Results

Table (2): Statistical comparison between group A (cases) and group B (controls) as regards basic features:

Variable	Groups	Mean	± SD	Student t test	P value
Age	**Case**	**39.54**	**5.54**	**0.48**	**0.63 NS**
	Control	**40.1**	**6.08**		
Length	**Case**	**168.6**	**5.52**	**0.144**	**0.886 NS**
	Control	**168.5**	**4.11**		
WT	**Case**	**77.08**	**8.27**	**1.73**	**0.087 NS**
	Control	**74.32**	**7.47**		
BMI	**Case**	**27.08**	**2.31**	**2.053**	**0.043 S**
	Control	**26.18**	**2.1**		
Neck circumference	**Case**	**39.82**	**2.72**	**0.14**	**0.889 NS**
	Control	**39.75**	**2.24**		

Table (2): Shows statistical comparison between subjects with OSAS (cases) and subjects without OSAS (controls) in mean and standard deviation of the basic features; as we see in the table there was recorded no significant difference in age, length, weight and neck circumference (P>0.05), but there was a significant difference in BMI (P<0.05).

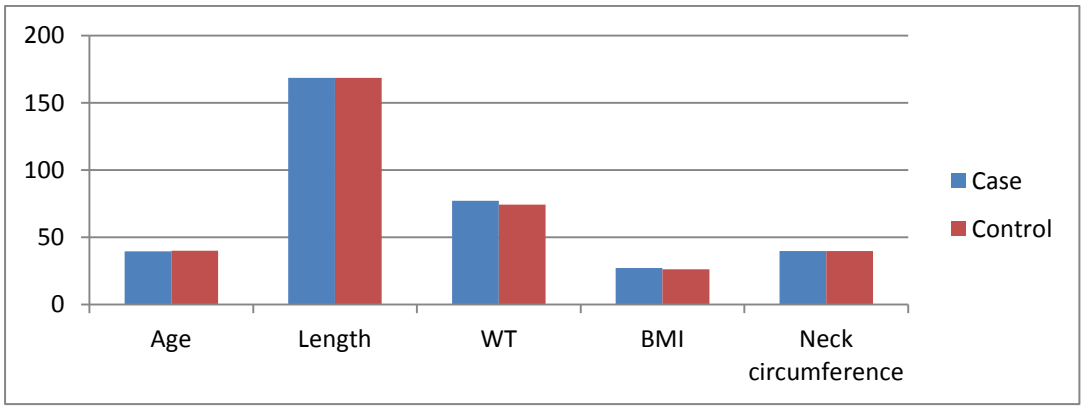

Chart (1): Shows the comparison between cases and controls as regards the mean age, length, weight, BMI and neck circumference.

Table (3): Statistical comparison between different grades of cases with OSA as regards the extension and amplitude of OP segment:

Grade of OSA	OP- extension (cm)	Mean	OP-amplitude (cm2)	Mean
Mild	**3.7-3.9**	**3.8**	**0.9-1.4**	**1.15**
Moderate	**4-4.2**	**4.1**	**0.5-0.8**	**0.65**
Severe	**4.3-4.5**	**4.4**	**0.2-0.4**	**0.3**

Table (3): Shows the mean of OP segment amplitude and extension in different grades of cases with OSA. From this table we find that:

1. Patients with mild OSA: the OP segment extension is from 3.7 to 3.9 cm & the amplitude is from 0.9 to 1.4 cm2.
2. Patients with moderate OSA: the OP segment extension is from 4 to 4.2 cm & the amplitude is from 0.5 to 0.8 cm2.
3. Patients with severe OSA: the OP segment extension is from 4.3 to 4.5 cm & the amplitude is from 0.2 to 0.4 cm2.

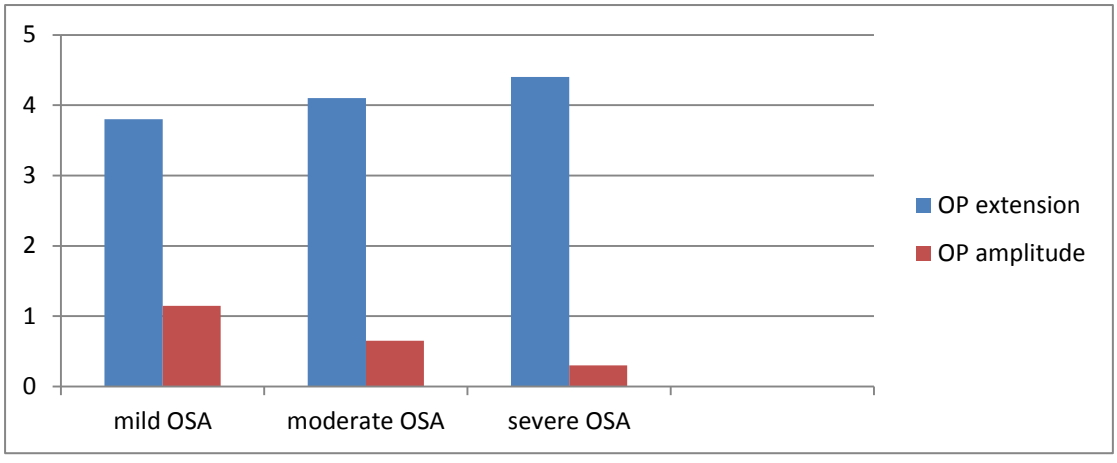

Chart (2): Shows the comparison between different grades of cases with OSA as regards the extension and amplitude of OP segment.

Examples :

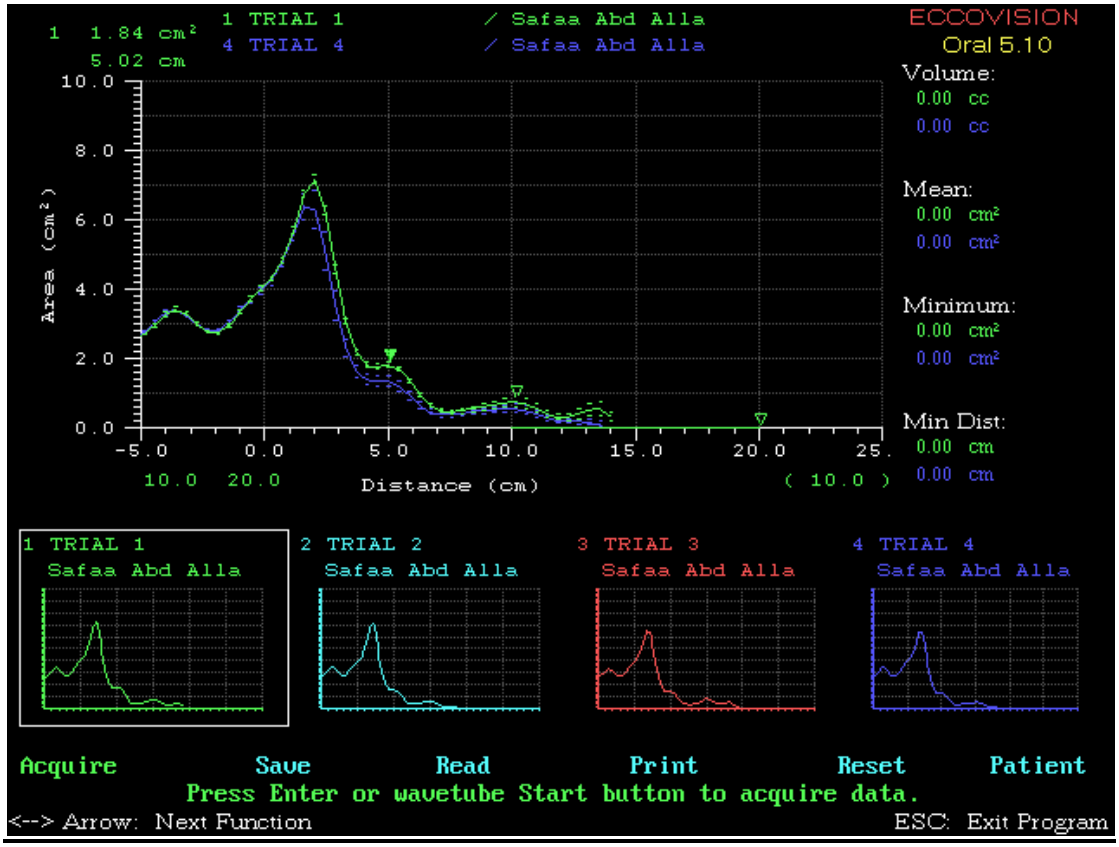

Fig (23) shows a pharyngogram of a normal person (control)

- Diagram: show normal (B, C, D, and E) waves.
- Amplitude of OP segment > 1.6 cm2.
- OP segment interval < 3.6 cm.
- Normal curve.

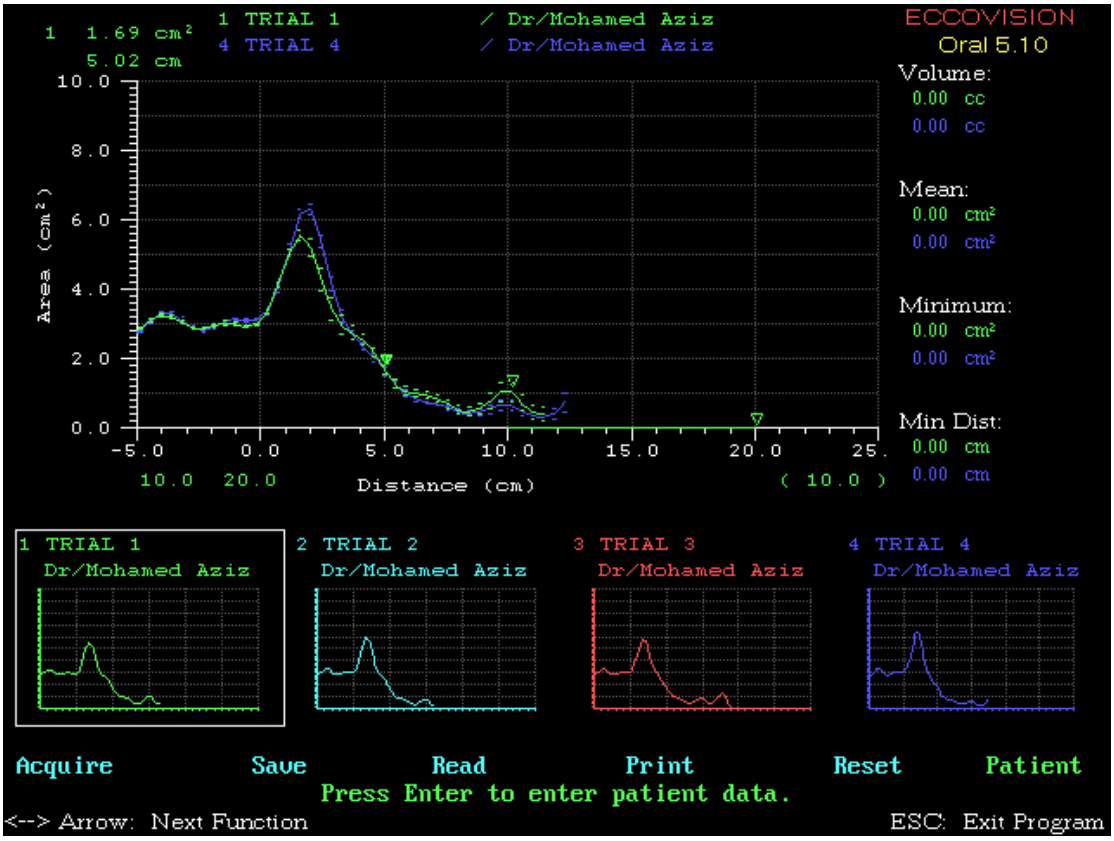

Fig (24): Shows a pharyngogram of a patient with redundant soft palate and hypertrophied palatine tonsils (Mild OSA).

- Diagram: show depressed (B) oral wave and depressed , elongated O-P segment (C) wave.
- Mild OSA as the amplitude of OP segment 1.4 cm2 and OP segment interval 3.8 cm.

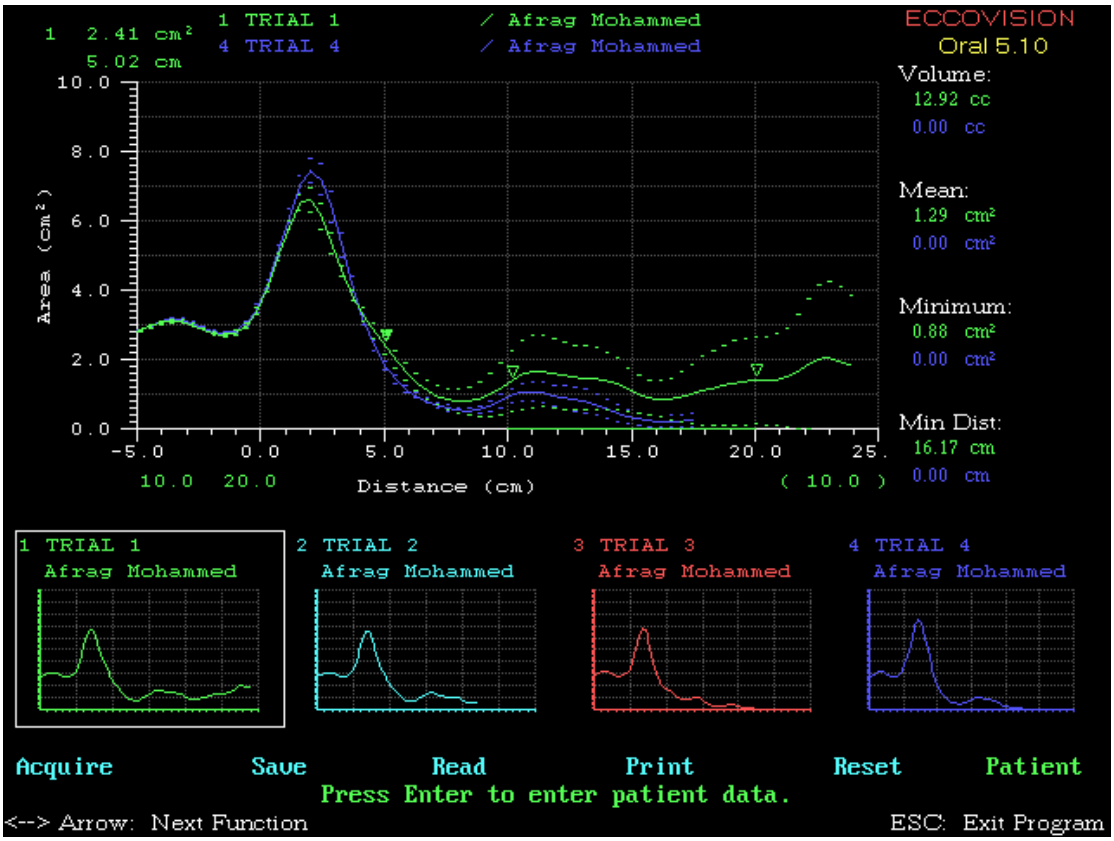

Fig (25): Shows a pharyngogram of a patient with redundant soft palate and kissing palatine tonsils (Moderate OSA).

- Diagram: show normal (B) wave and depressed , elongated O-P segment (C)wave represented oropharyngeal wave with normal (E) wave hypopharyngeal wave.
- Moderate OSA as the amplitude of OP segment 0.8 cm2 and OP segment interval 4 cm.

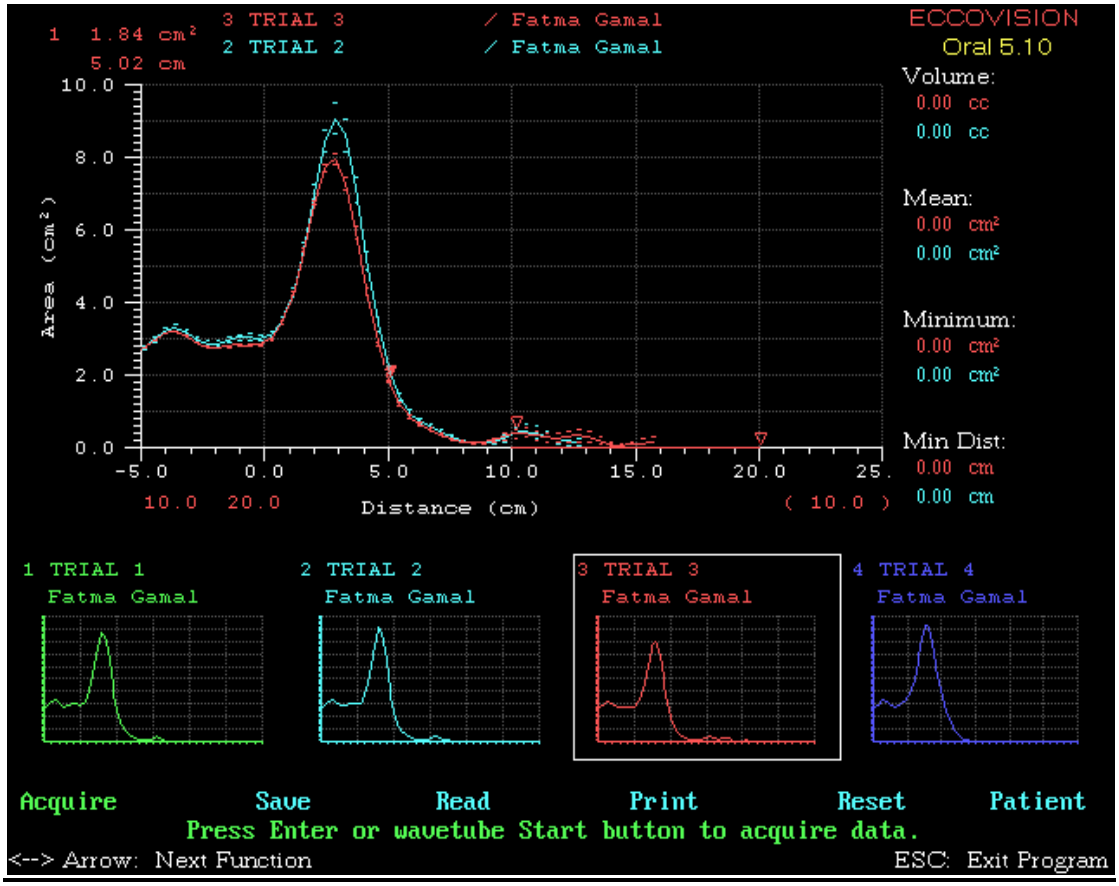

Fig (26): Shows a pharyngogram of a patient with redundant soft palate and hypertrophied elongated uvula (Severe OSA).

- Diagram: show normal (B) wave, marked depressed , elongated O-P segment (C) wave and depressed (E) wave hypopharyngeal wave.
- Severe OSA as the amplitude of OP segment 0.2 cm2 and OP segment interval 4.5 cm.

Table (4): Statistical comparison between group A (cases) and group B (controls) as regards acoustic pharyngometric data:

Variable	Groups	Mean	± SD	Student t test	P value
OP-amplitude (oropharynx)	Case	0.69	0.32	15.27	0.001 HS
	Control	1.71	0.33		
OP- extension (oropharynx)	Case	3.95	0.51	10.68	0.001 HS
	Control	2.96	0.41		

Table (4): Shows the mean & the standard deviation (SD) of pharyngometric data of (cases & controls). It shows also a highly significant difference in the oropharyngeal wave (C wave) amplitude and its extension O-P segment (P<0.001).

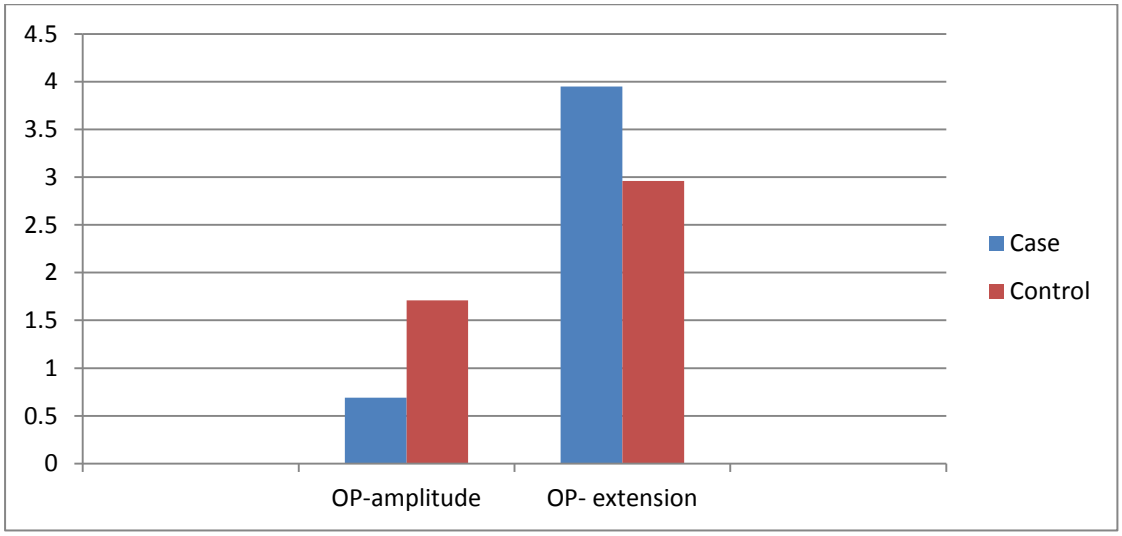

Chart (3): Shows the comparison between cases and controls as regards the mean amplitude of oropharyngeal segment (OP-segment) and the mean extension of oropharyngeal segment.

Table (5): Statistical comparison between acoustic pharyngometric data for cases (group A) pre& post-operative :

Variable (case)	Groups	Mean	± SD	Paired t test	P value
OP-amplitude (oropharynx)	pre op	0.69	0.32	22.75	0.001 HS
	post op	1.24	0.24		
OP- extension (oropharynx)	pre op	3.95	0.513	18.77	0.001 HS
	post op	3.27	0.48		

Table (5): Shows the mean & the standard deviation (SD) of pharyngometric data of cases (pre& post-operative). It shows also a highly significant difference in oropharyngeal wave amplitude and its extension O-P segment (C wave) (P<0.001).

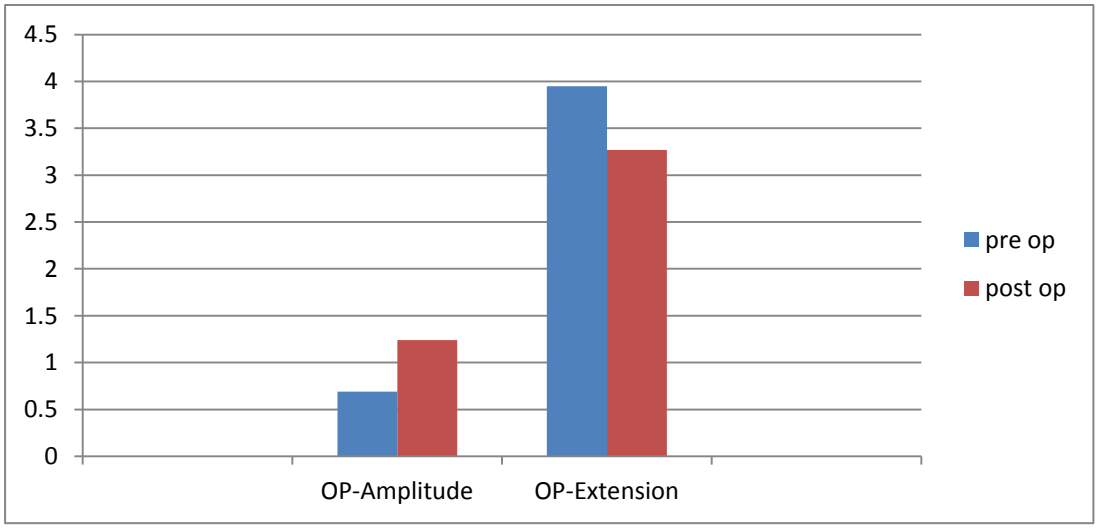

Chart (4): Shows the comparison between cases pre and post-operative as regards the mean amplitude of oropharyngeal segment (OP-segment) and the mean extension of oropharyngeal segment (OP-segment).

Table (6): Statistical comparison between SBP, DBP, AI and 24 h proteins in urine for cases (group A) pre& post-operative :

Variable (case)	Groups	Mean	± SD	Paired t test	P value
SBP	pre op	154.7	9.23	8.91	0.001 HS
	post op	147.6	14.29		
DBP	pre op	94.7	6.18	4.82	0.001 HS
	post op	92.1	7.43		
AI, apneas / h	pre op	19.0	11.03	*5.92	0.001 HS
	post op	13.94	11.98		
24 H ptn in urine	pre op	91.25	36.58	6.69	0.001 HS
	post op	84.28	37.84		

*= willcoxon test

Table (6): Shows the mean & the standard deviation (SD) of SBP, DBP, AI and 24 h proteins in urine of cases (pre& post-operative). It shows also a highly significant difference in all parameters (P<0.001).

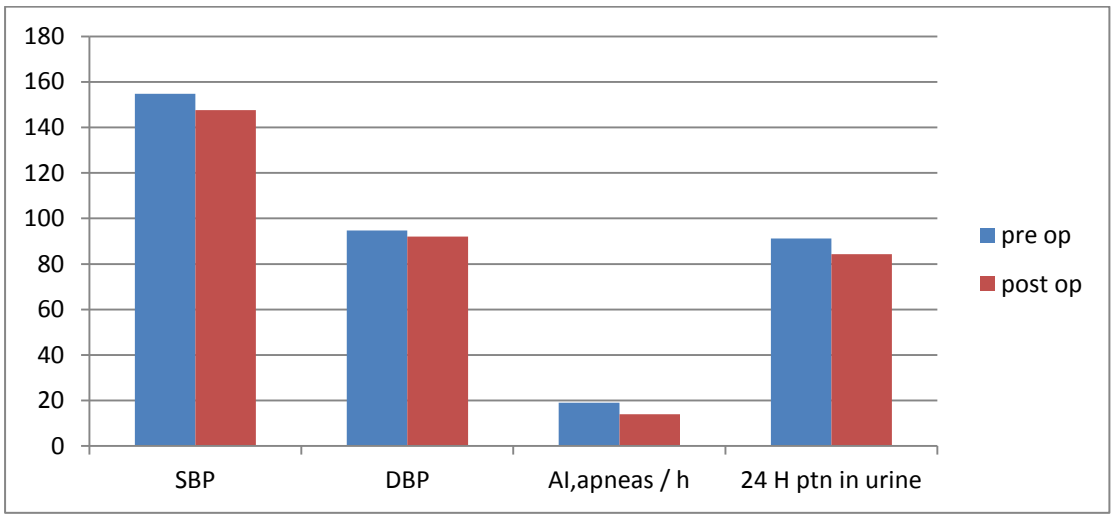

Chart (5): Shows the comparison between cases pre and post-operative as regards the mean SBP, DBP, AI and 24 H ptn in urine.

Table (7): Statistical comparison between echocardiographic parameters for cases (group A) pre& post-operative :

Variable (case)	Groups	pre op	post op	Paired t test	P value
LAD	Mean	3.41	3.39	2.22	0.031 S
	± SD	0.2	0.19		
LVSD	Mean	2.86	2.85	1.77	0.083 NS
	± SD	0.28	0.26		
LVDD	Mean	4.48	4.46	2.28	0.027 S
	± SD	0.39	0.39		
EF	Mean	68.14	68.26	2.2	0.032 S
	± SD	3.04	3.06		
LVH	Concentric LVH	10(20.0%)	10(20.0%)	X2 = 0.0	1.0 NS
	Normal	40(80.0%)	40(80.0%)		

Table (7): Shows the mean & the standard deviation (SD) of echocardiographic parameters of cases (pre& post-operative). It shows also a significant difference in LAD, LVDD and EF (P<0.05), but there was no significant difference in LVSD and LVH (P>0.05).

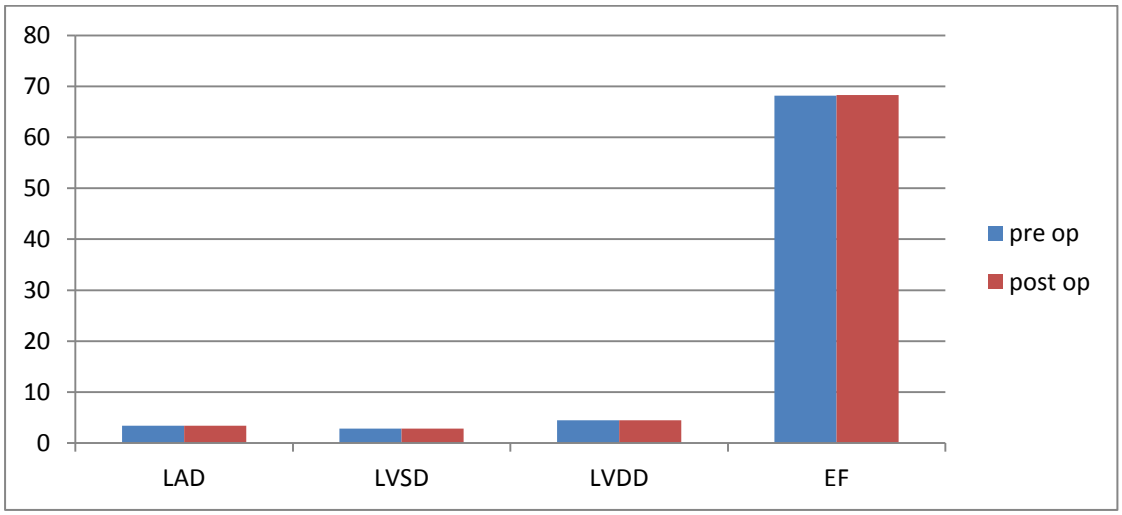

Chart (6): Shows the comparison between cases pre and post-operative as regards the mean LAD, LVSD, LVDD and EF.

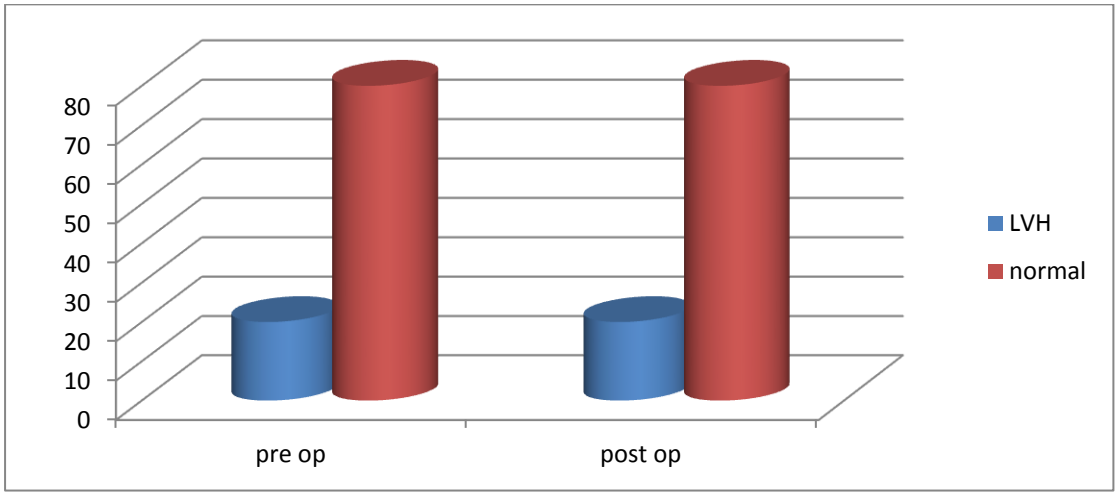

Chart (7): Shows the comparison between cases pre and post-operative as regards the percentage of LVH.

Table (8): Outcome of cases 3 months after UPPP:

outcome	Total	
	No	**%**
cured	**9**	**18.0**
improved	**23**	**46.0**
not improved	**18**	**36.0**
Total	**50**	**100**

Table (8): Shows that the total number of cured cases was 9 with a percentage of 18%.While the number of cases that improved was 23 with a percentage of 46%.On the other hand, the total number of cases that not improved was 18 with a percentage of 36%.

* The patient was considered cured when his BP returned to normal level (SBP < 140 mmHg , DBP <90 mmHg), AI <5 per slept hour and normal acoustic pharyngometric data (normal OP segment amplitude and extension).

* The patient was considered improved when his BP, AI and acoustic pharyngometric data were better than pre-treatment but didn't return to normal levels.

* The patient was considered not improved when his BP, AI and acoustic pharyngometric data were not affected by treatment.

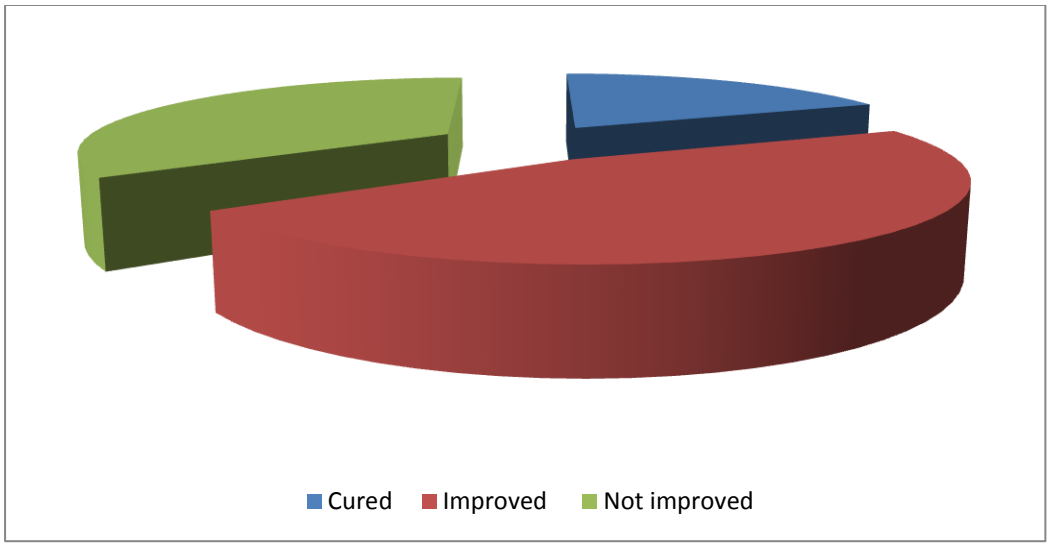

Chart (8): Shows outcome of cases 3 months after UPPP.