V- Results

This study included 65 eyes of 60 subjects. The eyes were classified into three groups table (1)

Group I : (normal) 20 eyes ,10 eyes of males and 10 eyes of females.

Group II : (glaucoma suspect): 25 eyes 14 eyes of males and 11 eyes of females.

Group III : (glaucoma): 20 eyes 14 eyes of males and 6 eyes of females.

Descriptive Statistics of Sex in Different Groups

Table (2) sex group cross tabulation

	Group			Total Eyes
	Glaucoma	Suspect	Normal	
Sex Female Count	6	11	10	27
% within group	30.0%	44.0%	50.0%	41.50
Sex Male Count	14	14	10	38
% within group	70%	56.0%	50.0%	58.5%
Total Count	20	25	20	65
% within group	100.0%	100.0%	100.0%	100.0%

Table (3) Chqi-square tests

	Value	Df	Asymp.sig (2- sided (p))
Pearson Chqi-square	1.749 [a]	2	0.417
Likelihood ratio	1.782	2	0.410
N of valid cases	65		

As shown in the table (3) Chqi-square tests has revealed P value > (0.05) so no value for sex distribution between all three groups.

Descriptive Statistics of Age in Different Groups

Table (4): Descriptive statistics of age in different groups (SD= standard deviation)

Group	Range	Mean	S.D
Normal (n=20)	(26 - 65)	43.40	±11.914
Glaucoma suspect(n= 25)	(28 - 62)	41.56	±11.962
Glaucoma (n = 20)	(26 - 65)	49.55	±14.479

As shown in table (4) the range of age in normal subjects was between (26 - 65) years with a mean of 43.40 years. In glaucoma suspects the range of age was between (28 - 62) years with a mean of 41.56 years. In glaucoma the range of age was between (26 - 65) years with a mean of 49.55 years of age, means with the same letter within each column are not significantly different P > 0.05

Descriptive Statistics of Refraction in Different Groups

Table (5): Descriptive statistics of refraction in different age groups (SD= standard deviation)

Group	Mean	S.D	Range
Normal (n: 20)	- 0.50	±1.82	+2.00 — - 4.00
Glaucoma suspect(n : 25)	- 0.70	±1.07	1 — -3.50
Glaucoma (n : 20)	0.34	±0.70	1 — -1.50

As shown in table (5), in normal subjects the range of refraction was between +2.00 and - 4.00 diopter with a mean of - 0.50 diopter. In glaucoma suspect the range of refraction was between +1.00 and - 3.50 diopter with a mean of - 0.70 diopter. In glaucoma the range of refraction was between +1.00 and - 1.50 diopter with a mean of + 0.34 diopter. Means of the same letter within each column are not significantly different (P >0.05).

Descriptive statistics and means of visual field testing in the 3 study groups:

Table (6): Descriptive statistics and means of visual field testing in different age groups (SD= standard deviation)

	POAG (n20)	SD	Glaucoma Suspect (n25)	SD	Normal (n20)	SD	P1 Normal POAG	P2 Normal Glaucoma Suspect	P3 Glaucoma Suspect POAG
MDdb	-12.88	±8.29	-1.18	±1.00	-0.81	±0.92	p< 0.001	NS	p< 0.001
PSDdb	4.05	±3.31	1.60	±0.27	1.54	±0.23	P< 0.001	NS	p< 0.001

Visual field testing outcome revealed: 25 eyes were clinically classified as being glaucoma suspect and 20 eyes as being glaucoma compared with 20 eyes as being normal .

In normal eyes Mean Deviation (MD), was -0.81±0.92 db, In glaucoma suspect MD was -1.18±1.00db .In glaucoma MD was -12.88 ±8.29 db .

In comparison between MD values in normal and glaucoma suspects there is no significant difference .A significant difference was present between MD values of normal and glaucoma patients .p<0.001

Pattern standerd deviation (PSD) was 1.54±0.23 db in normal ,1.60±0.27 in glaucoma suspect & 4.05±3.31in glaucoma. In comparison between (PSD) values in normal and glaucoma suspects ,there was no significant difference but there was a significant difference between normal and glaucoma ,between glaucoma suspect and glaucoma .p<0.001.

Results of Optical Coherence Tomography in Different Groups

Table (7): results of optical coherence tomography in different groups (SD Standard deviation)

	Normal (n: 20)		Glaucoma Suspect (n : 25)		Glaucoma (n : 20)	
Quadrant	Mean	S.D	Mean	S.D	Mean	S.D
Temporal Quadrant	86.00	8.45	64.92	14.50	39.60	12.30
Superior Quadrant	132.00	12.05	114.00	15.40	50.60	21.67
Nasal Quadrant	84.00	7.82	79.48	15.22	46.80	20.98
Inferior Quadrant	154.00	17.69	117.32	17.73	52.85	22.94
Average	113.54	9.96	91.06	18.34	47.06	16.61
I Max/ S Max	1.16	0.09	1.01	0.21	1.03	0.29
S Max / I Max	0.89	0.62	0.96	0.16	0.96	0.25

As shown in table (7) and (chart 1) RNFL thickness was significantly thinner in Glaucoma suspect than in normal eyes in all quadrants, P <0.001. Also RNFL thickness was significantly thinner in glaucomatous eyes than in glaucoma suspect and normal eyes.

In temporal quadrant, the RNFL thickness was 86.00 ± 8.45 microns in normal, 64.92 ± 14.50 microns in glaucoma suspect and 39.60 ± 12.30 microns in glaucoma.

In superior quadrant RNFL thickness was 132 ± 12.05 microns in normal eyes, 114 ± 15.40 microns in glaucoma suspect and 50.60 ± 21.67 microns in glaucoma.

In Nasal quadrant, the RNFL thickness was 84 ± 7.82 microns in normal, 79.48 ± 15.22 microns in glaucoma suspect and 46.80 ± 20.98 microns in glaucoma.

In inferior quadrant, the RNFL thickness was 154.00 ± 17.69 microns in normal, 117.32 ± 17.73 microns in glaucoma suspect and 52.85 ± 22.94 microns in glaucoma.

The average RNFL thickness was 113.54 ± 9.96 in normal, 91.06 ± 18.34 microns in glaucoma suspect and 47.06 ± 16.61 microns in glaucoma.

The difference between RNFL thickness in all quadrants were greater between glaucoma and both normal and glaucoma suspect than that between glaucoma and glaucoma suspect.

I Max / S Max was 1.16 ± 0.09 in normal subjects, 1.01 ± 0.21 in glaucoma suspect, 1.03 ± 0.29 in glaucoma. It is higher in normal than in suspect & more higher than in glaucoma. P= 0.029 so it has a less significance but in comparison between the 3 groups it decreases in glaucoma.

S Max / I Max was 0.89 ± 0.62 in normal , 0.96 ± 0.16 in glaucoma suspect, 0.96 ± 0.25 in glaucoma. P = 0.200 so it is non significant.
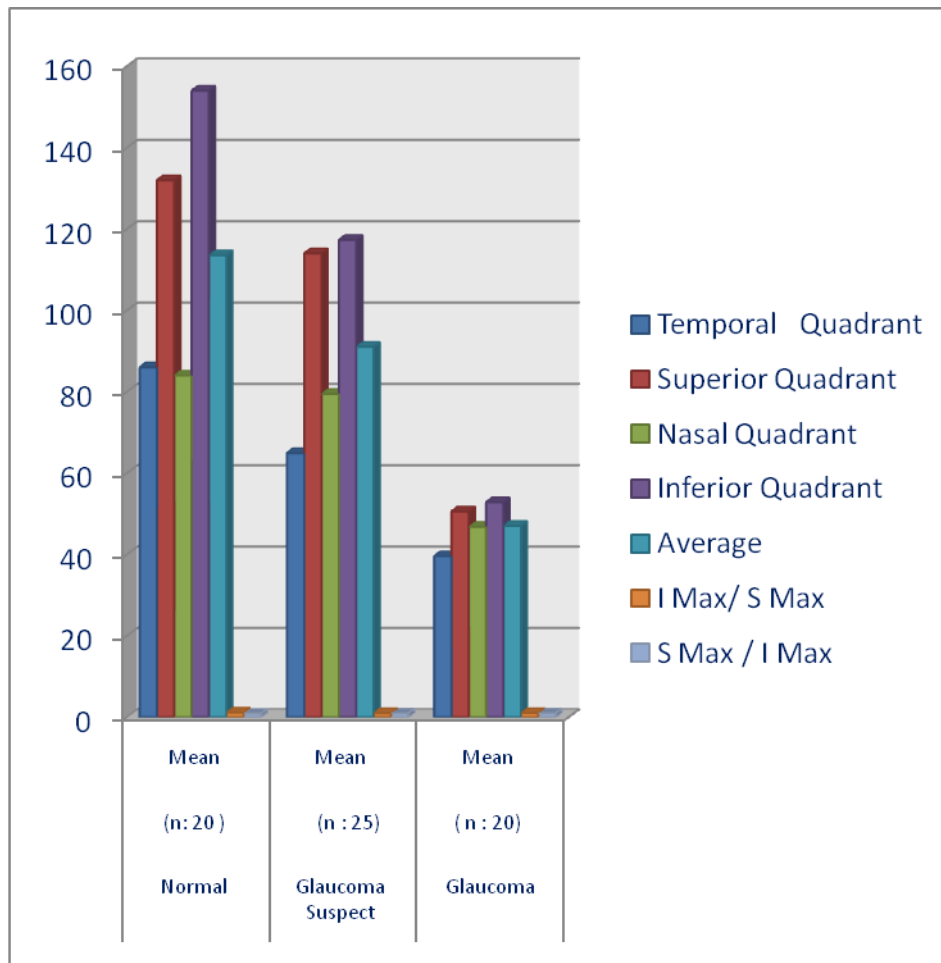
Chart 1: Showing the results of OCT on different groups.

Results of Optic Nerve Head study in Different Groups

Table (8): Results of optic nerve head study in different groups (Rim area & Rim volume) S.D - standard deviation.

	Normal eyes (n: 20)		Glaucoma Suspect (n : 25)		Glaucoma (n : 20)	
	Mean	S.D	Mean	S.D	Mean	S.D
Rim area (mm^2)	1.631	0.145	1.532	0.325	0.857	0.448
Rim volume (mm^3)	0.350	0.070	0.278	0.131	0.042	0.439
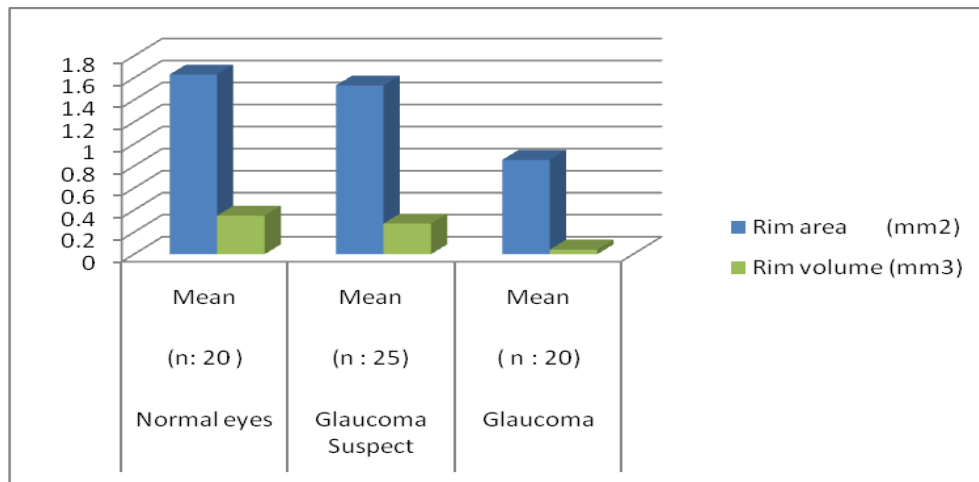
Chart 2: Study of rim area, rim volume in different groups.

In table 8 Chart 2:

- Rim area was 1.631 ± 0.145 mm^2 in normal,1. 532 ± 0.325 mm^2 in glaucoma suspect, 0.857 ± 0.448 in glaucoma. Rim area was wider in normal than in glaucoma suspect and glaucoma, and it was wider in glaucoma suspect than in glaucoma. P value < 0.001 so it is significant.

- Rim Volume: was 0.350 ± 0.070 mm^3 in normal, 0.278 ± 0.131 mm^3 in glaucoma suspect, 0.042 ± 0.439 in glaucoma. It is higher in normal than in glaucoma suspect and higher in glaucoma suspect than in glaucoma. P value <0.001 so it is significant.

Table 9: Analysis of ONH parameters in Normal, Glaucoma Suspect and Glaucoma.

	Normal (n 20)	Glaucoma Suspect (n 25)	Glaucoma (n 20)
Rim Volume mm^2 Width	1.616 ± 1.68	1.132 ± 242	1.121 ± 272 p<0.001
Disc area mm^3	2.583 ± 0.503	2.228 ± 0.527	3.127 ± 0.703 p<0.001
Cup area mm^2	0.973 ± 0.464	2.125 ± 0.532	2.240 ± 0.965 p<0.001
Cup to Disc vertical ratio	0.520 ± 0.212	0.825 ± 0.95	0.887 ± 0.448 p<0.001

Analysis of variance for calculation of probabilities comparing with normal has detected average RNFL thickness 113.54 ± 9.96 in normal ,91.06 ± 18.34 in glaucoma suspect ,47.06 ± 16.61 in glaucoma . By comparing average RNFL thickness in different groups ,it was higher in normal than in glaucoma suspects and higher in glaucoma suspects than glaucoma .The difference between average RNFL thickness in glaucoma and glaucoma suspects is higher than the difference between average RNFL thickness in glaucoma suspect and normal .p <0.001 so it is significant.

Rim width 1.616 ± 1.68 in normal ,1.132 ± 0.242 in glaucoma suspect ,1.121 ± 0.272 in glaucoma. By comparing Rim Width in different groups it was higher in normal than in glaucoma suspect and higher in glaucoma suspect then in glaucoma. The difference of rim width between glaucoma suspect and normal was higher than between glaucoma and glaucoma suspect. P<0.001 so it is significant .Disc area 2.583 ± 0,503 in normal ,2.228 ± 0.527 in glaucoma suspect 3.127 ± 0.703 in glaucoma ,p<100.Cup area 0.973 ± 0.464 in normal ,2.125 ± 0.532 in glaucoma suspect ,2.240 ± 0.965 in glaucoma. Cup to disc vertical ratio 0.520 ± 0.212 in normal ,0.825 ± 0.95 in glaucoma suspect ,0.88 ±0.448 in glaucoma .

By comparing the disc area in different groups it was wider in glaucoma than in glaucoma suspect and wider in glaucoma suspect than in normal. p<0.001, so it is significant.

By comparing the cup area in different groups it was wider in glaucoma than in glaucoma suspect and wider in glaucoma suspect than in normal. p<0.001, so it is significant.

By comparing the cup to disc vertical ratio in different groups it was wider in glaucoma than in glaucoma suspect and wider in glaucoma suspect than in normal. p<0.001, so it is significant.

Table 10: Analysis of area under the receiver operating characteristic curves AUC of RNFL thickness and each of topographic ONH parameters for discrimining early glaucoma from normal .

RNFL Thickness	0.955
Rim Width mm^2	0.929
Rim Volume mm^3	0.968
Disc area mm^2	0.951
Cup Area mm^2	0.933
Rim Area mm^2	0.917
Cup to disc Vertical Ratio	0.972

AUC of RNFL thickness and each of topographic ONH parameters for discrimining early glaucoma from normal shows RNFL thickness 0.955 ,Rim width 0.929 ,Rim volume 0.968 ,Disc area 0.951 ,Cup area 0.933 ,Rim area 0.917 ,cup to disc vertical ratio 0.972 .

Cup to disc vertical ratio has the highest capability for discrimmining early glaucoma from normal followed by rim volume then RNFL average thickness, disc area, cup area , rim width and lastly rim area.

Table 11: Coefficient Correlation and determination between the examined OCT parameters with visual filed MD and RNFL thickness

	Visual Field MD r/R^2	RNFL Thickness R^2
Rim Width mm^2	0.736 /0.541	0.892/0.800
Rim Volume mm^3	0.618/ 0.372	0.774/0.605
Rim area mm^2	0.732/0.550	0.870/0.682
Disc area mm^3	0.276/0.071	0.263/ 0.070
Cup area mm^2	0.653/ 0.425	0.720/0.516
Cup-Disc-Vertical Ratio	0.697/ 0.477	0.831/0.682

AUC is used to compare the discriminating power of RNFL thickness and ONH topographic parameters in detecting early glaucomatous damage comparing with MD value of visual field . RNFL thickness shows the highest power 0.791 / 0.629. Rim width has 0.736 / 0.541 compared with visual field and 0.892 / 0.800 compared with RNFL thickness .Rim volume has 0.618 / 0.372 compared with visual field and 0.774 / 0.605 compared with RNFL thickness .Disc area has 0.275 / 0.071 compared with visual field and 0.263 / 0.070 compared with RNFL thickness .Cup area has 0.653 / 0.425 compared with visual field and 0.720 / 0.516 compared with RNFL thickness . Rim area has 0.732 / 0.550 compared with visual field and 0.870 /0.756 compared with RNFL thickness .Cup disc vertical ratio has 0.697 / 0.477 compared with visual field and 0.831 / 0.682 compared with RNFL thickness .

Results of mfERG ERG examination in all groups:

- FOK-mfERG response was alwas normal so excluded from evaluation .

- R1 represented macular response was almost normal in all groups .p value >0.05 so it is non significant.

- ONHC was searched from side of macula and not detected.

Table (12): In (SOK)Amp-P1 (nv / deg2) in all groups (S.D: standard deviation).

	Normal eyes (n: 20)		Glaucoma Suspect (n : 25)		Glaucoma (n : 20)	
	Mean	S.D	Mean	S.D	Mean	S.D
R1	121.00	29.104	120.01	30.10	119.44	30.54
R2	68.50	23.444	39.84	24.911	17.93	14.806
R3	48.70	16.073	27.70	22.121	7.81	4.595
R4	32.30	10.362	17.43	13.446	4.55	3.297
R5	25.10	5.160	12.51	9.528	3.12	2.553
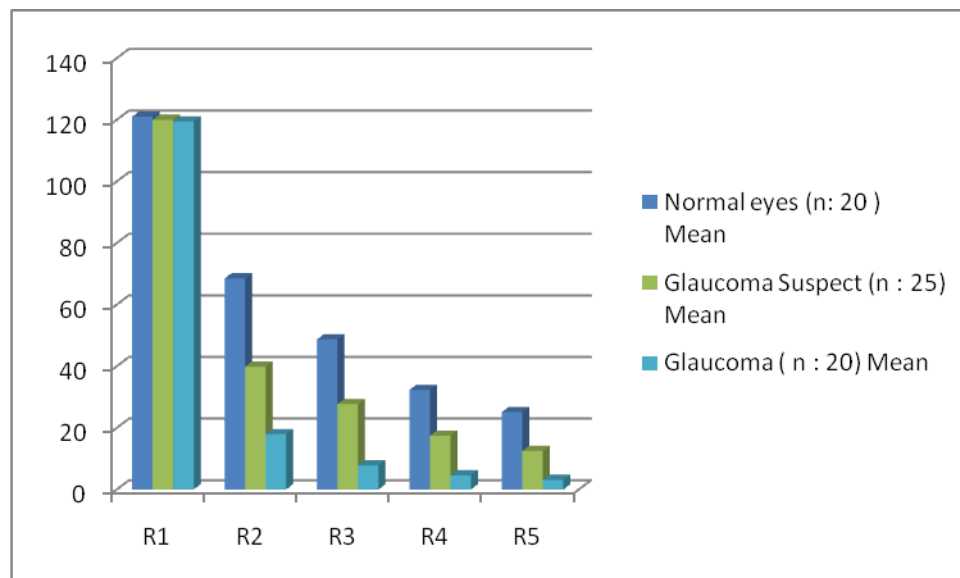
Chart 3: Amplitude P1 (nv1/ deg2)

In table (12) and Chart (3) Amp-p1 (nvl $\deg^2$)

- R1 was 121.00 ± 29.104 in normal, 120.01 ± 30.10 in glaucoma suspect, 119.44 ± 30.54 in glaucoma.

- R2 was 68.50 ± 23.444 in normal, 39.84 ± 24.911 in glaucoma suspect, 17.93 ± 14.806 in glaucoma.

- R3 was 48.70 ± 16.073 in normal , 27.70 ± 22.121 7.81 ± 4.595 in glaucoma.

- R4 was 32.30 ±10.362 in normal , 17.43 ± 13.446 in glaucoma suspect, 4.55 ± 3.297 in glaucoma.

- R5 was 25.10 ± 5.160 in normal , 12.51 ± 9.528 in glaucoma suspect, 3.12 ± 2.553 in glaucoma.

- All the results were is higher in normal than in glaucoma suspect and glaucoma , also it is higher in glaucoma suspect than in glaucoma. P value < 0.001 so it is significant.

Table (13): Amp. P1 (uv) in all groups (S.D = standard Deviation)

	Normal eyes (n: 20)		Glaucoma Suspect (n : 25)		Glaucoma (n : 20)	
	Mean	S.D	Mean	S.D	Mean	S.D
R1	1.904	0.472	1.901	0.470	1.899	0.470
R2	1.525	0.457	0.806	0.623	0.325	0.266
R3	1.660	0.369	0.799	0.7164	0.210	0.094
R4	1.513	0.360	0.702	0.637	0.165	0.084
R5	1.516	0.278	0.679	0.555	0.164	0.119
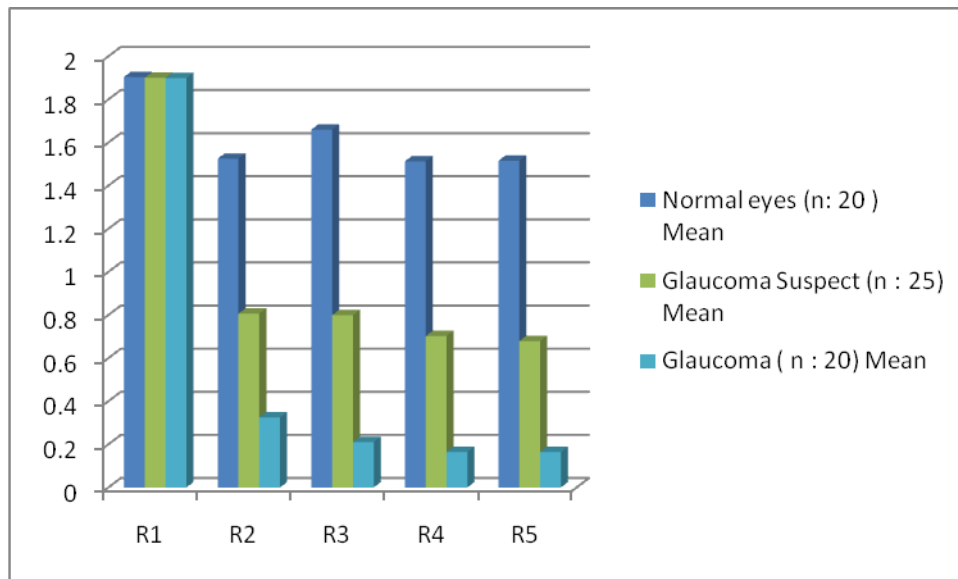
Chart 4: Amplitude P1 in SOK in different groups.

In Table 13 and Chart (4) Amp. P1 in Sok :

- R1 was 1.904 ± 0.472 in normal, 1.901 ± 0.470 in glaucoma suspect, 1.899 ± 0.470 in glaucoma.

- R2 was 1.525 ± 0.457 in normal, 0.806 ± 0.623 in glaucoma suspect, 0.325 ± 0.266 in glaucoma.

- R3 was 1.660 ± 0.369 in normal , 0.799 ± 0.7164 in glaucoma suspect , 0.210 ± 0.094 in glaucoma .

- R4 was 1.513 ± 0.360 in normal , 0.702 ± 0.637 in glaucoma suspect, 0.165 ± 0.084 in glaucoma.

- R5 was 1.516 ± 0.278 in normal , 0.679 ± 0.555 in glaucoma suspect, 0.164 ± 0.119 in glaucoma.

All the results were higher in normal than in glaucoma suspect and glaucoma, it is also higher in glaucoma suspect than in glaucoma P<0.001.

Table (14): Amp. N1 (uv) in all groups (S.D = standard Deviation)

	Normal Subjects (n: 20)		Glaucoma Suspect (n : 25)		Glaucoma (n : 20)	
	Mean	S.D	Mean	S.D	Mean	S.D
R1	0.991	0.213	0.989	0.211	0.997	0.210
R2	0.459	0.102	0.252	0.181	0.156	0.133
R3	0.628	0.199	0.29148	0.211	0.090	0.041
R4	0.607	0.249	0.29288	0.305	0.070	0.012
R5	0.609	0,228	0.2680	0.179	0.091	0.069
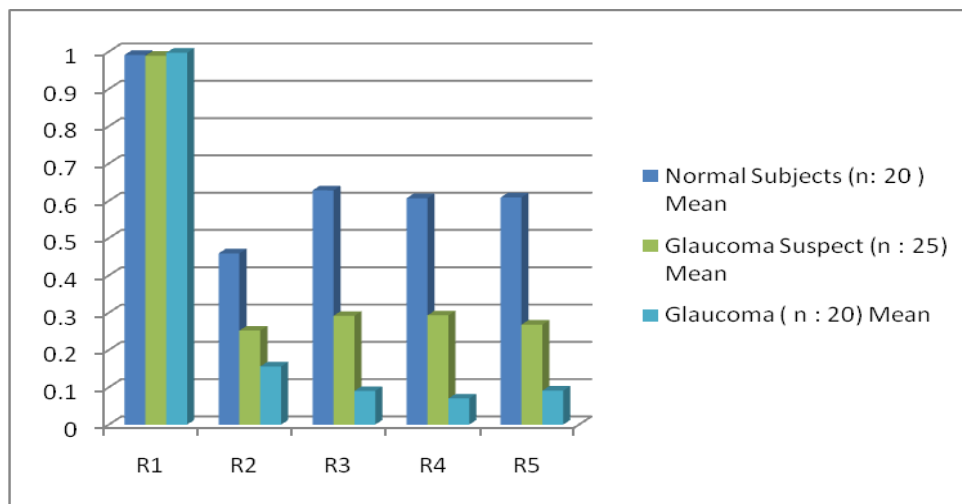
Chart 5: Amplitude N1 in SOK in different groups.

In Table 14 and Chart (5) Amp. N1 in Sok :

- R1 was 0.991 ± 0.213 in normal, 0.989 ± 0.211 in glaucoma suspect, 0.997 ± 0.210 in glaucoma.

- R2 was 0.460 ± 0.102 in normal, 0.252 ± 0.186 in glaucoma suspect, 0.156 ± 0.133 in glaucoma.

- R3 was 0.628± 0.199 in normal , 0.291± 0.211in glaucoma suspect, 0.090± 0.042 in glaucoma.

- R4 was 0.607± 0.249 in normal , 0.293± 0.305in glaucoma suspect, 0.070± 0.012in glaucoma.

- R5 was 0.609± 0,228in normal , 0.268± 0.179in glaucoma suspect, 0.091±

  0.069 in glaucoma.

All the results were higher in normal than in glaucoma suspect and glaucoma, it is also higher in glaucoma suspect than in glaucoma P<0.001.

Table 15: implicit time of P1 wave in different groups

	Normal Subjects (n: 20)		Glaucoma Suspect (n : 25)		Glaucoma (n : 20)	
	Mean	**S.D**	**Mean**	**S.D**	**Mean**	**S.D**
R1	32.30	4.50	32.10	4.48	32.00	4.45
R2	35.30	4.50	36.40	4.50	38.80	4.22
R3	34.20	4.48	39.20	8.70	40.33	6.67
R4	35.30	5.33	38.20	5.98	39.50	5.67
R5	34.20	4.48	38.20	5.48	40.24	6.77
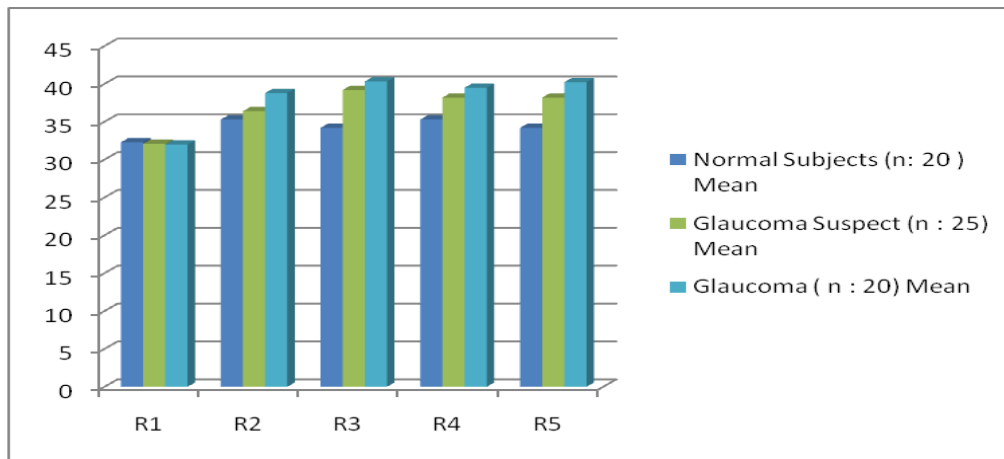
Chart 6: implicit time of P1 wave in different groups.

By studying the implicit time of P1 wave in different groups as shown in table 15 and Chart (6).

- R1 was 32.30 ± 4.50 in normal, 32.10 ± 4.48 in glaucoma suspect, 32.00± 4.45 in glaucoma.

- R2 was 35.30 ± 4.50 in normal, 36.40 ± 4.50 in glaucoma suspect, 38.80± 4.22in glaucoma.

- R3 was 34.2 ± 4.48 in normal , 39.2 ± 8.70 in glaucoma suspect, 40.33 ± 6.67 in glaucoma.

- R4 was 35.3 ± 05.33 in normal , 38.2 ± 5.98 in glaucoma suspect, 39.50 ± 5.67 in glaucoma.

- R5 was 34.2 ± 4.48 in normal , 38.2 ± 5.48 in glaucoma suspect, 40.24 ± 6.77 in glaucoma.

The delay time is higher in glaucoma than glaucoma suspects and glaucoma suspects than in normal. The delay time is higher in the paracentral and the Bejerum area.

Table 16: Implicit time of N1 wave in different groups

	Normal Subjects (n: 20)		Glaucoma Suspect (n : 25)		Glaucoma (n : 20)	
	Mean	**S.D**	**Mean**	**S.D**	**Mean**	**S.D**
R1	20.60	3.28	21.60	3.29	21.80	3.25
R2	18.50	3.23	19.21	3.27	19.50	4.11
R3	16.67	4.88	18.21	3.96	19.66	3.26
R4	15.50	4.74	18.22	4.22	23.55	4.99
R5	16.50	5.36	17.64	4.96	21.76	4.77
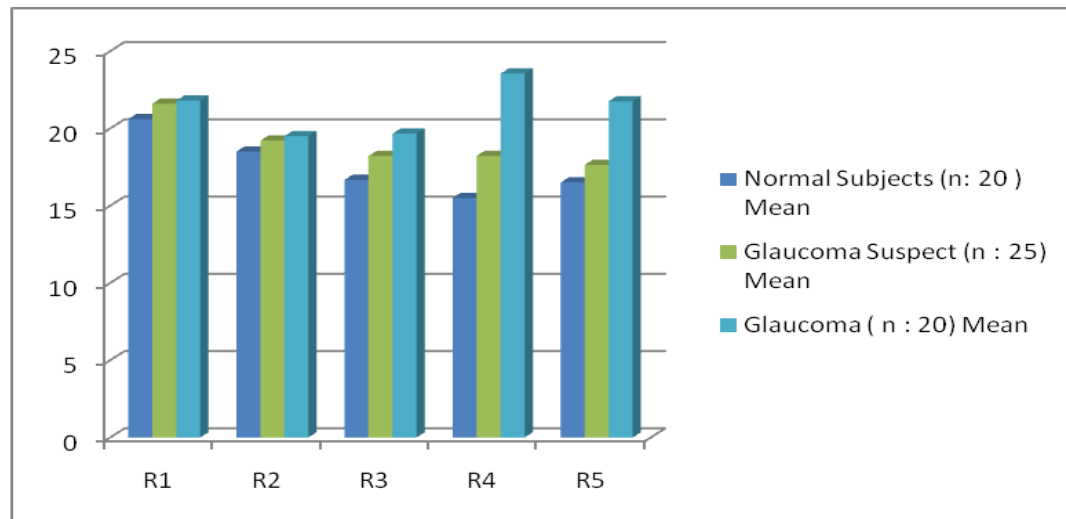
Chart 7: Amplitude N1 in SOK in different groups.

By studying the implicit time of N1 wave in different groups as shown in table 11 and chart 7:

- R1 was 20.60 ± 3.28 in normal, 21.60 ± 3.29 in glaucoma suspect, 21.80 ± 3.25 in glaucoma.

- R2 was 18.50 ± 3.23 in normal , 19.21 ± 3.27 in glaucoma suspect, 19.50 ± 4.11 in glaucoma.

- R3 was 16.67 ± 4.88 in normal , 18.21 ± 3.96 in glaucoma suspect, 19.66 ± 3.26 in glaucoma.

- R4 was 15.50 ± 4.74 in normal , 18.22 ± 4.22 in glaucoma suspect, 23.55± 4.99 in glaucoma.

- R5 was 16.50 ± 5.36 in normal , 17.64 ± 4.96 in glaucoma suspect, 21.76±

  4.77 in glaucoma.

All the results were higher in glaucoma than glaucoma suspects and higher in glaucoma suspects than normal.

The delay time is higher in glaucoma than glaucoma suspects and glaucoma suspects than in normal. The time delay was higher in the paracentral and the Bejerum areas.

Case presentation of the three different groups as regard field of vision, RNFL thickness, ONH assessment by stratus OCT and mfERG.

1 - Normal eye: right eye :

Age: 40 years   sex: female V/A : 6/6 aided with -0.5 Ds   IOP: 15 mmHg without any treatment.

Visual field test analysis : (figure34)

-Very good reliability indices.

-Normal retinal sensitivity MD (+ 1.93 dB).

-Glaucoma hemifield test is within normal limits.

-No localized defect (PSD 1.12 dB).

RNFL thickness assessment by stratus OCT: (figure35)

 -RNFL thickness is within normal in inferior superior, nasal, temporal quadrants.

 -Symmetrical hum curves

 -Average RNFL thickness is within normal limits

ONH assessment by stratus OCT: (figure35)

 -Cup – disc vertical Ratio is 0.1 .

 -Cup – disc horizontal Ratio is 0.1.

 -Normal rim area and rim volume are within normal limits .

Luminance mfERG recordings:(figure 32).

 -Normal FOK response amplitude and implicit time.

 -Normal SOK response amplitude and implicit time.

Normal mfPERG response amplitude and implicit time

ONHC was not detected.
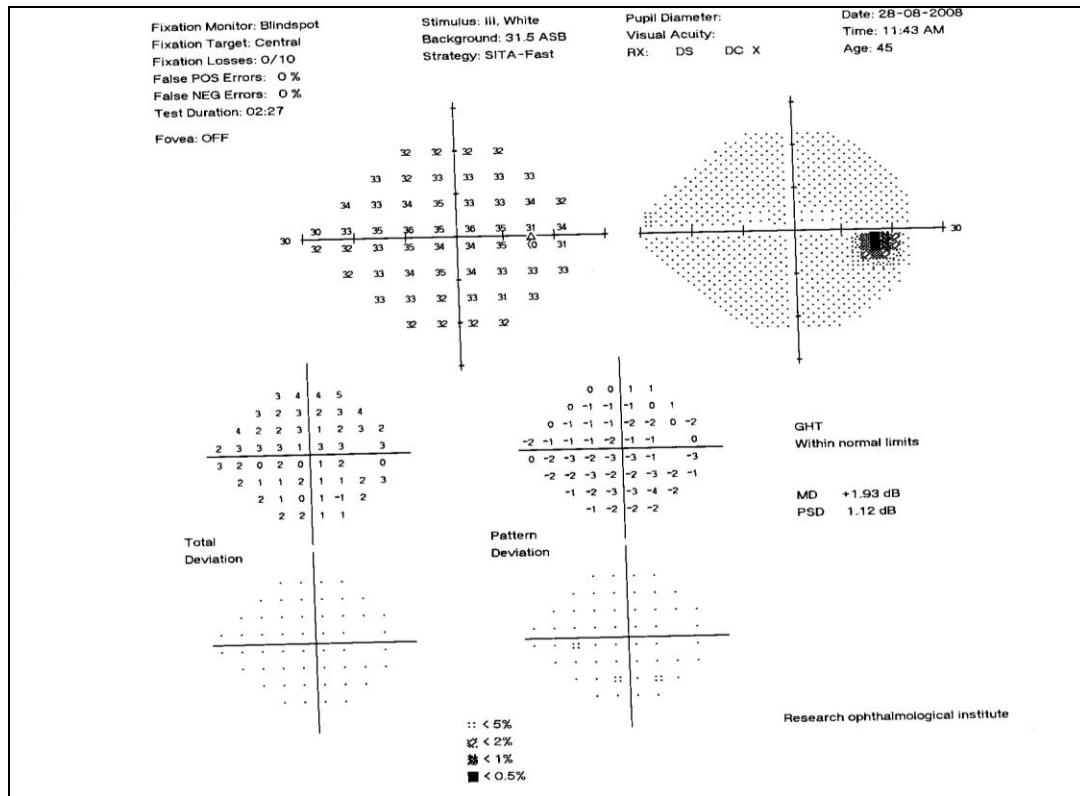
Figure 34: A normal case (Visual field Humphery 24-2-test).
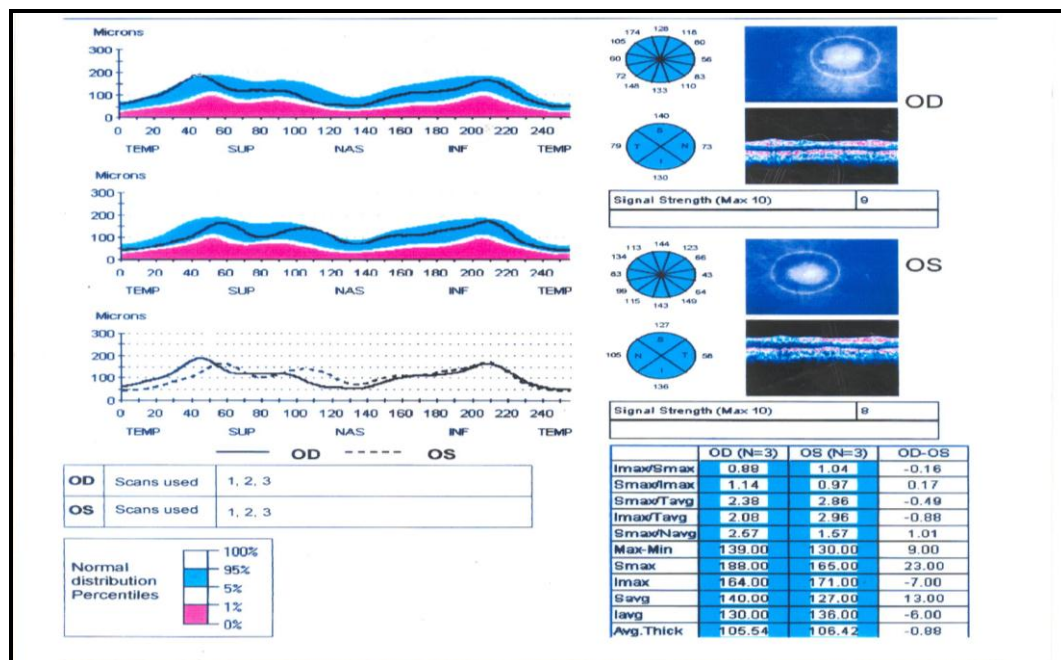
Figure 35:   A normal case (RNFL Thickness assessment by stratus OCT)
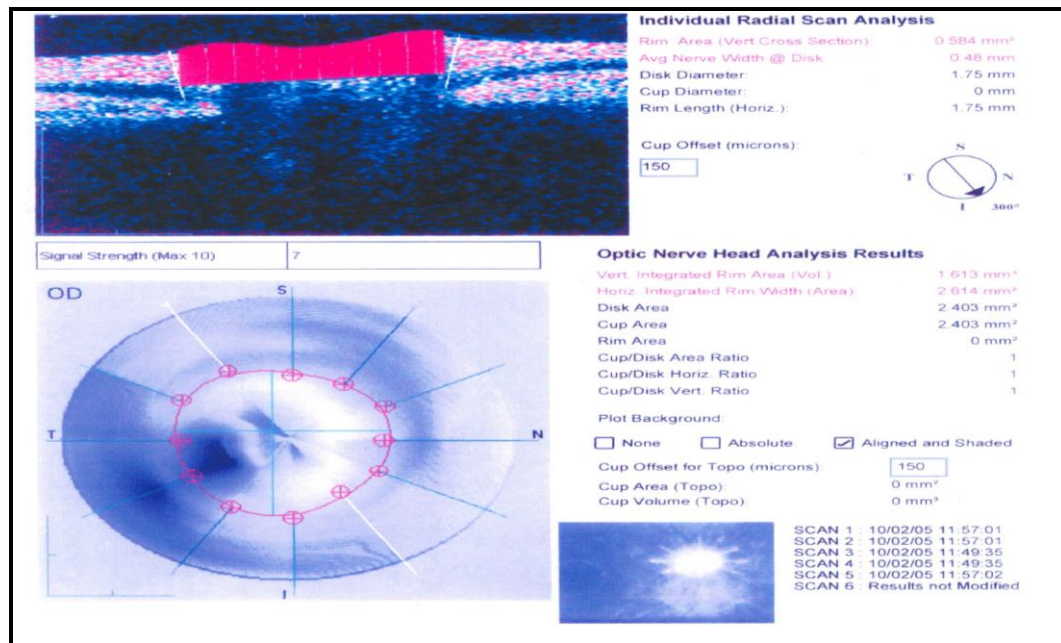
Figure 36:.A normal case (ONH assessment by Stratus OCT)
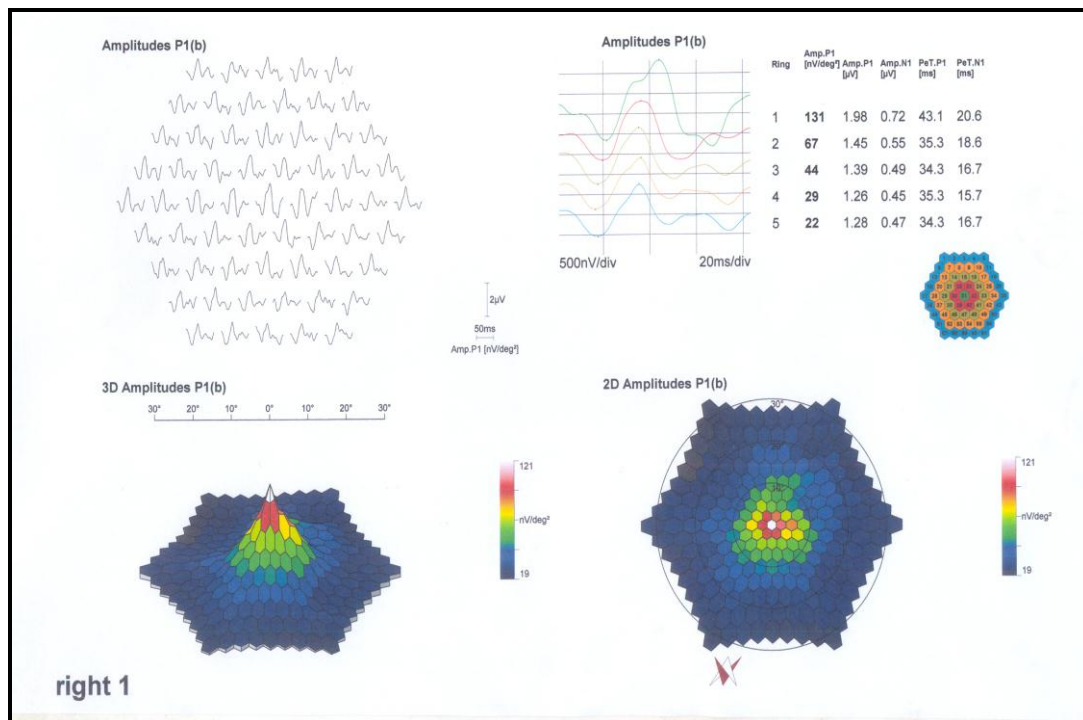
Figure 37: A normal case (mfERG)

2 – A case of glaucoma suspect: right eye:

- age: 43 years   sex: female V/A : 6/6 aided with +0.5 Ds   IOP: 25 mmHg without any treatment.

Visual field test analysis : (figure 33).

-Very good reliability indices.

-Normal retinal sensitivity MD (-2.18).

-Glaucoma hemi field test is within normal limits.

-No localized defect (PSD 1.01).

RNFL thickness assessment by stratus OCT (figure 34).

-RNFL thickness is within normal in superior, nasal, temporal quadrants.

-Inferior RNFL thickness below normal limits.

-A symmetrical hump curves.

-Average RNFL thickness is below normal limits .

ONH assessment by stratus OCT(figure 35).

-Cup – disc vertical Ratio is 0.452.

-Cup – disc horizontal Ratio is 0.533.

-Normal rim area and rim volume are below normal limits .

Luminance mfERG recordings(figure 36).

-Normal FOK response amplitude and implicit time.

-Reduced SOK response amplitude and delayed   implicit time in the paracentral (Bjerum) area.

-Reduced mfPERG response amplitude and delayed implicit time.
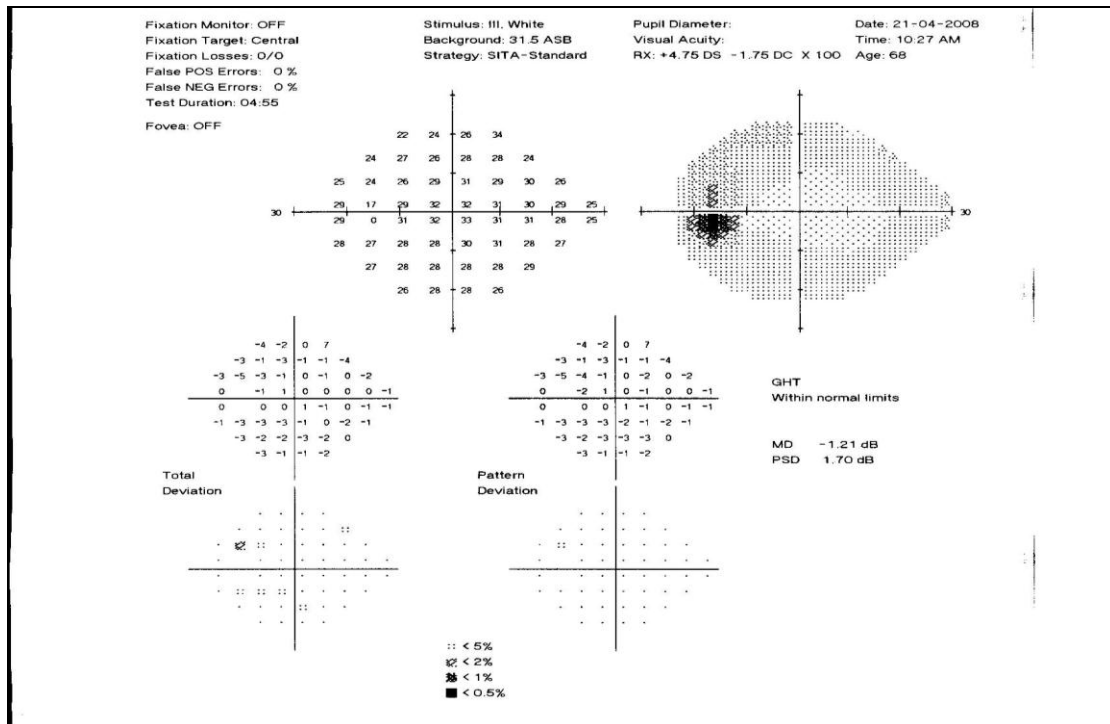
-ONHC was not detected.
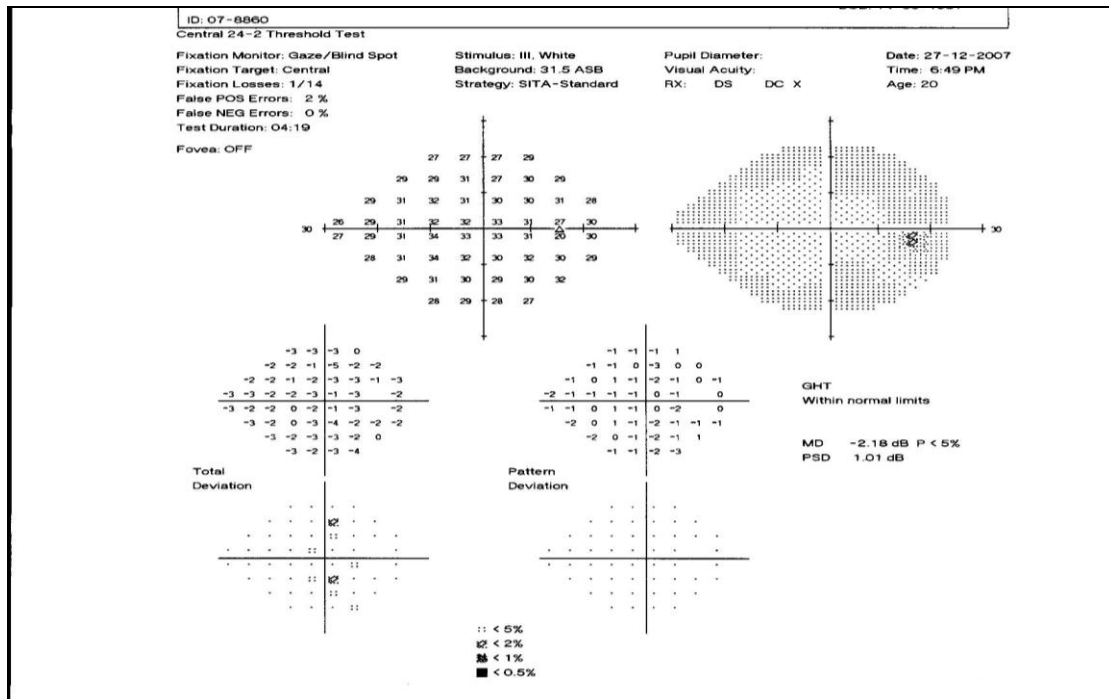
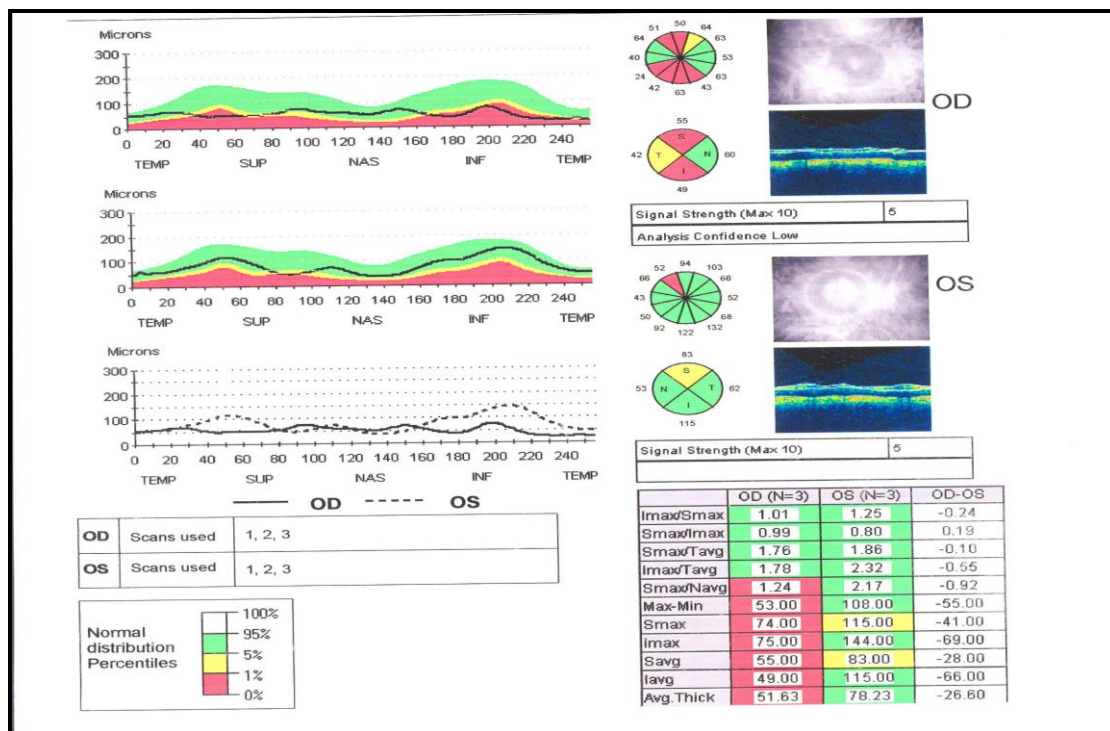**Figure 38: A Case of Glaucoma suspect ((Visual field Humphery 24-2-test).**
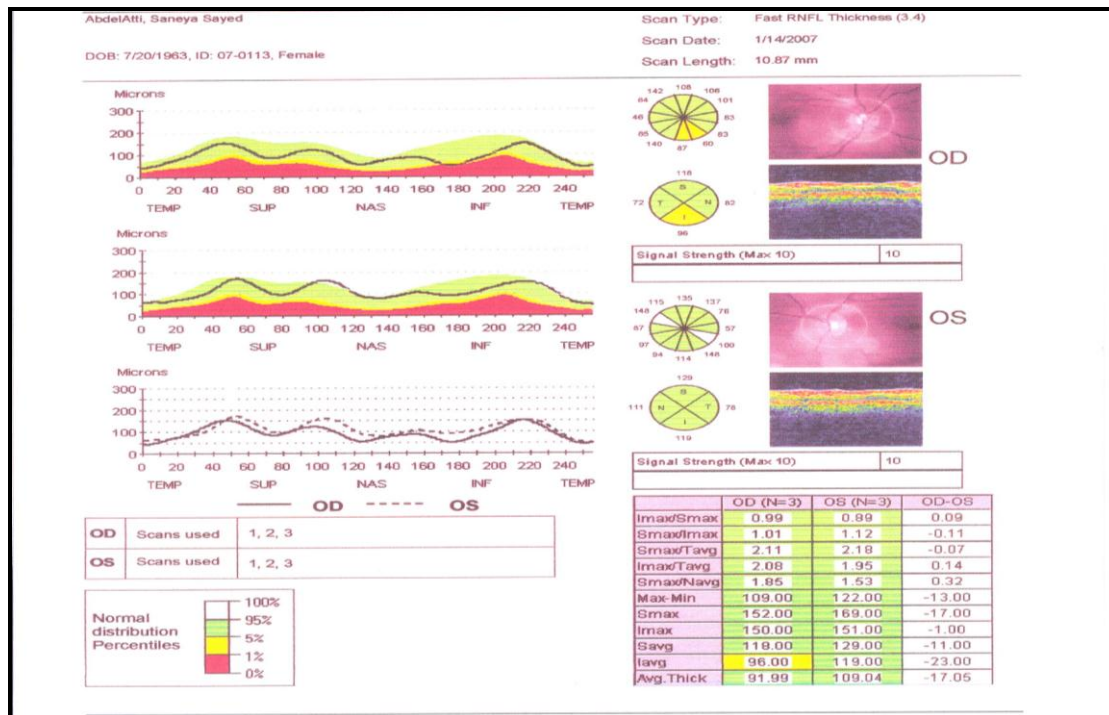
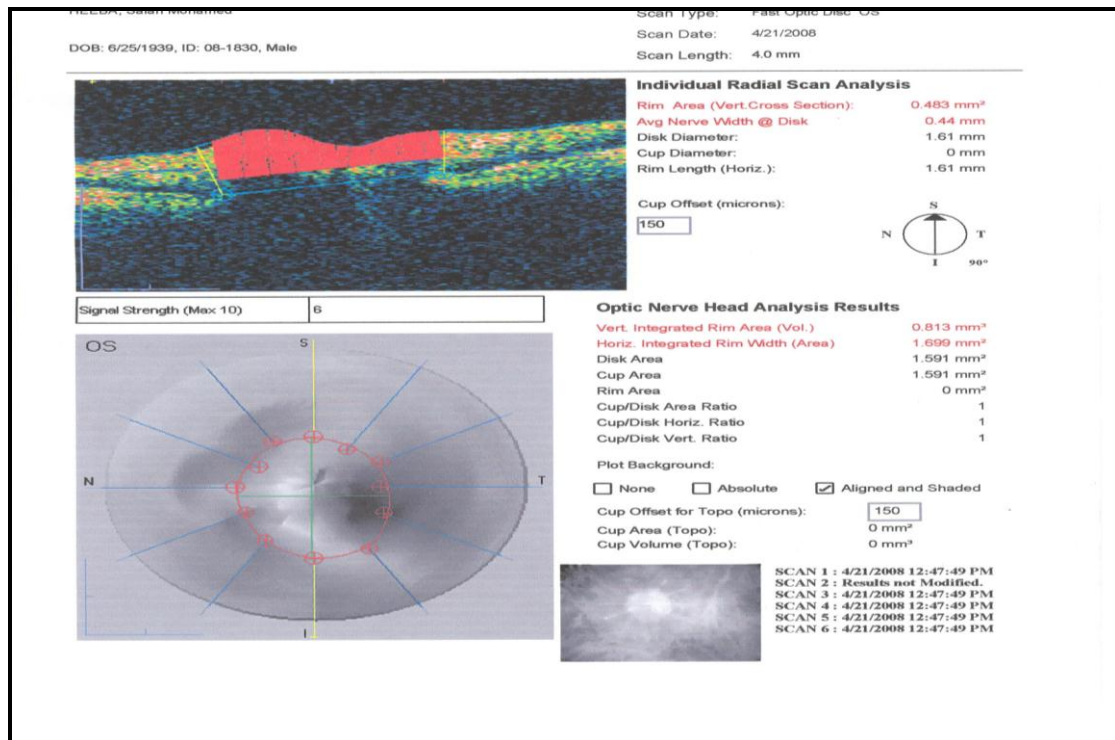**Figure 39: A case of glaucoma suspect (RNFL Thickness assessment by stratus OCT).**
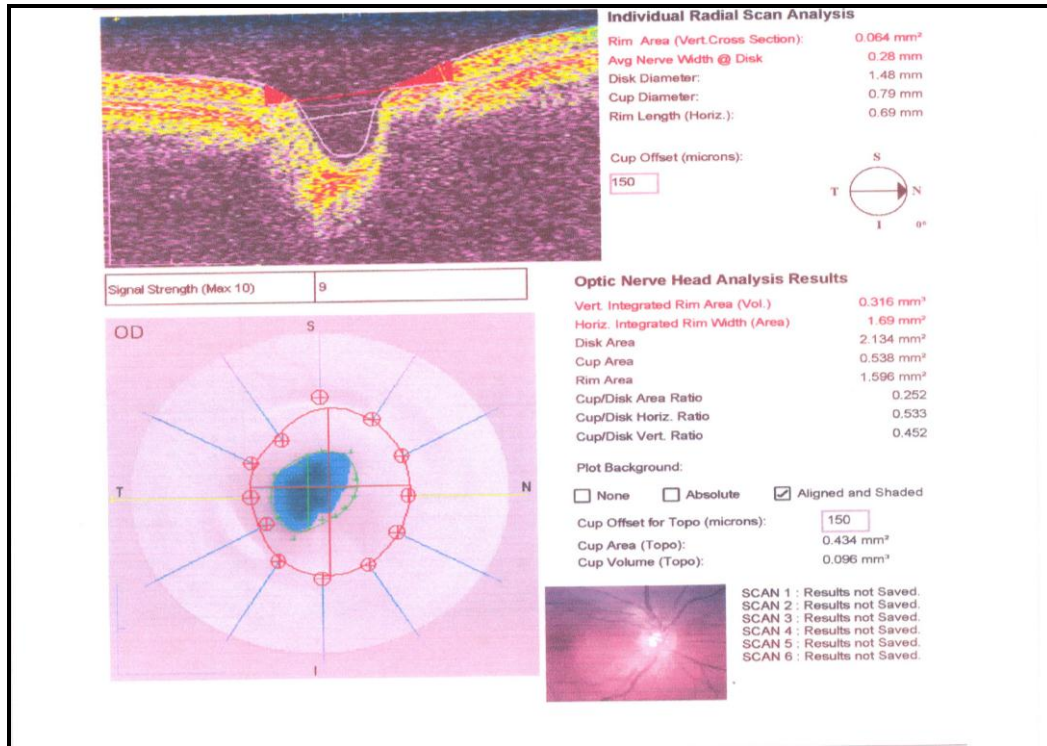
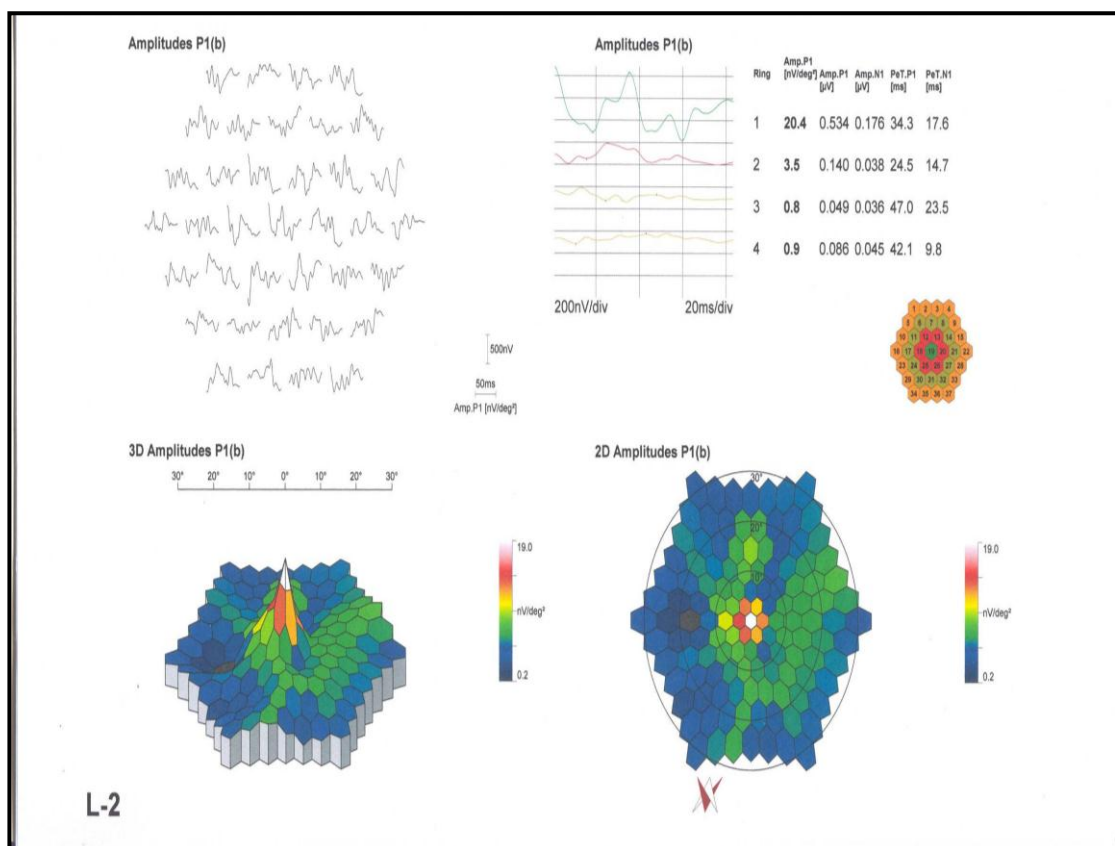**Figure 40: A case of glaucoma suspect (ONH assessment by Stratus OCT)**
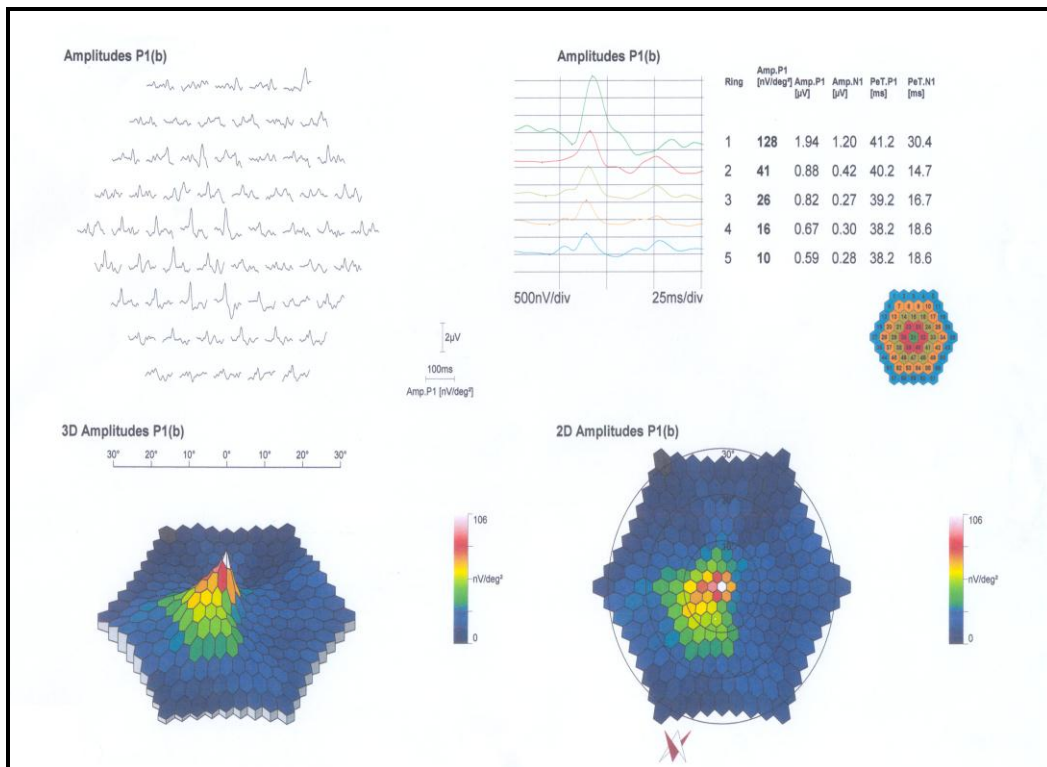
Figure 41: A case of glaucoma suspect (mfERG)

3 – A case of glaucoma suspect : Left eye :

Age: 44 years sex: female   V/A : 6/6 aided with +0.5 Ds   IOP: 15 mmHg without any treatment.

Visual field test analysis :

-Very good reliability indices.

-Normal retinal sensitivity MD (-1.21).

-Glaucoma hemifield test is within normal limits .

-No localized defect (PSD 1.70) .

RNFL thickness assessment by stratus OCT :

-RNFL thickness is within normal in inferior, nasal, temporal quadrants.

-RNFL thickness in the superior quadrant is below normal limits.

-Asymmetrical hump curves.

-Average RNFL thickness is below normal limits .

ONH assessment by stratus OCT

-Cup – disc vertical Ratio is 0.349.

-Cup – disc horizontal Ratio is 0.432.

-Rim area and Rim volume are below normal limits

Luminance mfERG recordings

-Normal FOK response amplitude and implicit time.

-Reduced SOK response amplitude and delayed implicit time particularly in the paracentral area .

Normal mfPERG response amplitude and delayed implicit time .
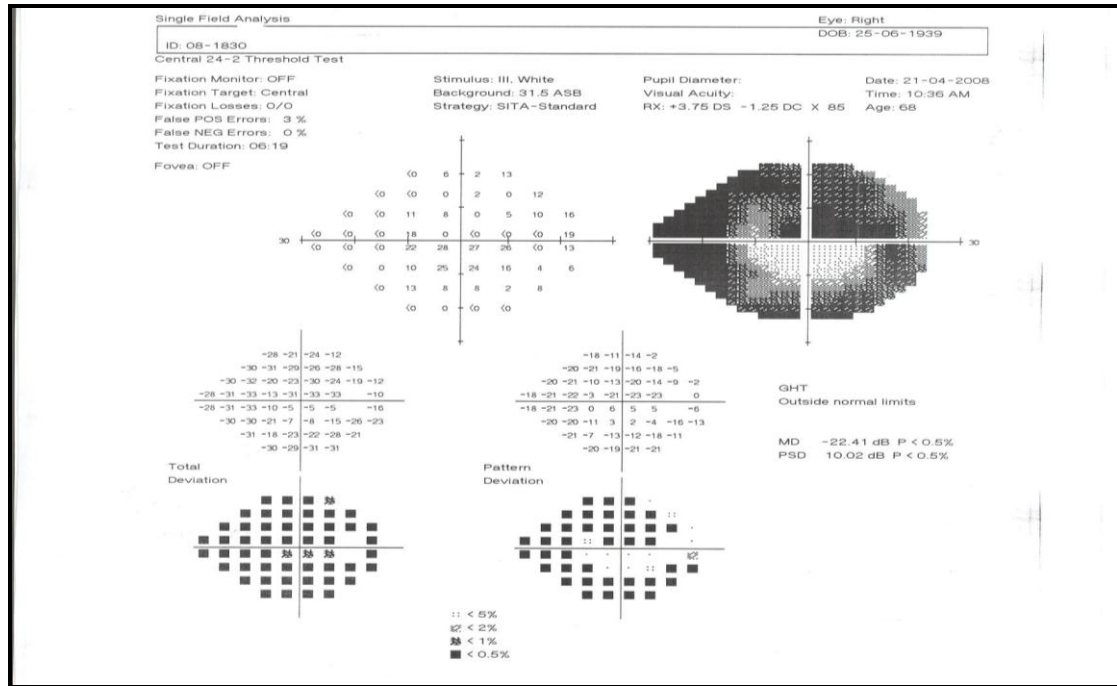
ONHC was not detected.

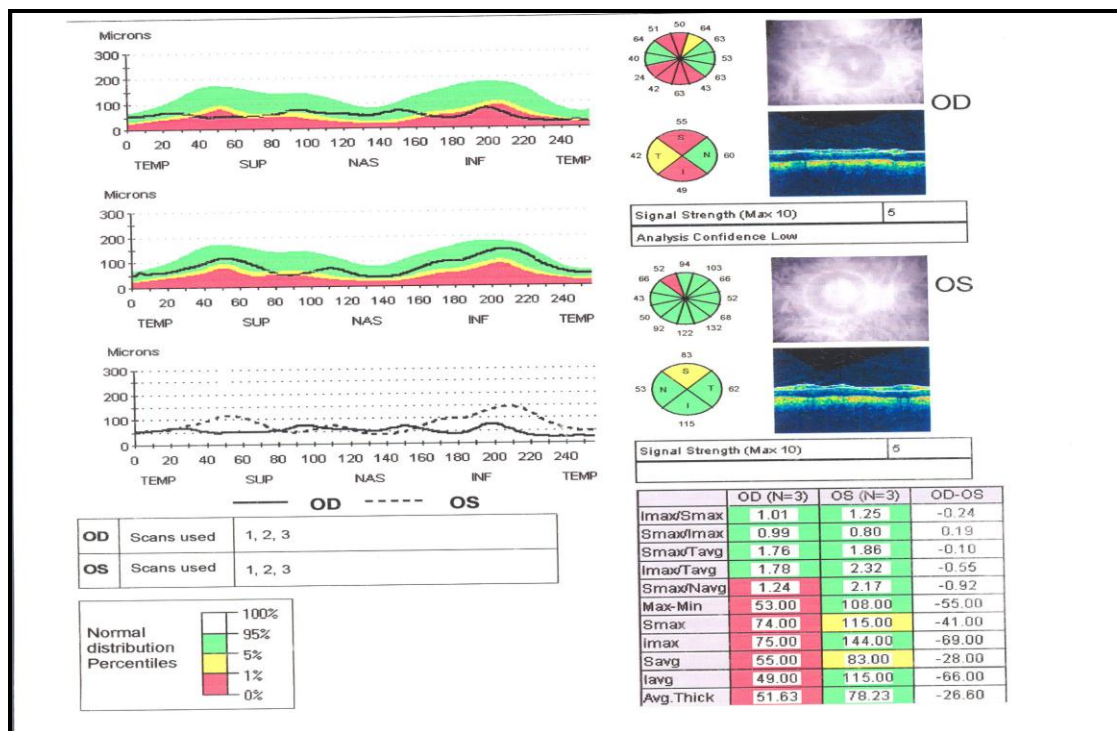**Figure 42: A Case of glaucoma suspect ((Visual field Humphery 24-2-test).**

**Figure 43: A case of glaucoma suspect (RNFL assessment by Stratus OCT)**

Figure 44: A case of glaucoma suspect (ONH assessment by Stratus OCT)

Figure 45: A case of glaucoma suspect (mfERG)

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4 –A case of POAG : right eye :

• age: 65 years   sex: male   BCV/A : 6/18 unaided   IOP: 36 mmHg without treatment.

Visual field test analysis (figure 46):

-Very good reliability indices

-Severe generalized decrease of retinal sensitivity MD (-22.41 dB).

-Glaucoma hemifield test is outside normal limits.

-Tubular field (PSD 10.02dB).

RNFL thickness assessment by stratus OCT :(figure 47)

-RNFL thickness is below normal in inferior superior, temporal quadrants.

-Asymmetrical hump curves

.-Average RNFL thickness is below normal limits.

ONH assessment by stratus OCT(figure48).

-Cup – disc vertical Ratio is 0.871.

-Cup – disc horizontal Ratio is 0.888.

-Rim area and rim volume are below normal limits.

Luminance mfERG recordings (figure49).

-Normal FOK response amplitude and implicit time

-Reduced SOK response amplitude and delayed implicit time in paracentral and peripheral field .

-Reduced mfPERG response amplitude and implicit time.

Figure 46: Case of glaucoma ((Visual field Humphery 24-2-test).

Figure 47: A case of glaucoma suspect (RNFL assessment by Stratus OCT

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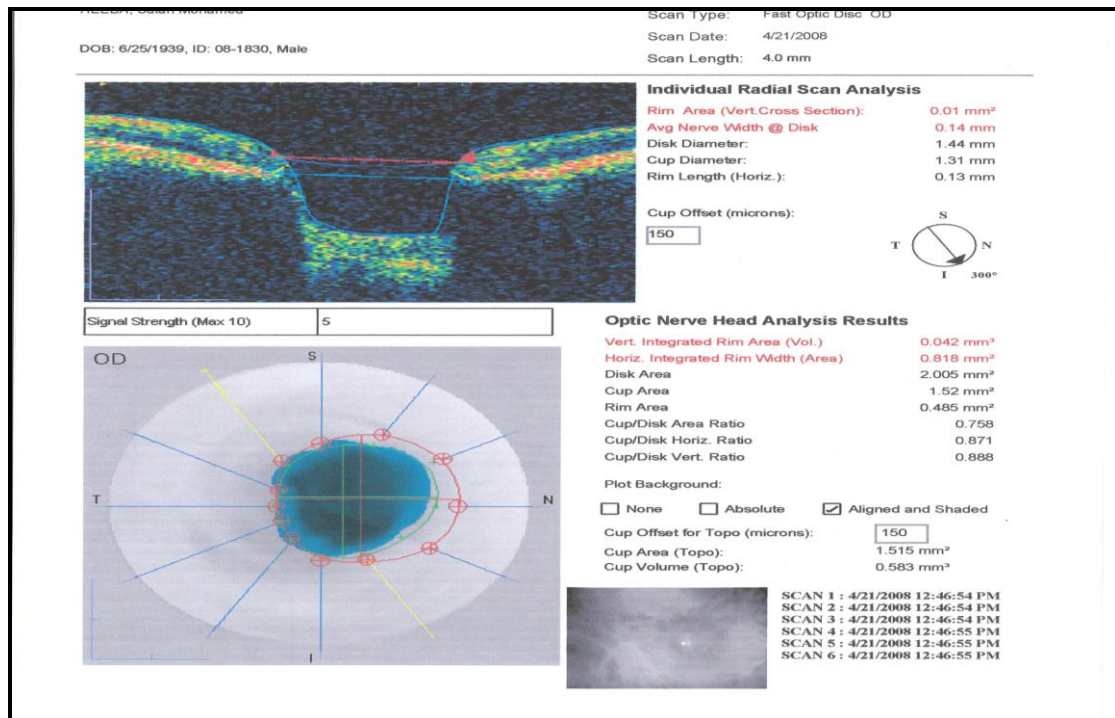
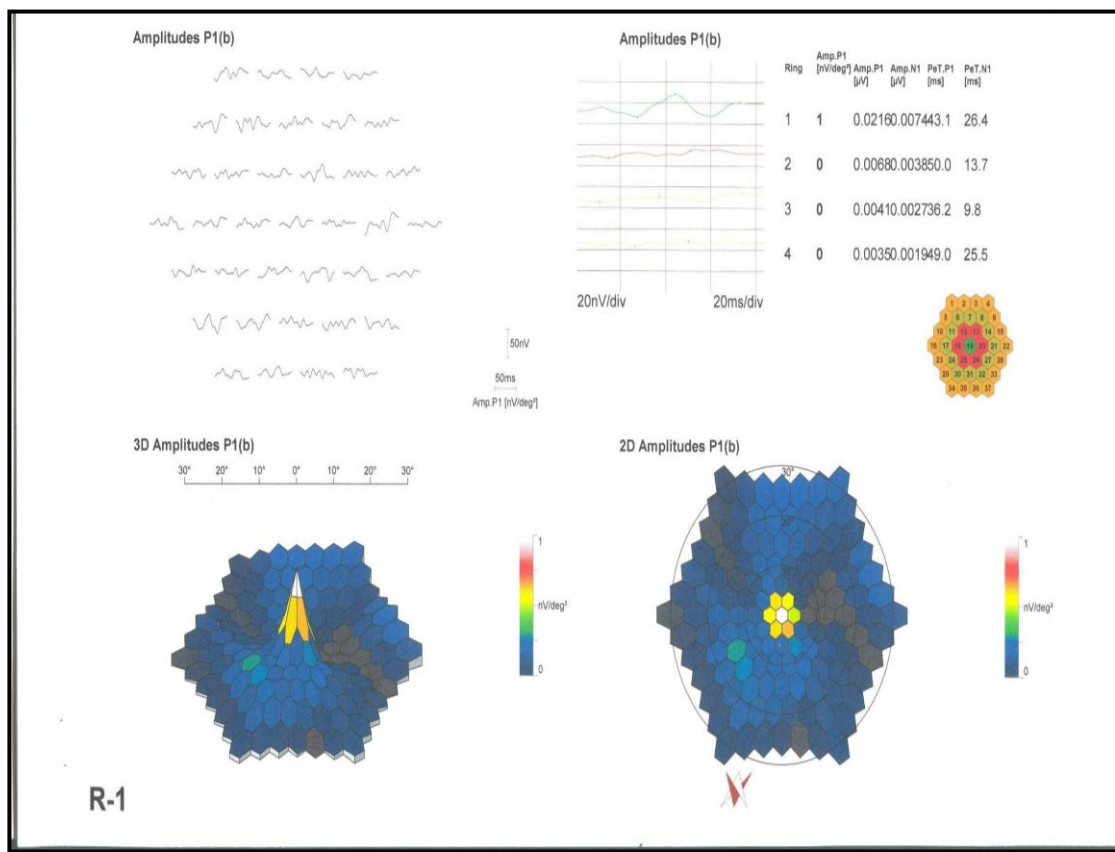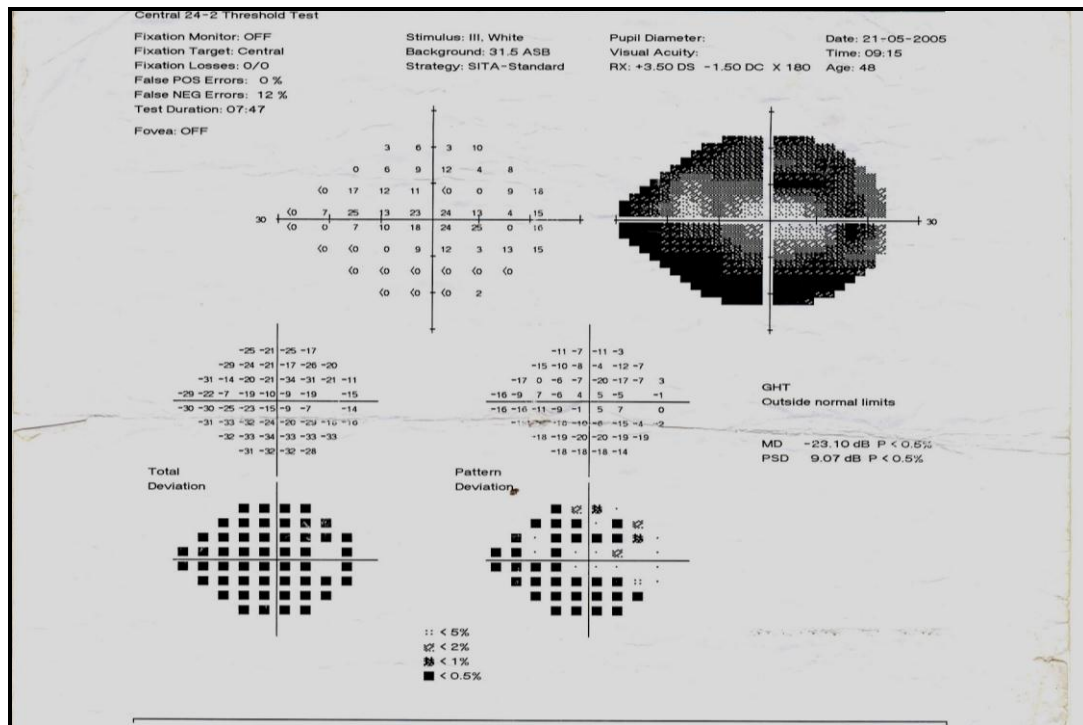**Figure 48: A case of POA glaucoma (ONH assessment by Stratus OCT)**

Figure 49: A case of POAG (mfERG)

5–A case of POAG : right eye :

• age: 55 years   sex: male   BCV/A : 6/18 unaided   IOP: 36 mmHg without treatment.

Visual field test analysis (figure 50):

-Very good reliability indices

-Severe generalized decrease of retinal sensitivity MD (-23.10 dB).

-Glaucoma hemifield test is outside normal limits.

-Tubular field (PSD 9.07dB).

RNFL thickness assessment by stratus OCT :(figure 51.)

-RNFL thickness is below normal in inferior superior, temporal quadrants.

-Asymmetrical hump curves .

.-Average RNFL thickness is below normal limits.

ONH assessment by stratus OCT(figure52).

-Cup – disc vertical Ratio is 0.893.

-Cup – disc horizontal Ratio is 0.884.

-Rim area and rim volume are below normal limits.

Luminance mfERG recordings (figure53).

-Normal FOK response amplitude and implicit time

-Reduced SOK response amplitude and delayed implicit time in paracentral and peripheral field .

-Reduced mfPERG response amplitude and implicit time.

-ONHC was not detected.

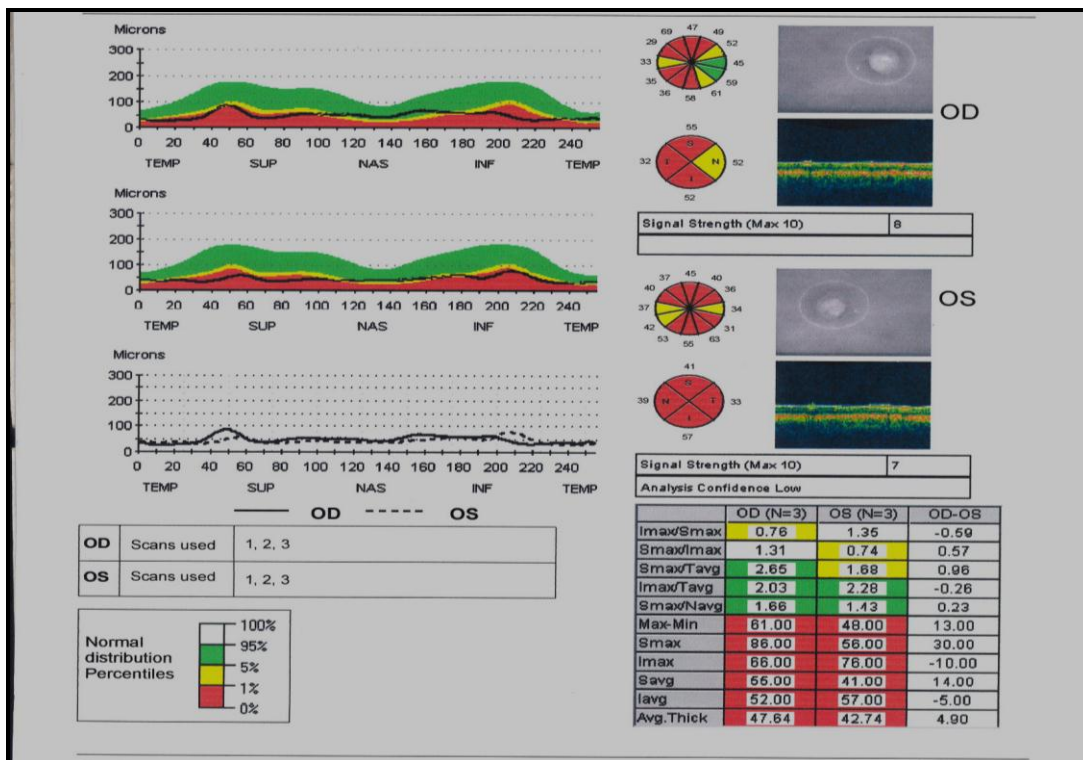**Figure 50: A case of POA glaucoma(Visual field Humphery 24-2-test).**

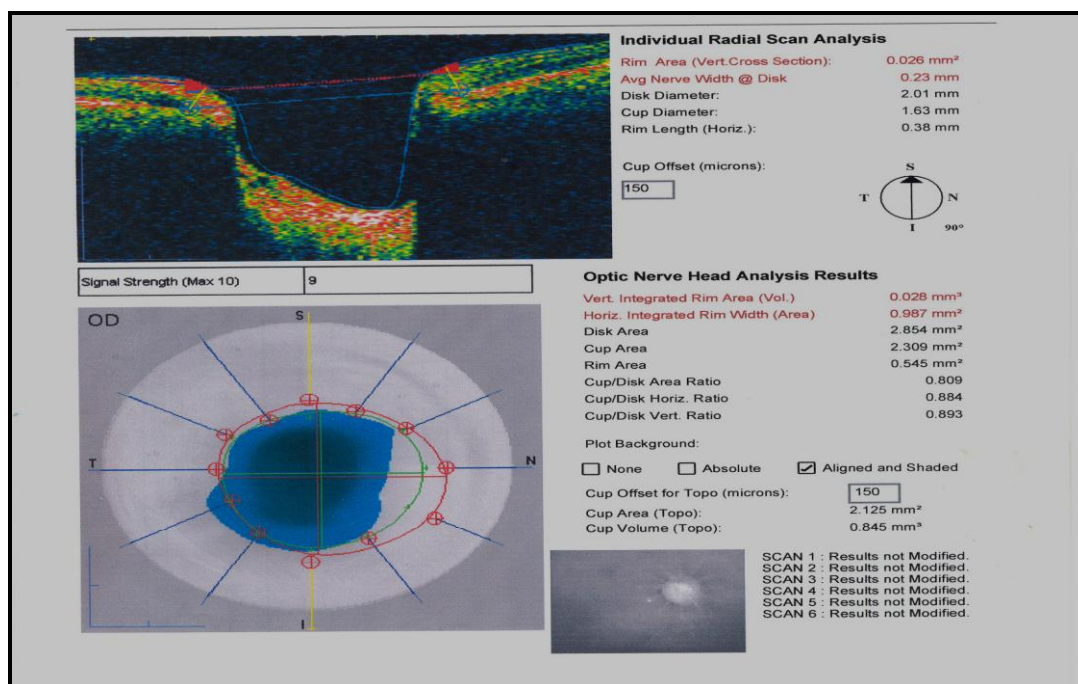**Figure 51: A case of POA glaucoma(RNFL Thickness assessment by stratus OCT)**

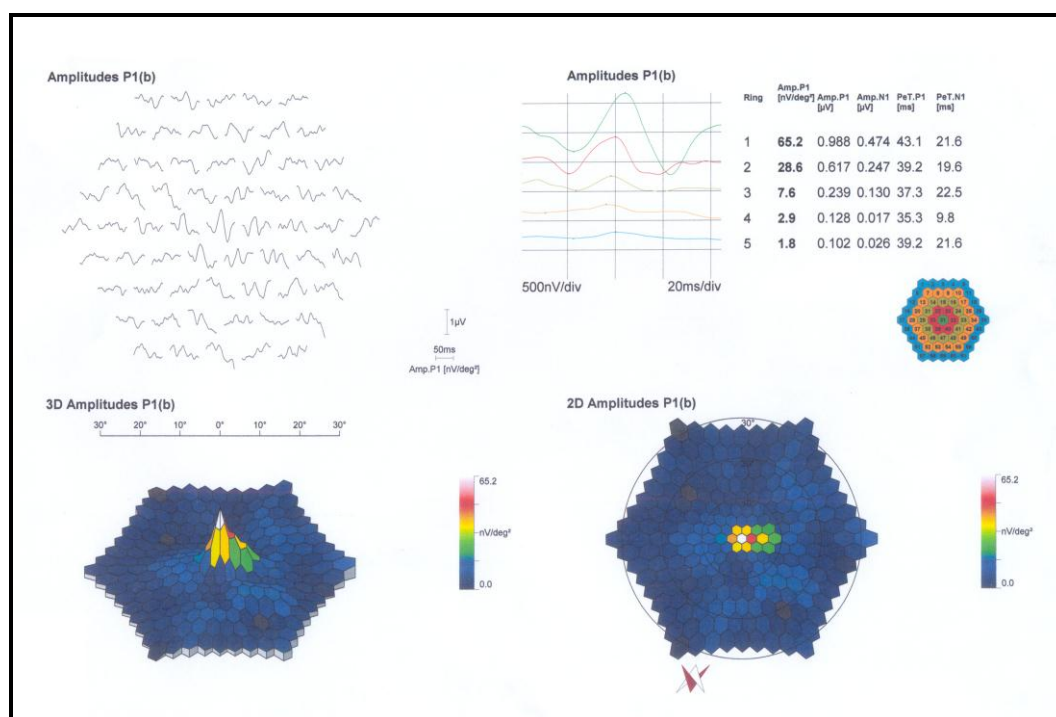**Figure 52: A case of POA glaucoma (ONH assessment by Stratus OCT)**

Figure 53: A case of POAG (mfERG)

6– A case of POAG : Left eye :

Age: 55 years   sex: male   V/A : 6/12 unaided   IOP: 39 mmHg without treatment.

Visual field test analysis : (figure 54).

-Very good reliability indices

-Severe generalized decrease of retinal sensitivity MD (-28.46 dB) .

 -Glaucoma hemifield test is outside normal limits.

 -Tubular field (PSD 6.77 dB).

RNFL thickness assessment by stratus OCT :(figure55).

-RNFL thickness is below normal in inferior superior, and temporal quadrants.

-Symetrical hump curves.

-Average RNFL thickness is below normal limits.

ONH assessment by stratus OCT:(figure 47).

 -Cup – disc vertical Ratio is 0.984.

 -Cup – disc horizontal Ratio is 0,988.

 -Rim area and rim volume are below normal limits.

Luminance mfERG recordings:(figure 48).

 -Normal FOK response amplitude and implicit time.

 -Reduced SOK response amplitude and delayed implicit time in paracentral and peripheral field .

-Reduced mfPERG response amplitude and implicit time.
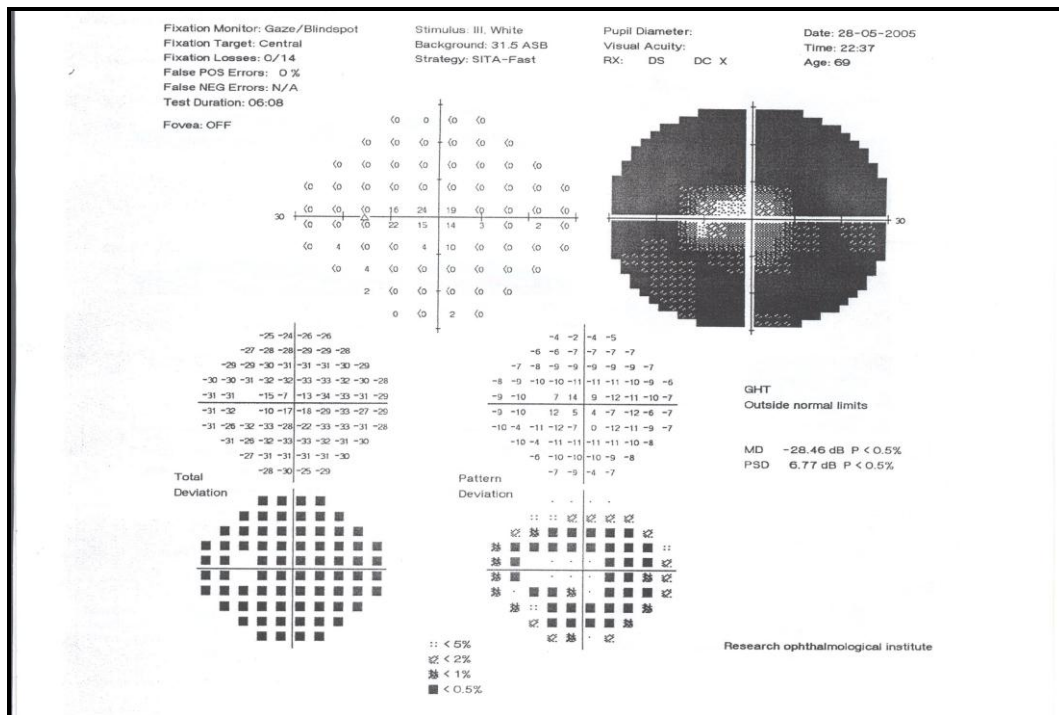
-ONHC was not detected.

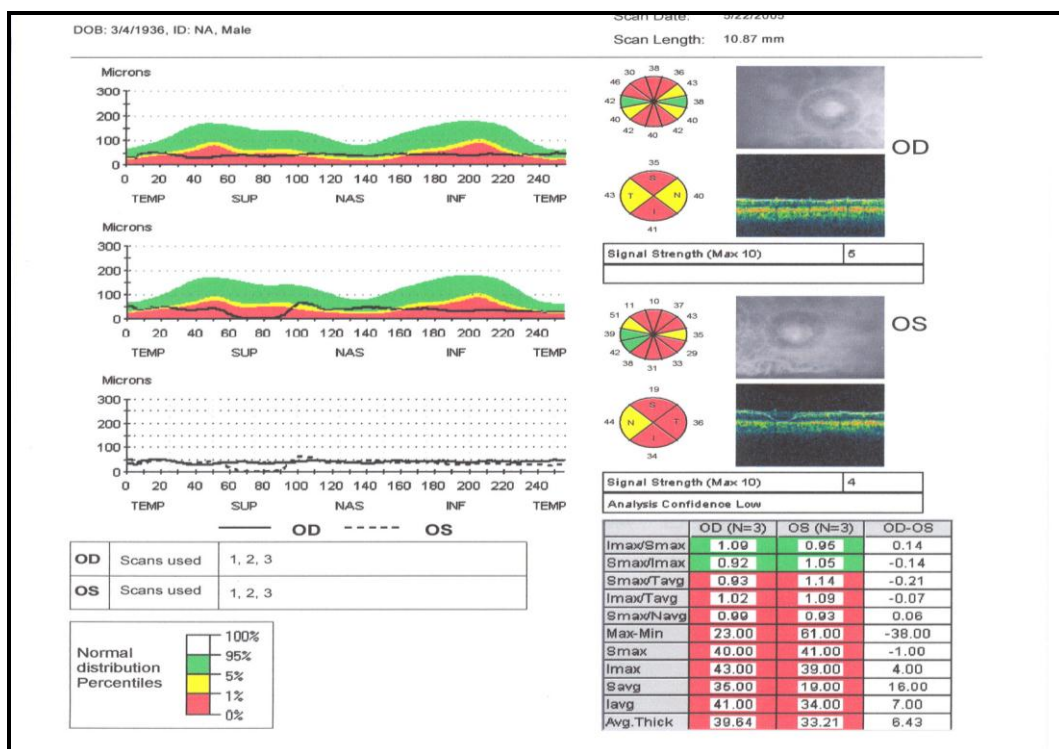**Figure 54: Case of POAG ((Visual field Humphery 24-2-test).**

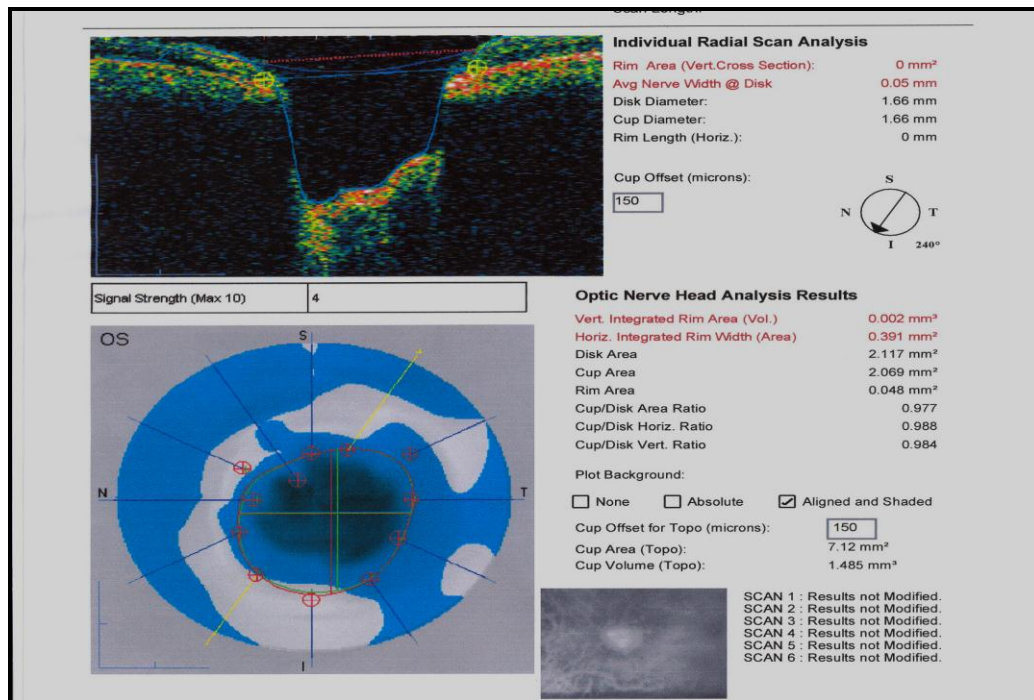**Figure 55 A case of POA glaucoma(RNFL Thickness assessment by stratus OCT)**

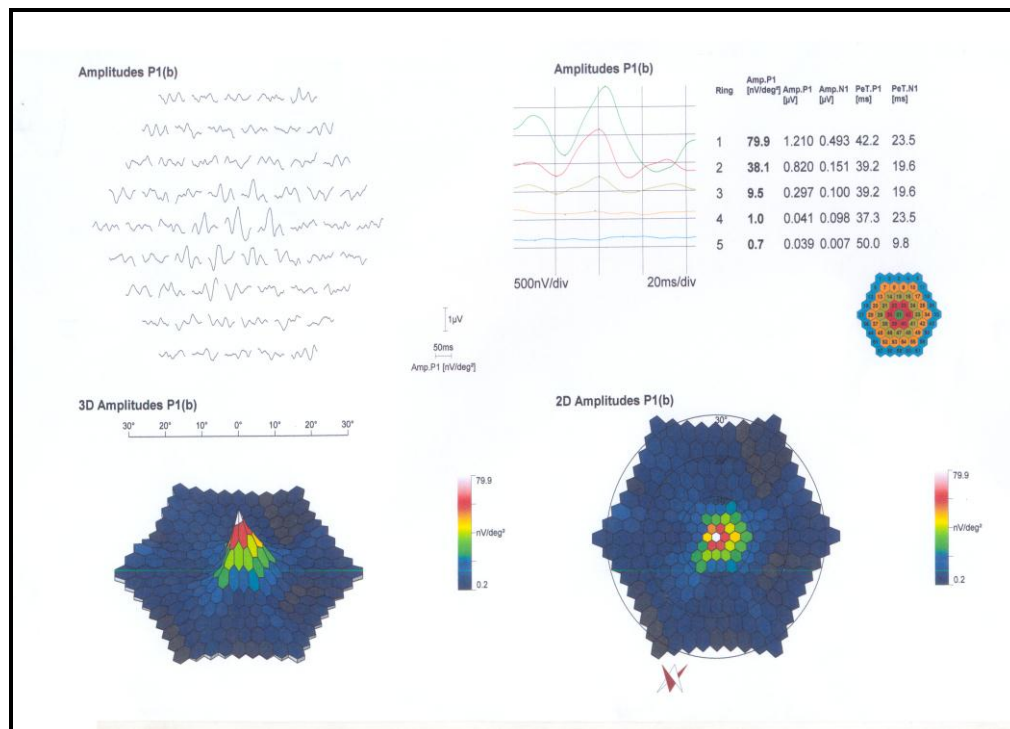**Figure 56 A case of POA glaucoma (ONH assessment by Stratus OCT)**

Figure 57:A case of POAG (mfERG)

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7– A case of POAG : Right eye :

Age: 53 years   sex: male   V/A : 6/12 aided with -0.5 Ds   IOP: 35 mmHg without treatment.

Visual field test analysis : (figure 58)

-Very good reliability indices .

-Severe generalized decrease of retinal sensitivity MD (-30.32dB) .

-Glaucoma hemi field test is outside normal limits .

-Tubular field (PSD 8.49) .

RNFL thickness assessment by stratus OCT :(figure 59)

-RNFL thickness is below normal in inferior & superior ,borderline in nasal and normal in temporal .

-Asymmetrical hump curves.

-Average RNFL thickness is below normal limits.

ONH assessment by stratus OCT:(60).

-Cup – disc vertical Ratio is 0.906.

-Cup – disc horizontal Ratio is 0.808.

-Rim area and rim volume are below normal limits.

Luminance mfERG recordings:(figure61).

-Normal FOK response amplitude and implicit time

- Reduced SOK response amplitude and delayed implicit time in paracentral and peripheral field .

-Reduced mfPERG response amplitude and implicit time .
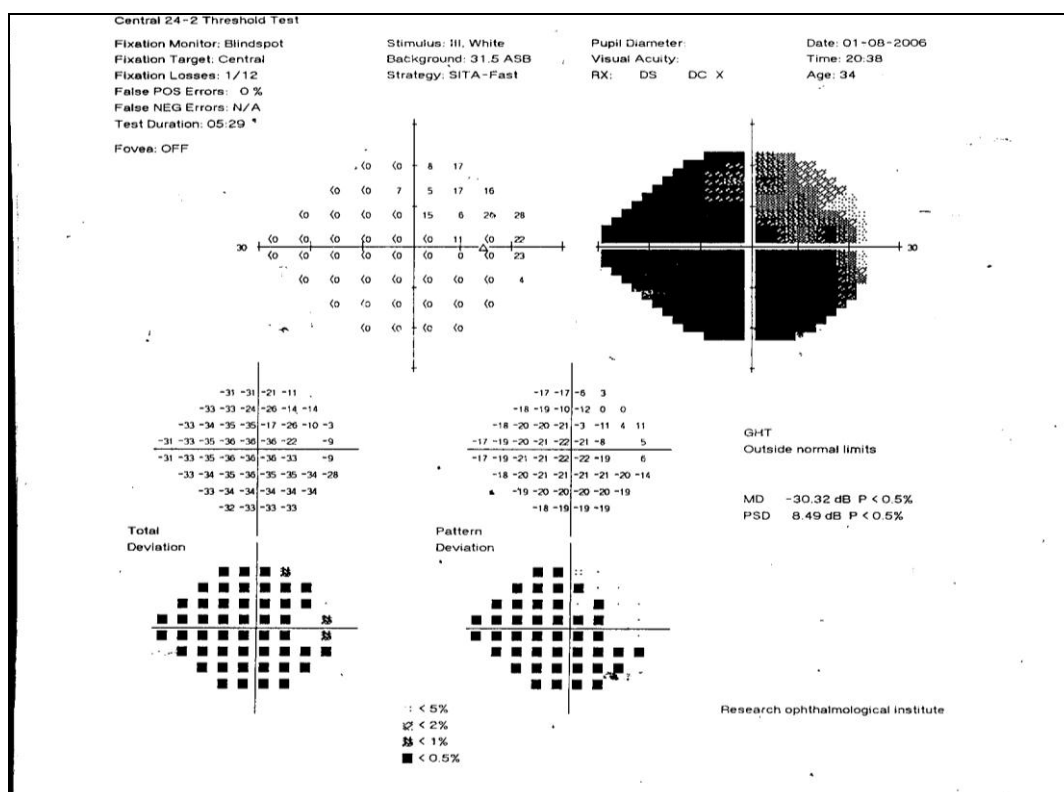
-ONHC was not detected

Figure 58: A Case of POAG ((Visual field Humphery 24-2- test)

Figure 59: A case of POA glaucoma(RNFL Thickness assessment by stratus OCT)

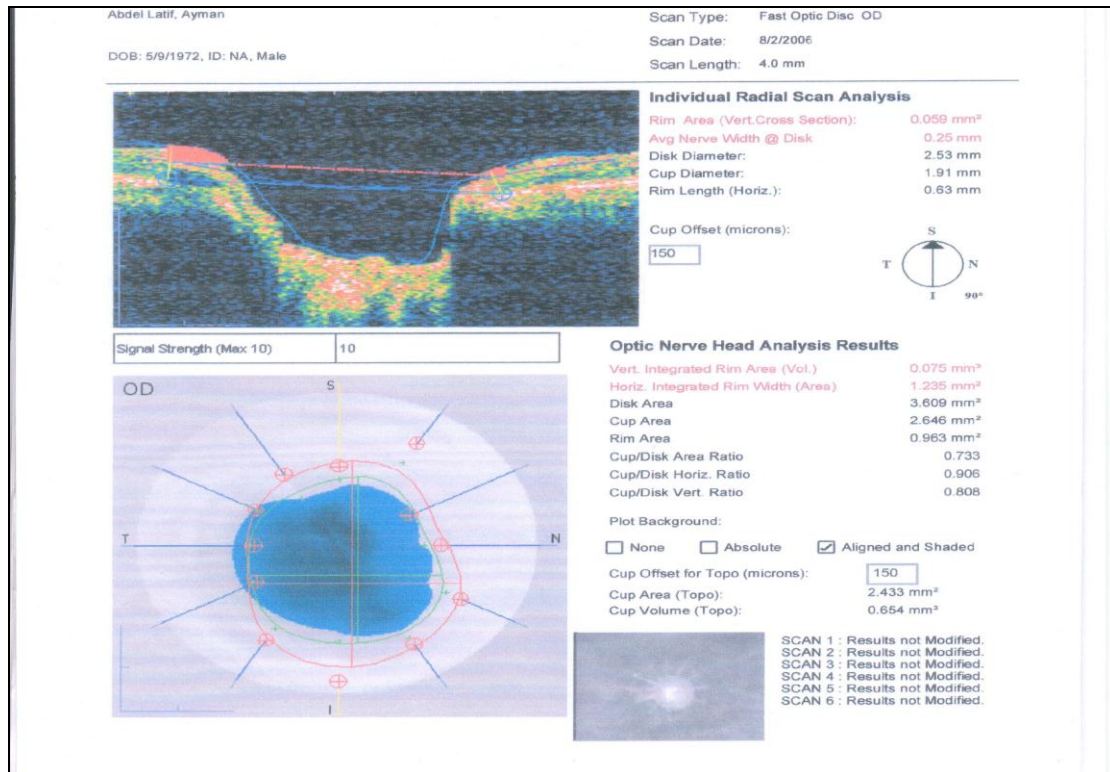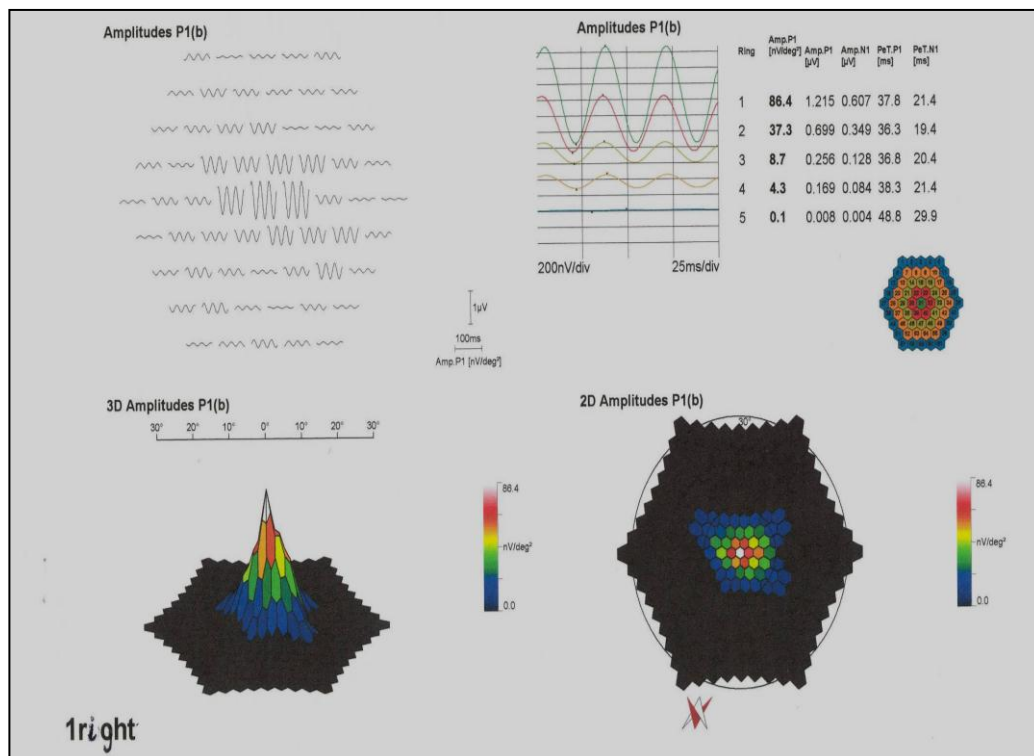**Figure 60: A case of POA glaucoma (ONH assessment by Stratus OCT)**

Figure 61: A case of POAG (mfERG)