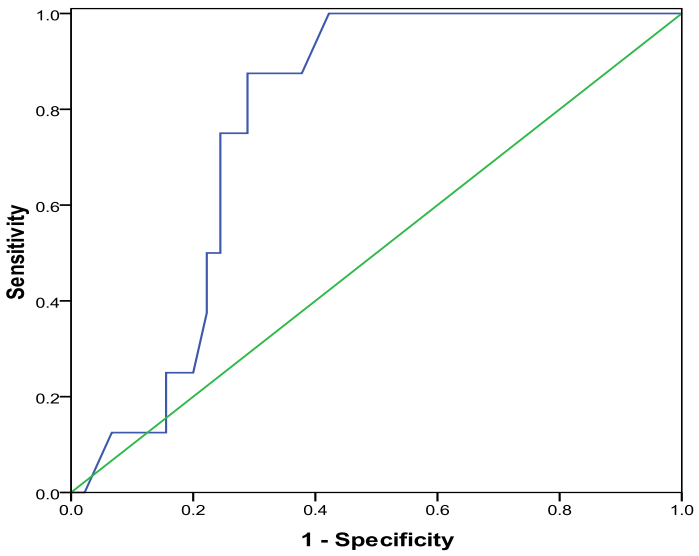


fig. (4 a) : Roc curve showing Sensitivity, specificity and accuracy of fibroscan, in detecting significant fibrosis (F≥2) according to MATAVIR score.

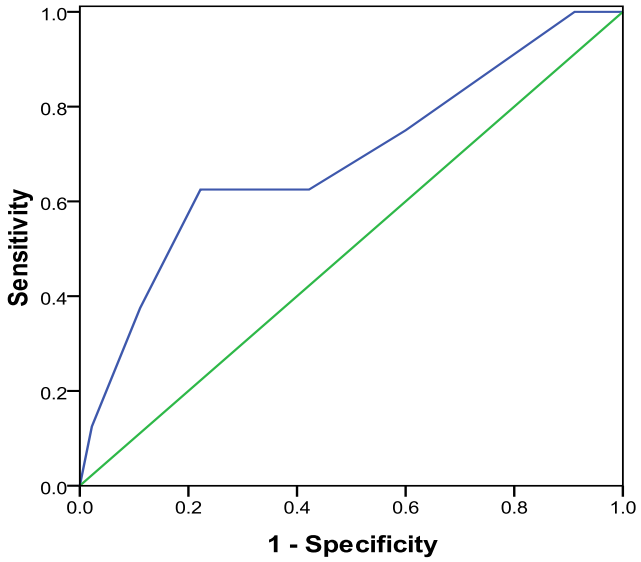


fig. (4b) : Roc curve showing Sensitivity, specificity and accuracy of API, index in detecting significant fibrosis (F≥2) according to MATAVIR score.

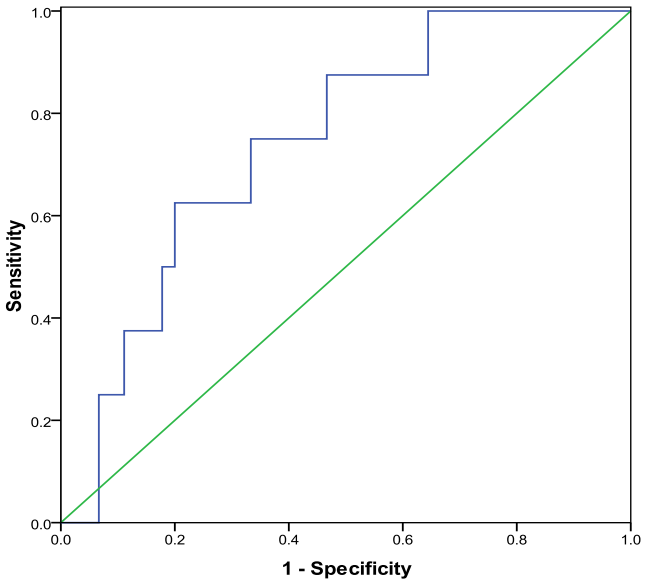


fig. (4c) : Roc curve showing Sensitivity, specificity and accuracy of APRI, index in detecting significant fibrosis (F≥2) according to MATAVIR score .

Table (10) : Sensitivity, specificity and accuracy of fibroscan, API, APRI index in detecting advanced fibrosis (F≥3)according to METAVIR score.

Studied variable	Sensitivity	Specificity	AUC	Accuracy	P	95%CI
Fibroscan Cut off level 13.8	**90.9%**	**73.8%**	**0.79**	**78.9%**	**<0.01****	**0.66-0.93**
API Cut off level 4.5	**72.7%**	**40.5%**	**0.7**	**70.2%**	**<0.05***	**0.52-0.89**
APRI Cut off level 20.8	**90.9%**	**57.1%**	**0.78**	**79.4%**	**<0.01****	**0.67-0.91**

Fibroscan is the best significant predictive method for detection of advanced fibrosis (F ≥ 3) followed by APRI index and API index.

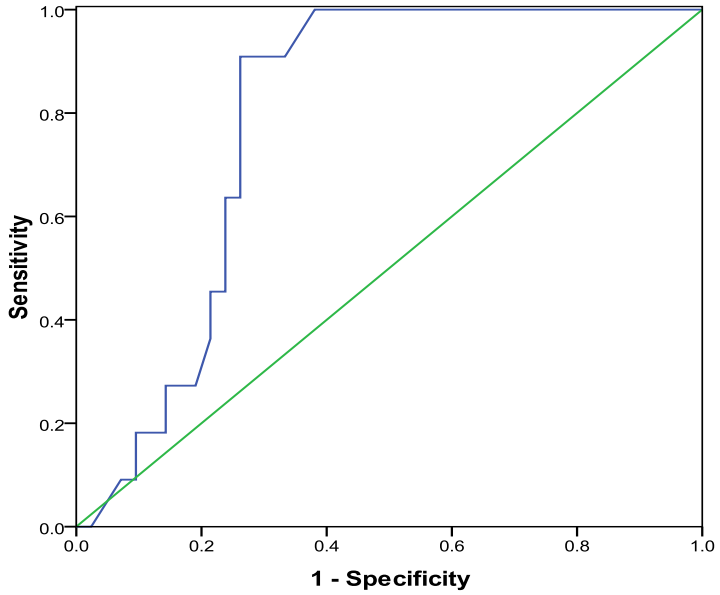


fig. (5a) : Roc curve showing Sensitivity, specificity and accuracy of fibroscan, in detecting advanced fibrosis (F≥3)according to METAVIR score.

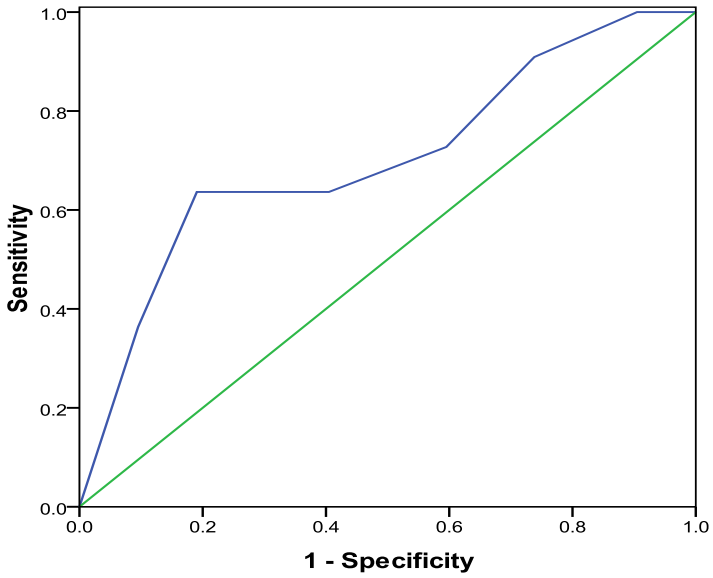


fig. (5b) : Roc curve showing Sensitivity, specificity and accuracy of API index in detecting advanced fibrosis (F≥3)according to METAVIR score.

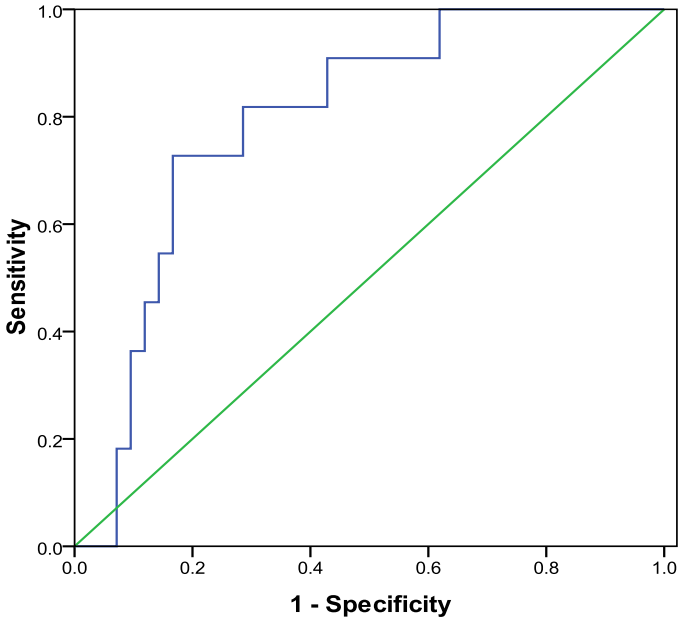


fig. (5c) : Roc curve showing Sensitivity, specificity and accuracy of APRI index in detecting advanced fibrosis (F≥3)according to METAVIR score.

Table (11) : Sensitivity, specificity and accuracy of fibroscan, API, APRI index in detecting cirrhosis (F4) according to METAVIR score.

Studied variable	Sensitivity	Specificity	AUC	Accuracy	P	95%CI
Fibroscan Cut off level 25.1	**90%**	**90.7%**	**0.95**	**95.2%**	**<0.001****	**0.89-1**
API Cut off level 3.5	**60%**	**58.1%**	**0.65**	**65.3%**	**>0.05**	**0.49 -0.82**
APRI Cut off level 27.1	**60%**	**72.1%**	**0.65**	**64.9%**	**>0.05**	**(0.42-0.88)**

Fibroscan is the best predictive method for detection of cirrhosis (F4).

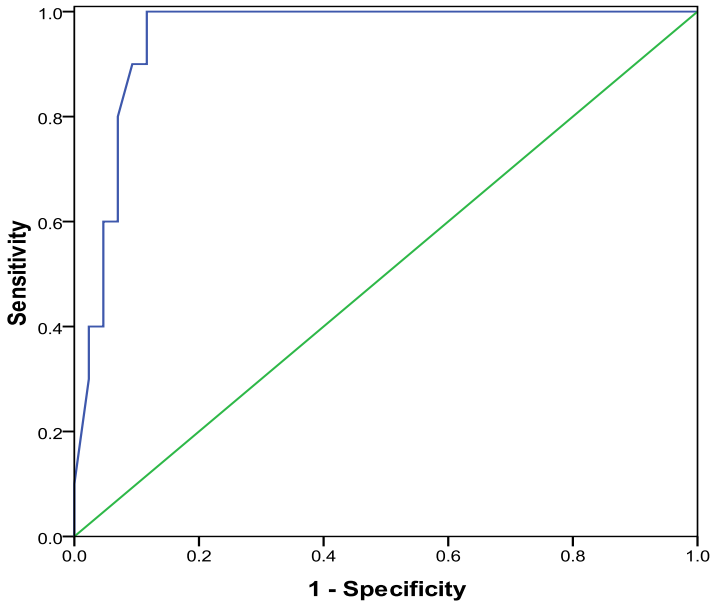


fig. (6a) : Roc curve showing Sensitivity, specificity and accuracy of fibroscan, in detecting cirrhosis (F4) according to METAVIR score.

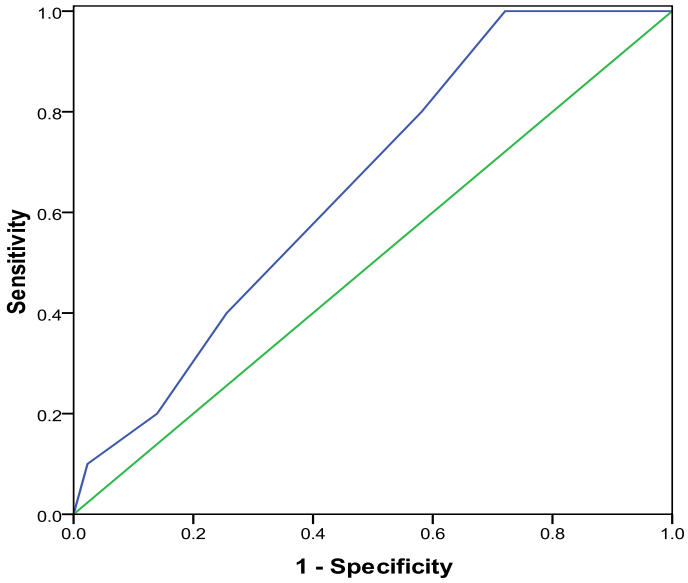


fig. (6b) : Roc curve showing Sensitivity, specificity and accuracy of API index in detecting cirrhosis (F4) according to METAVIR score.

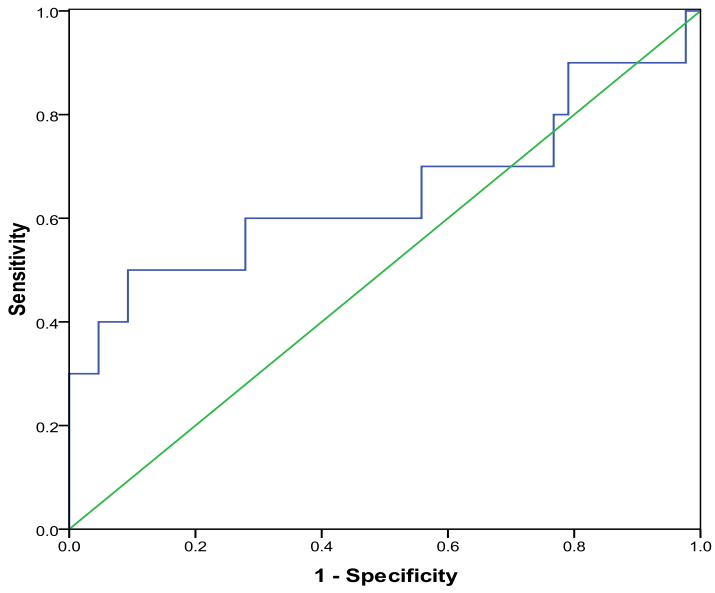
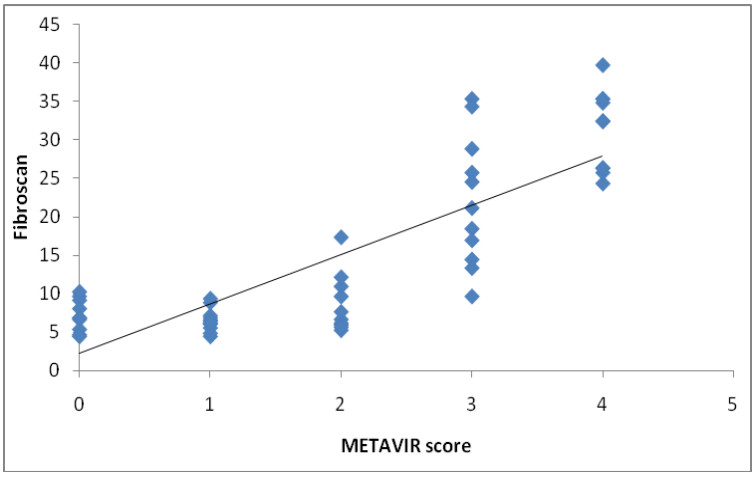


fig. (6c) : Roc curve showing Sensitivity, specificity and accuracy of APRI index in detecting cirrhosis (F4) according to METAVIR score.

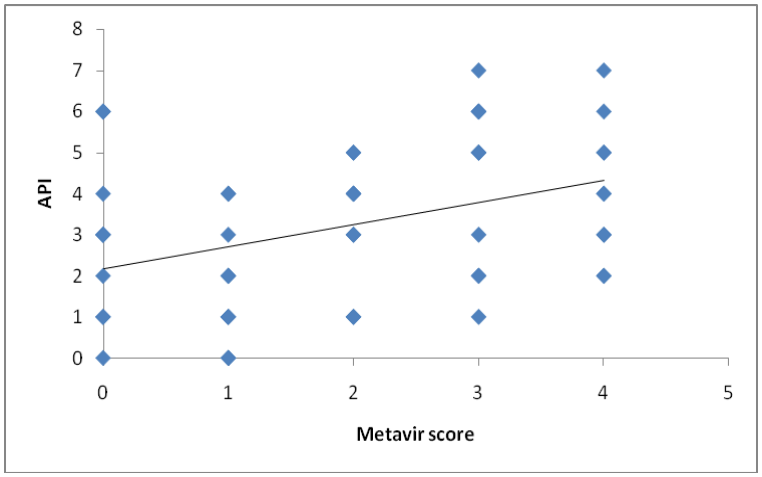
Table (12) : Study of spearman's correlation between fibrosis stages and studied variables:

variables	r	P-Value
Age	0.35	< 0.05*
Hb%	-0.28	< 0.05*
Platelets	-0.23	> 0.05
WBCs	-0.2	> 0.05
Albumin	-0.33	< 0.05*
PT	0.25	> 0.05
PC %	-0.17	> 0.05
Total bilirubin	0.002	> 0.05
Direct bilirubin	0.103	> 0.05
AST	0.34	< 0.05*
ALT	0.26	> 0.05
PCR	-0.08	> 0.05
Spleen in US	0.33	< 0.05*
fibroscan (KPa)	0.78	< 0.01**
API	0.39	< 0.01**
APRI	0.42	< 0.01**

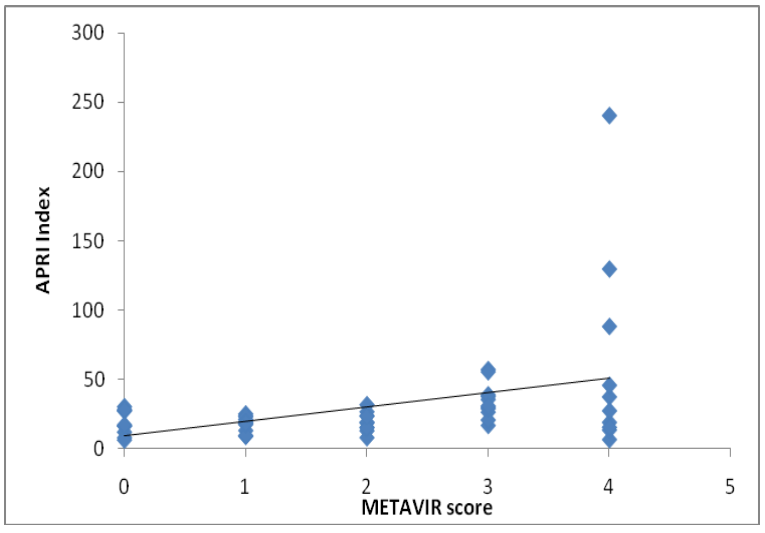
This table shows statistically significant correlation between fibrosis stages and age, Hb%, Albumin, AST level, Spleen size in U/S, fibroscan, API, and APRI index.



(a)



(b)



(c)

fig. (7a.b.c) : spearman's correlation between METAVIR stages and fibroscan , API and APRI index.

Table (13) : Study of spearman's correlation between API and studied variables.

variables	r	P-Value
Age	0.29	$< 0.05^{*}$
Hb%	0.12	> 0.05
Platelets	-0.38	$< 0.01^{**}$
WBCs	-0.28	$< 0.05^{*}$
Albumin	-0.17	> 0.05
PT	0.197	> 0.05
PC %	-0.15	> 0.05
Total bilirubin	0.17	> 0.05
Direct bilirubin	0.15	> 0.05
AST	-0.008	> 0.05
ALT	-0.12	> 0.05
PCR	0.086	> 0.05
Spleen in US	0.39	$< 0.01^{**}$
fibroscan (KPa)	0.373	$< 0.01^{**}$
APRI	0.39	$< 0.01^{**}$

This table shows statistically significant correlation between API index and Age, platelet count, WBcs count, spleen size in U/S, fibroscan and APRI index.

Table (14) : Study of spearman's correlation between APRI and studied variables.

variables	r	P-Value
Age	0.013	> 0.05
Hb%	-0.3	< 0.05*
Platelets	-0.44	< 0.01**
WBCs	-0.25	> 0.05
Albumin	-0.297	< 0.05*
PT	0.06	> 0.05
PC %	-0.08	> 0.05
Total bilirubin	0.064	> 0.05
Direct bilirubin	0.17	> 0.05
AST	0.73	< 0.01**
ALT	0.48	< 0.01**
PCR	-0.17	> 0.05
Spleen in US	0.1	> 0.05
fibroscan (KPa)	0.302	< 0.05*
API	0.389	< 0.01**

This table shows statistically significant correlation between APRI index and platelets counts, albumin, AST, ALT, fibroscan and API index.

Table (15) : Study of spearman's correlation between fibroscan and studied variables.

variables	r	P-Value
Age	0.39	$< 0.01^{**}$
Hb%	-0.06	> 0.05
Platelets	-0.23	> 0.05
WBCs	-0.14	> 0.05
Albumin	-0.28	$< 0.05^{*}$
PT	0.06	> 0.05
PC %	-0.14	> 0.05
Total bilirubin	0.17	> 0.05
Direct bilirubin	0.24	> 0.05
AST	0.32	$< 0.05^{*}$
ALT	0.22	> 0.05
PCR	-0.21	> 0.05
Spleen in US	0.395	$< 0.01^{**}$
API	0.38	$< 0.01^{**}$
APRI	0.34	$< 0.05^{*}$

This table shows statistically significant correlation between fibroscan and age, albumin, AST, spleen size in U/S, API index and APRI index.

Table (16) : Stepwise linear regression between METAVIR score and significant variables with correlation.

Variable	METAVIR score	
	$R^2 = 0.68$	
	$b_0 = -0.69$	
	b	**P- value**
Age	-0.02	>0.05
Hb%	-0.05	>0.05
Albumin	-0.04	>0.05
AST	-0.049	>0.05
APRI	0.032	>0.05
API	0.03	>0.05
Spleen US	-0.003	>0.05
Fibroscan (KPa)	0.07	<0.01**

Fibroscan is an independent variable in diagnosis of sever fibrosis while other studied variables were dependant in diagnosis of fibrosis.

Fig. (8): Ultrasonographic picture of bright hepatomegaly.

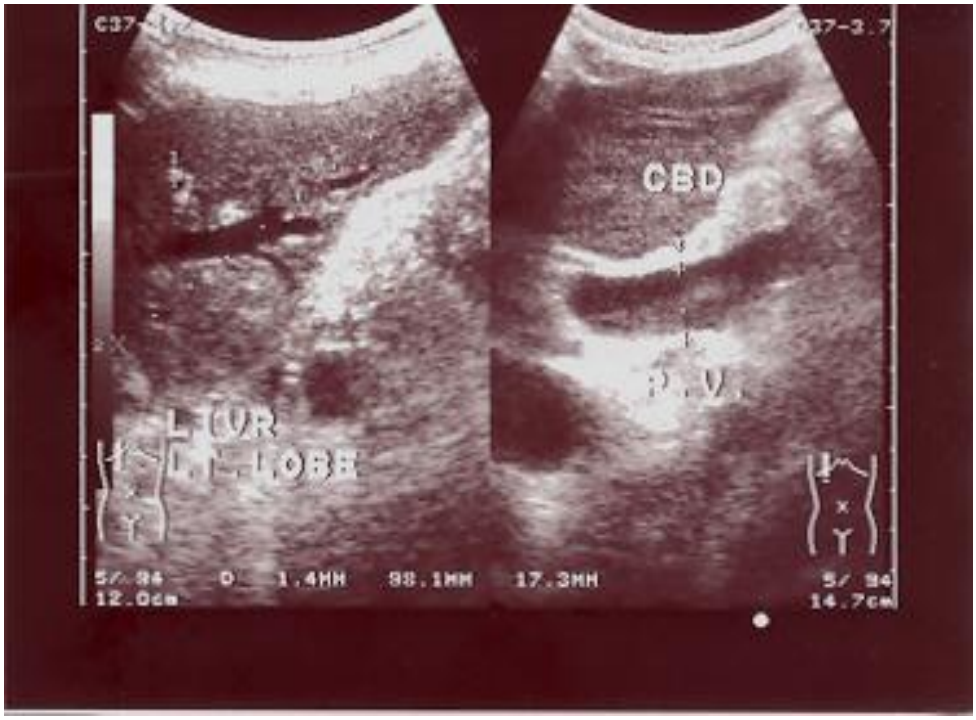


Fig. (9): **Ultrasonographic picture of cirrhotic liver :**
showing coarse liver with irregular border (cirrhotic echopattern (Lt) and dilated portal vein (Rt).

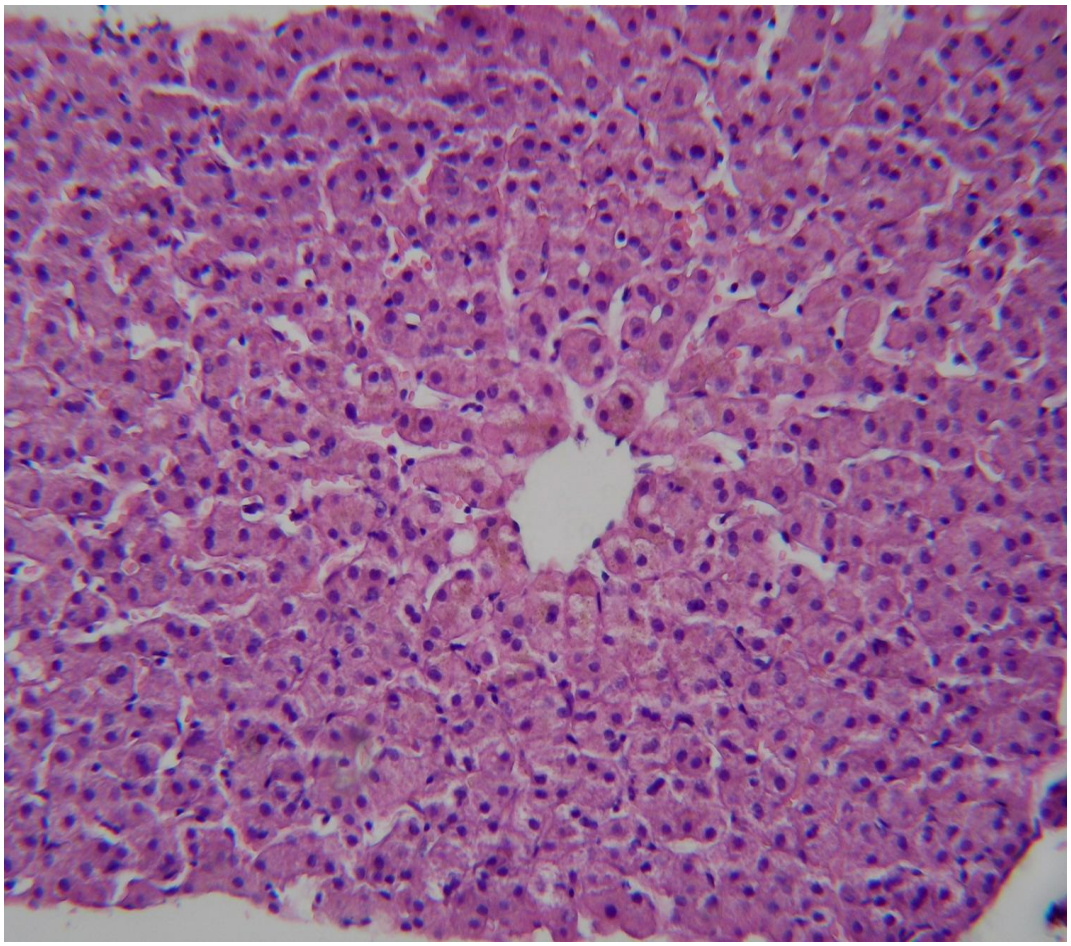


Figure (10): Liver biopsy picture detecting normal liver:

Shows normal hepatic tissue with average liver cell plates and intervening patent sinusoids (H&E, X 200).

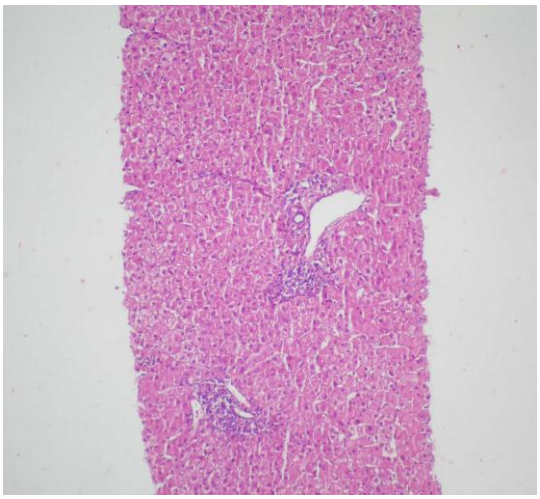


Figure (11): Liver biopsy picture detecting stage F0 of fibrosis :
Preserved hepatic architecture with no fibrosis (F0) (H&E, X 100).

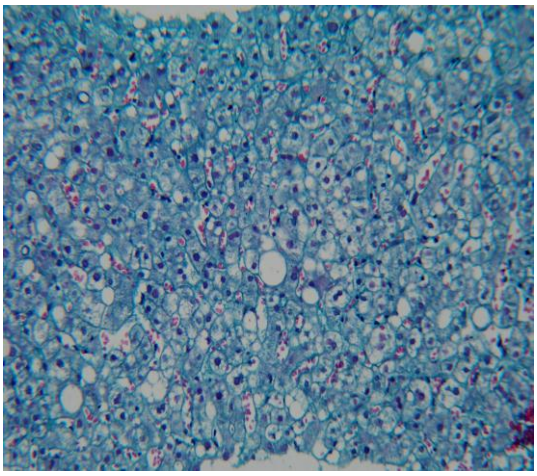


Figure (12): Liver biopsy picture detecting stage F0 of fibrosis
Preserved hepatic architecture with no fibrosis (F0). Hepatocytes are moderately swollen (Masson Trichome stain, X 200).

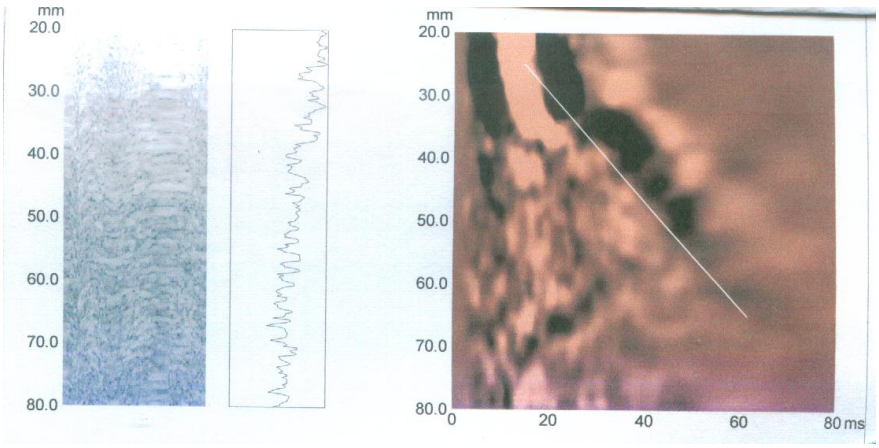


Figure (13): Fibroscan picture correlate with a fibrosis stage of (F0) on METAVIR histological index of grading fibrosis.

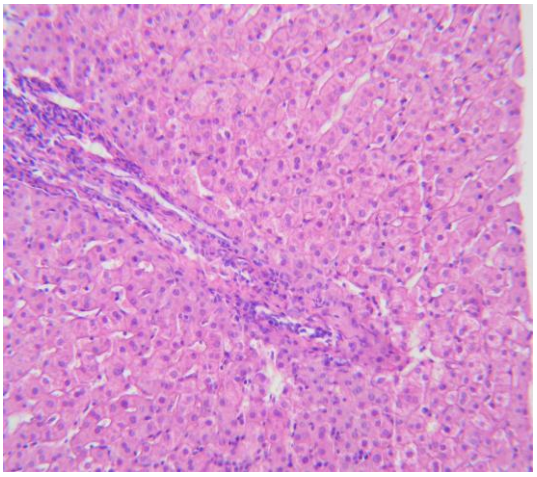


Figure (14): Liver biopsy picture detecting stage F1 of fibrosis:
Chronic interface hepatitis (HCV); mild activity and mild fibrosis METAVIR: A1, F1 (H&E, X 200).

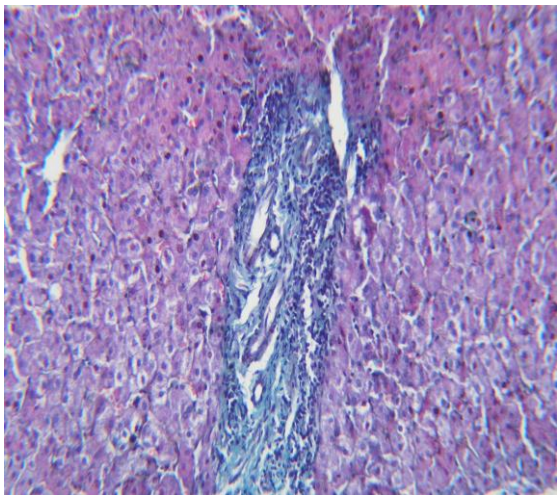


Figure (15): Liver biopsy picture detecting stage F1 of fibrosis:
Mild fibrosis. METAVIR: F1 (Masson Trichome stain, X200).

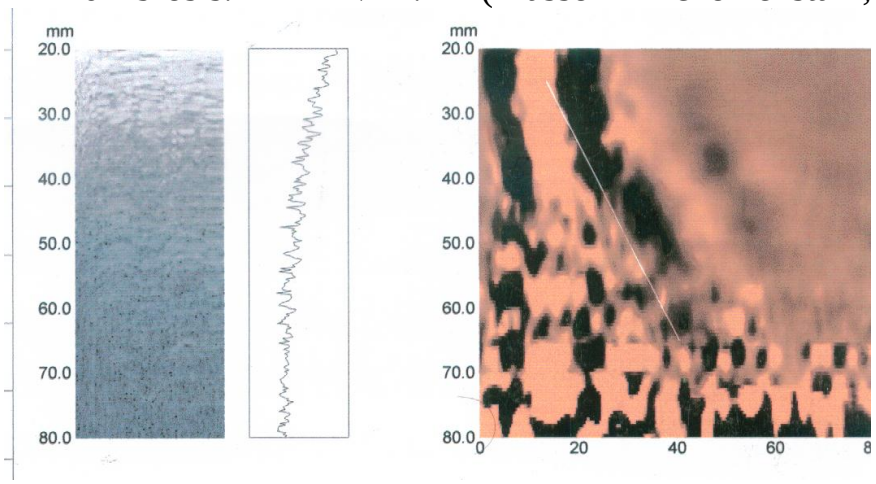


Figure (16): Fibroscan picture correlate with a fibrosis stage of (F1) on METAVIR histological index of grading fibrosis.

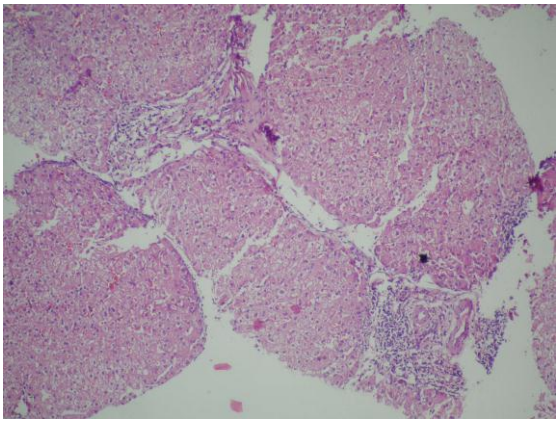


Figure (17): Liver biopsy picture detecting stage F2 of fibrosis :
Chronic hepatitis with moderate fibrosis. METAVIR: F2 (H&E, X100).

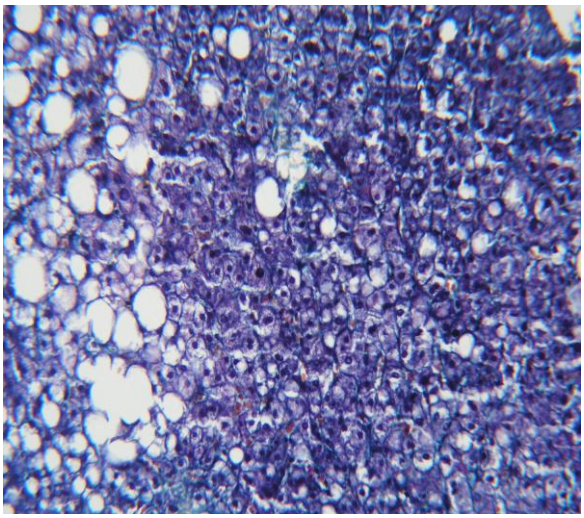


Figure (18): Liver biopsy picture detecting stage F2 of fibrosis :
Chronic hepatitis with moderate fibrosis. METAVIR: F2 (Masson Trichome stain, X200).

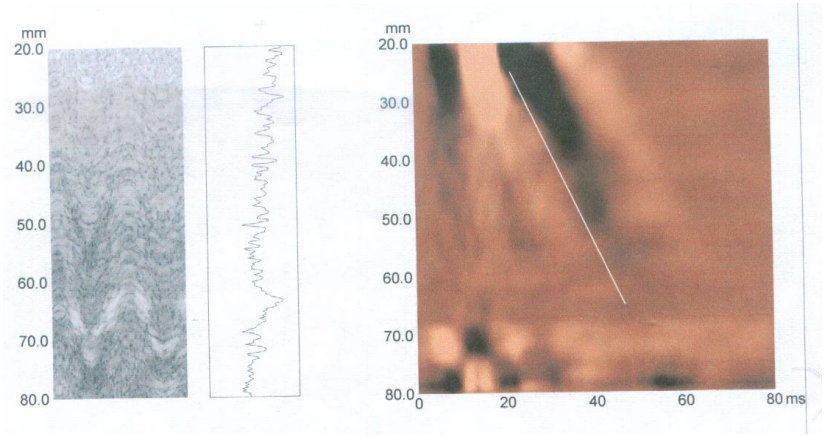


Figure (19): Fibroscan picture correlate with a fibrosis stage of (F2) on METAVIR histological index of grading fibrosis.

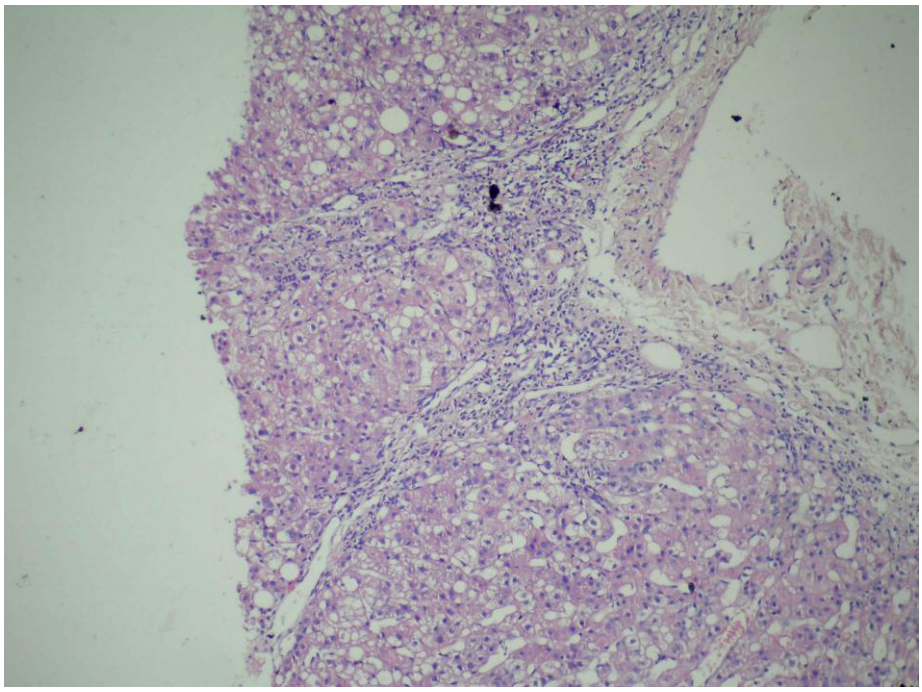


Figure (20): Liver biopsy picture detecting stage F3 of fibrosis: Chronic hepatitis with sever fibrosis. METAVIR: (F3) (H&E, X100).

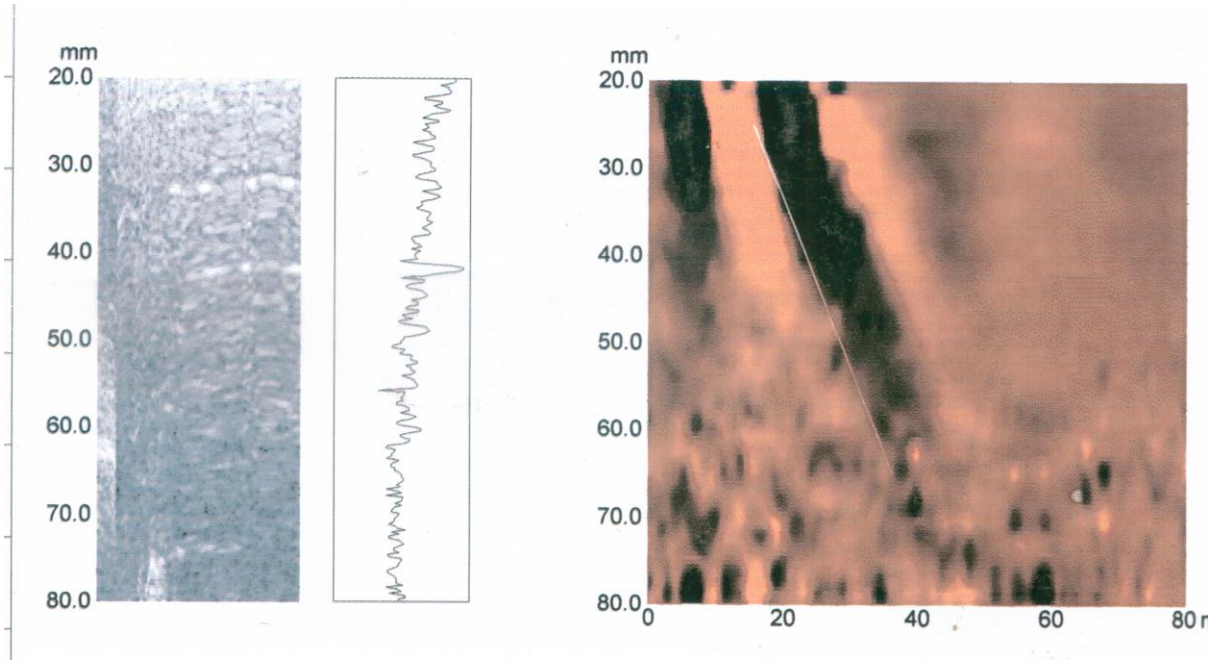


Figure (21): Fibroscan picture correlate with a fibrosis stage of (F3) on METAVIR histological index of grading fibrosis.

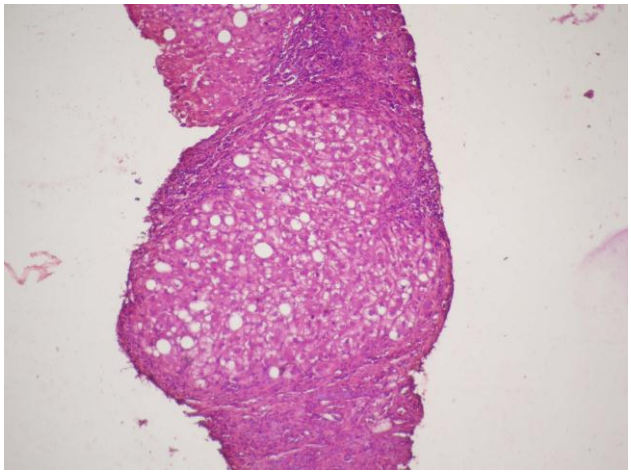


Figure (22): Liver biopsy picture detecting stage F4 of fibrosis: Liver cirrhosis . METAVIR: (F4) (H&E, X100).

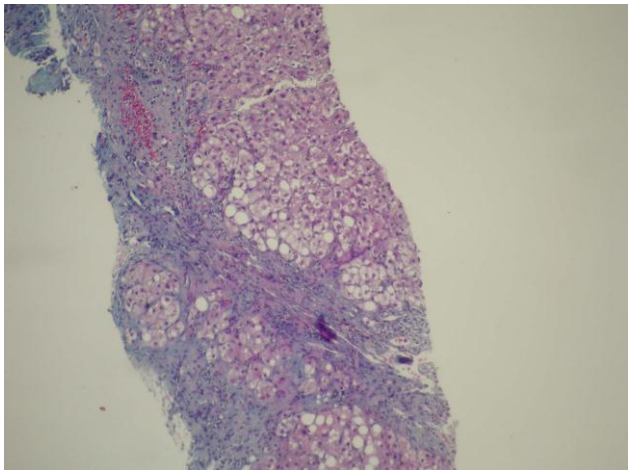


Figure (23): Liver biopsy picture detecting stage F4 of fibrosis: Liver cirrhosis . METAVIR: (F4) (Masson Trichome stain, X200).

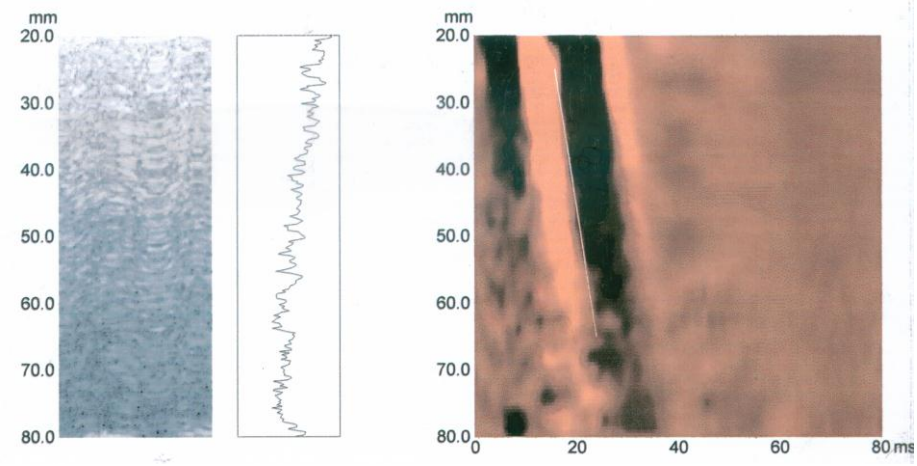


Figure (24): Fibroscan picture correlate with a fibrosis stage of (F4) on METAVIR histological index of grading fibrosis.