RESULTS

Results

- This study included fifty patients complaining of O.S.A. from outpatients clinic of otorhinolaryngology at Benha University Hospital from 2-2001 to 12-2001.
- Patients of the study were classified into two groups :
  - 1st group (Group A) included "25" patients "50%", below the age of 12ys with O.S.A. due to Adenoidal with or without tonsillar hypertrophy.
  - 2nd group (Group B) included "25" patients "50%", above the age of 20ys with O.S.A. due to obstruction or narrowing at the level of the velopharyngeal sphincter.
- Comparison between the preoperative and postoperative (After 3 months) results of the two groups.

Table (3) : Show the master sheet of the 1st group (A) preoperative

Case No.	Age (ys)	Sex	Clinical finding				Examination			Investigation				
			AI	Day time sleepiness	Snoring and mouth breather	Nocturnal enuresis	B.M.I	Adenoidal hypertrophy	Tonsillar hypertrophy	PO_2	PCO_2	FEV_1	Overnight oximetry	Plain x-ray lateral view
1	9	Male	31	+ve	+ve	+ve	30.6	+ve	T3	60	38	50%	80%	Adenoidal hypertrophy
2	11	Female	20	+ve	+ve	+ve	23.2	+ve	T4	65	45	70%	77%	
3	11	Female	22	+ve	+ve	-ve	25.1	+ve	T0	70	59	72%	81%	
4	8.5	Male	27	+ve	+ve	+ve	26.2	+ve	T4	73.8	45.2	60%	70%	
5	10	Male	41	+ve	+ve	+ve	27.2	+ve	T3	74.5	46.1	61%	71%	
6	7.5	Female	22	+ve	+ve	-ve	27.6	+ve	T3	80.1	49.2	66%	69%	
7	6	Male	30	+ve	+ve	+ve	29.5	+ve	T3	77.1	48.3	59%	82%	
8	6	Male	19	+ve	+ve	-ve	28.1	+ve	T4	80	47.2	58%	79%	
9	7	Female	16	+ve	+ve	-ve	22.2	+ve	T4	60	52.1	63%	80%	
10	9	Male	17	+ve	+ve	-ve	20.3	+ve	T2	61	52	67%	76%	
11	8	Male	17	+ve	+ve	+ve	27	+ve	T3	71	47.9	63%	73%	
12	11	Female	22	+ve	+ve	+ve	29.1	+ve	T4	62	46.3	62%	75%	
13	10	Male	23	+ve	+ve	+ve	29.3	+ve	T4	63	46.1	60%	65%	
14	10.5	Male	19	+ve	+ve	-ve	31.2	+ve	T3	72.3	50.5	70%	70%	
15	11.5	Male	26	+ve	+ve	-ve	30	+ve	T2	71.5	46.1	72%	71%	
16	9.5	Male	24	+ve	+ve	-ve	28.2	+ve	T0	73.2	51.2	73%	69%	
17	7.5	Male	13	+ve	+ve	+ve	27.3	+ve	T0	72.1	52.3	58%	71%	
18	8	Male	17	+ve	+ve	+ve	24.1	+ve	t3	79.1	43.3	70%	80%	
19	6	Female	18	+ve	+ve	-ve	23.1	+ve	t4	60	45.2	69%	77%	
20	7	Female	27	+ve	+ve	+ve	26.9	+ve	T0	66.2	45.3	67%	79%	
21	10	Female	29	+ve	+ve	+ve	28.4	+ve	T0	65.3	47.2	66%	76%	
22	7	Female	41	+ve	+ve	+ve	29.1	+ve	T4	64.2	48.2	76%	69%	
23	6	Female	32	+ve	+ve	-ve	25.5	+ve	T3	67.3	49.7	71%	68%	
24	8	Female	30	+ve	+ve	-ve	29.2	+ve	T0	61.7	47.8	71%	68%	
25	9	Female	29	+ve	+ve	+ve	28.7	+ve	T0	62	50.2	66%	76%	

Table (4) : Show the master sheet of the 1st group (A) postoperative

Case No.	Age (ys)	Sex	Clinical finding				Examination			Investigation				
			AI	Day time sleepiness	Snoring and mouth breather	Necturnal enuresis	B.M.I	Adenoidal hypertrophy	Tonsillar hypertrophy	PO_2	PCO_2	FEV_1	Overnight oximetry	Plain x-ray lateral view
1	9	Male	9	-ve	-ve	-ve	30.5	Removed	Removed	87	20	71%	81%	No adenoid
2	11	Female	9	-ve	-ve	-ve	22.2		Removed	83	22	76%	90%	
3	11	Female	7	-ve	-ve	-ve	25.3		-	79	20	76%	89%	
4	8.5	Male	5	-ve	-ve	-ve	26		removed	81	20	60%	70%	
5	10	Male	9	-ve	+ve	-ve	25.3		removed	76.1	46	60%	70%	
6	7.5	Female	7	-ve	-ve	-ve	24.5		removed	81.2	20	67%	80%	
7	6	Male	13	+ve	-ve	-ve	30.6		removed	79	39	60%	68%	
8	6	Male	7	-ve	-ve	-ve	27.5		removed	80	32	60%	91%	
9	7	Female	9	-ve	-ve	-ve	21.4		removed	82	24	64%	89%	
10	9	Male	11	-ve	-ve	-ve	22.6		removed	85	28	67%	90%	
11	8	Male	10	+ve	-ve	-ve	26.1		removed	71	47	63%	73%	
12	11	Female	6	-ve	-ve	-ve	29		removed	60	31	60%	91%	
13	10	Male	10	-ve	-ve	-ve	27.4		removed	81	20	63%	93%	
14	10.5	Male	10	+ve	-ve	-ve	32		removed	72	40.1	70%	70%	
15	11.5	Male	12	-ve	+ve	-ve	30		removed	70	45.5	70%	71%	
16	4.5	Male	9	-ve	-ve	-ve	29.3		-	81	30.1	71%	90%	
17	7.5	Male	8	-ve	+ve	+ve	27.3		-	70	45.1	73%	91.6%	
18	8	Male	8	-ve	-ve	-ve	24.5		removed	81	36.2	79%	90.1%	
19	6	Female	7	-ve	-ve	-ve	28.1		removed	80	20	81%	89%	
20	7	Female	7	-ve	-ve	-ve	23.6		-	79	27	70%	88.9%	
21	10	Female	6	-ve	-ve	-ve	23.4		-	81	29	76%	80%	
22	7	Female	10	+ve	-ve	-ve	29.1		removed	70	46.5	76%	76%	
23	6	Female	9	-ve	-ve	-ve	22		removed	68	27	69%	90%	
24	8	Female	4	-ve	-ve	-ve	28.5		-	87	25	71%	91%	
25	9	Female	11	+ve	-ve	+ve	27.9		-	70	39	66%	75%	

Table (5) : Show the master sheet of the 2nd group (B) preoperative

Case No.	Age (yrs)	Sex	Clinical finding				Examination				Investigation					
			AI	Day time sleepiness	Snoring and mouth breather	Impotence	B.M.I	Tonsils	Uvula	Soft palate	PO_2	PCO_2	FEV1	Oximetry	Axial C.T	Muller's maneuver
1	45	Male	32	+ve	+ve	-ve	29.2	Present	Enlarged	Redundant	78	38	46%	78%	0.69x	Narrowing at the level of velopharyngeal sphincter
2	50	Male	36	+ve	+ve	-ve	28.1	Present			79	36	71%	80%	1.08 1.34x	
3	43	Male	27	+ve	+ve	+ve	30	Present			75	44	51%	81%	0.95 0.66x	
4	42	Male	36	+ve	+ve	-ve	50	Present			75	31	60%	67%	0.36 0.61x	
5	45	Female	42	+ve	+ve	-ve	44	Present			67	45	72%	80%	0.72 0.60x	
6	36	Female	39	+ve	+ve	-ve	36	Present			75	32	87%	88%	1.01 1.91x	
7	27	Male	35	+ve	+ve	-ve	54.6	Present			75	36	77%	70%	0.47 1.01x	
8	40	Female	41	+ve	+ve	-ve	59.6	Present			79	34	68%	72%	0.65 1.20x	
9	39	Male	38	+ve	+ve	-ve	55.5	Present			78	36	66%	67%	0.42 0.41x	
10	48	Male	42	+ve	+ve	-ve	50.1	Present			60	40	67%	79%	0.36 0.82x	
11	37	Male	21	+ve	+ve	+ve	47.6	Present			80	45	63%	80%	0.83 0.91x	
12	40	Male	25	+ve	+ve	-ve	30.2	Removed			63	46	50%	80%	0.76 0.92x	
13	42	Male	21	+ve	+ve	+ve	36.1	Present			70	47	69%	78%	0.87 0.87x	
14	43	Male	27	+ve	+ve	-ve	40.2	Present			60	36	73%	69%	0.73 1.40x	
15	44	Female	29	+ve	+ve	-ve	51.2	Present			67	49	59%	72%	0.51 0.76x	
16	29	Female	17	+ve	+ve	+ve	36.3	Present			63	49	57%	75%	0.99 1.21x	
17	21	Male	19	+ve	+ve	+ve	39.1	Present			65	53	53%	65%	0.70 0.84x	
18	32	Male	30	+ve	+ve	-ve	29.6	Removed			68	51	63%	63%	0.72 0.50x	
19	27	Male	21	+ve	+ve	-ve	37.3	Present			71	49	60%	73%	1.52 0.91x	
20	22	Male	13	+ve	+ve	-ve	26.4	Present			65	48	61%	63%	0.81 1.03x	
21	21	Male	15	+ve	+ve	-ve	29.2	Present			63	47	50%	71%	0.57 1.39x	
22	26	Male	17	+ve	+ve	+ve	31.1	Present			71	43	56%	69%	0.97 1.39x	
23	23	Male	30	+ve	+ve	-ve	42.6	Present			70	44	69%	68%	0.93 1.23x	
24	21	Male	22	+ve	+ve	-ve	27.1	Present			73	51	68%	85%	0.71 1.04x	
25	20	Female	21	+ve	+ve	+ve	29.6	Present			69	39	59%	81%	0.97 0.86x	
															0.79	

Table (6) : Show the master sheet of the 2nd group (B) postoperative

Case No.	Age (yrs)	Sex	Clinical finding				Examination				Investigation					
			AI	Day time sleepiness	Snoring and mouth breather	Impotence	B.M.I	Tonsils	Uvula	Soft palate	PO_2	PCO_2	FEV1	Oximetry	Axial CT	Mullers' maneuver
1	45	Male	-	-ve	-ve	-	27.2	Removed	Removed	Palatoplasty	90	30	61%	89%	2.66x 1.46	Improved
2	50	Male	4	-ve	-ve	-	25				87	28	72%	90%	1.98x 1.13	Improved
3	43	Male	20	-ve	-ve	+ve	29.9				81	29	61%	81%	2.14x 1.54	Improved
4	42	Male	10	-ve	-ve	-	45				83	26	61%	89%	2.4x 3.25	Improved
5	45	Female	39	-ve	-ve	-	43				73	45	73%	72%	1.80x 1.02	Improved
6	36	Female	6	-ve	-ve	-	50				87	24	67%	90%	3.22x 2.29	Improved
7	27	Male	5	-ve	-ve	-	50.2				90	20	77%	82%	1.40x 2.08	Improved
8	40	Female	10	-ve	-ve	-	54.2				89	21	72%	72%	2.23x 3.13	Improved
9	39	Male	31	-ve	-ve	-ve	49.1				78	36	66%	67%	2.64x 3.23	Improved
10	48	Male	5	-ve	-ve	-ve	55.5				69	20	70%	84%	2.80x 3.91	Improved
11	37	Male	22	-ve	-ve	+ve	52.6				65	46	62%	79%	1.10x 0.01	Improved
12	40	Male	6	-ve	-ve	-ve	30.1				80	26	76%	87%	2.82x 1.90	Improved
13	42	Male	23	-ve	-ve	+ve	35.7				69	47	68%	77%	1.01x 1.10	Improved
14	43	Male	7	-ve	-ve	-ve	49.2				79	30	73%	83%	2.65x 1.94	Improved
15	44	Female	8	-ve	-ve	+ve	51.2				82	29	79%	79%	1.93x 2.03	Improved
16	29	Female	17	-ve	+ve	+ve	36.7				63	50	76%	64%	2.21x 2.10	Improved
17	21	Male	9	-ve	-ve	-ve	39.1				82	23	82%	82%	0.91x 2.80	Improved
18	32	Male	7	-ve	-ve	-ve	29.6				80	27	87%	83%	1.73x 2.80	Improved
19	27	Male	22	-ve	-ve	+ve	37.1				70	50	69%	72%	2.03x 1.97	Improved
20	22	Male	10	+ve	-ve	-ve	26				93	20	82%	86%	2.03 x1.97	Improved
21	21	Male	8	-ve	-ve	+ve	24.3				87	25	98%	90%	1.93x 2.14	Improved
22	26	Male	9	-ve	-ve	+ve	31.1				83	23	91%	92%	2.98x 2.56	Improved
23	23	Male	20	-ve	-ve	-ve	42.6				66	44	70%	66%	3.12x 2.13	Improved
24	21	Male	7	-ve	-ve	-ve	26				82	27	70%	85%	2.42x 3.21	Improved
25	20	Female	22	+ve	+ve	+ve	26				70	39	62%	86%	0.89x 0.79	Improved

Table (7) : Shows comparison between the two studied groups as regards age (in years)

Age / Studied groups	$\bar{x} \pm SD$	Tests of significance	
		"T"	"P"
Group (A)	8.58 ± 1.77		
Group (B)	34.08 ± 10.51	-11.96	<0.001

$\bar{x}$ = main SD = standard deviation

- Our study included 50 patients.
- The main age of the 1st group was 8.58ys ± 1.77 ys.
- The main age of the 2nd group was 34.08 ± 10.51 ys.
- The main age of the whole study was 21.33 ± 2.23 ys.

Table (8) : Shows the number and sex distribution of the studied groups

Sex / Studied groups	Males		Females		Total	
	No.	%	No.	%	No.	%
Group (A)	13	52.0	12	48.0	25	100.0
Group (B)	19	76.0	6	24.0	25	100.0
Total	32	64.0	18	36.0	50	100.0

$X^2 = 3.35$ $P < 0.05$

- Our study included 32 males (64%) and 18 females (36%).
- The 1st group (A) included 13 males (52%).
- The 1st group (A) included 12 females (48%).
- The 2nd group (B) include 14 males (76%).
- The 2nd group (B) included 6 females (24).

And this shows male predominance especially in the 2nd group.

Fig. (16) : Show comparison between the two studied groups as regards age (in years)

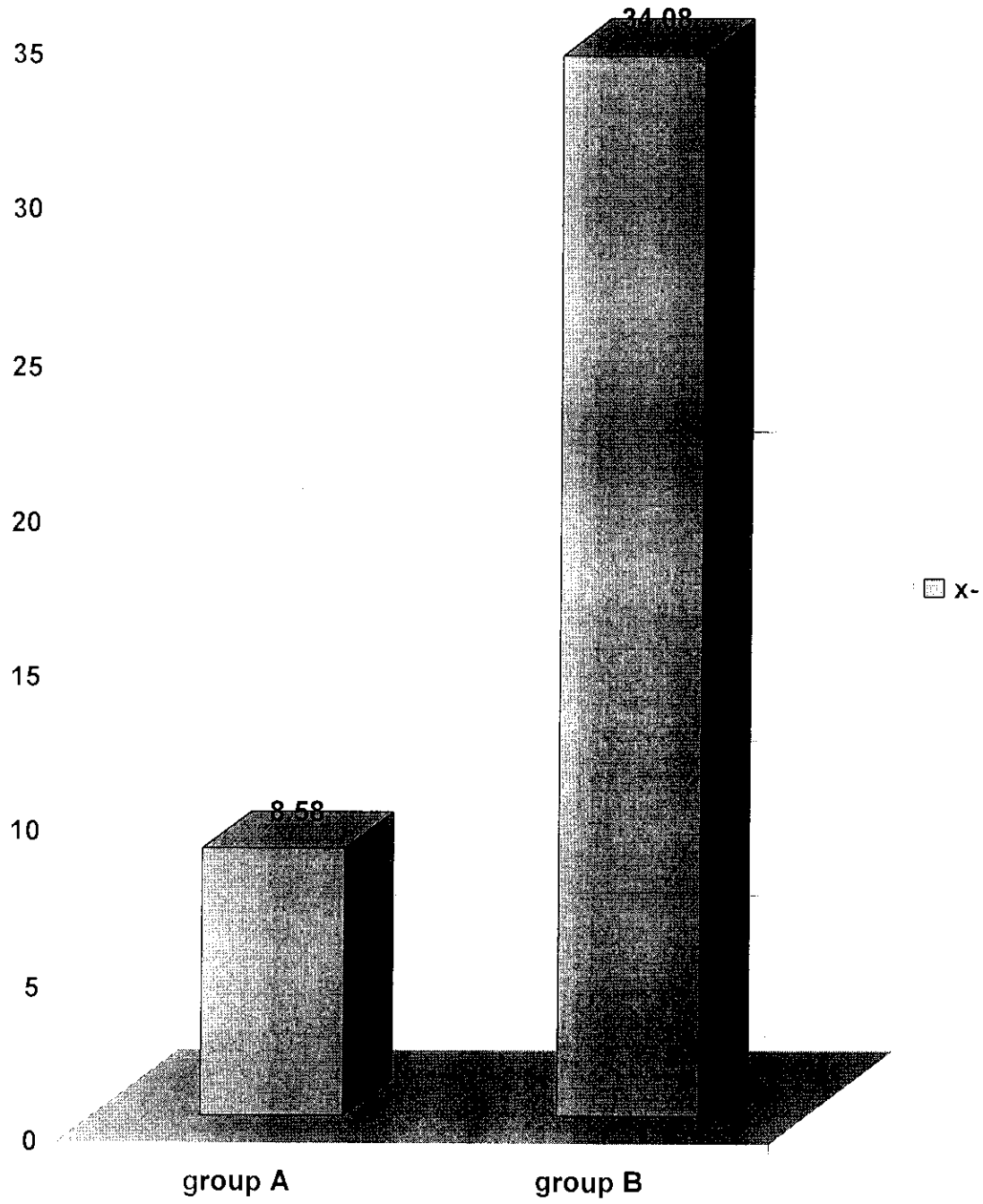


Fig. (17) : Show the number and sex distribution of sthe studied groups

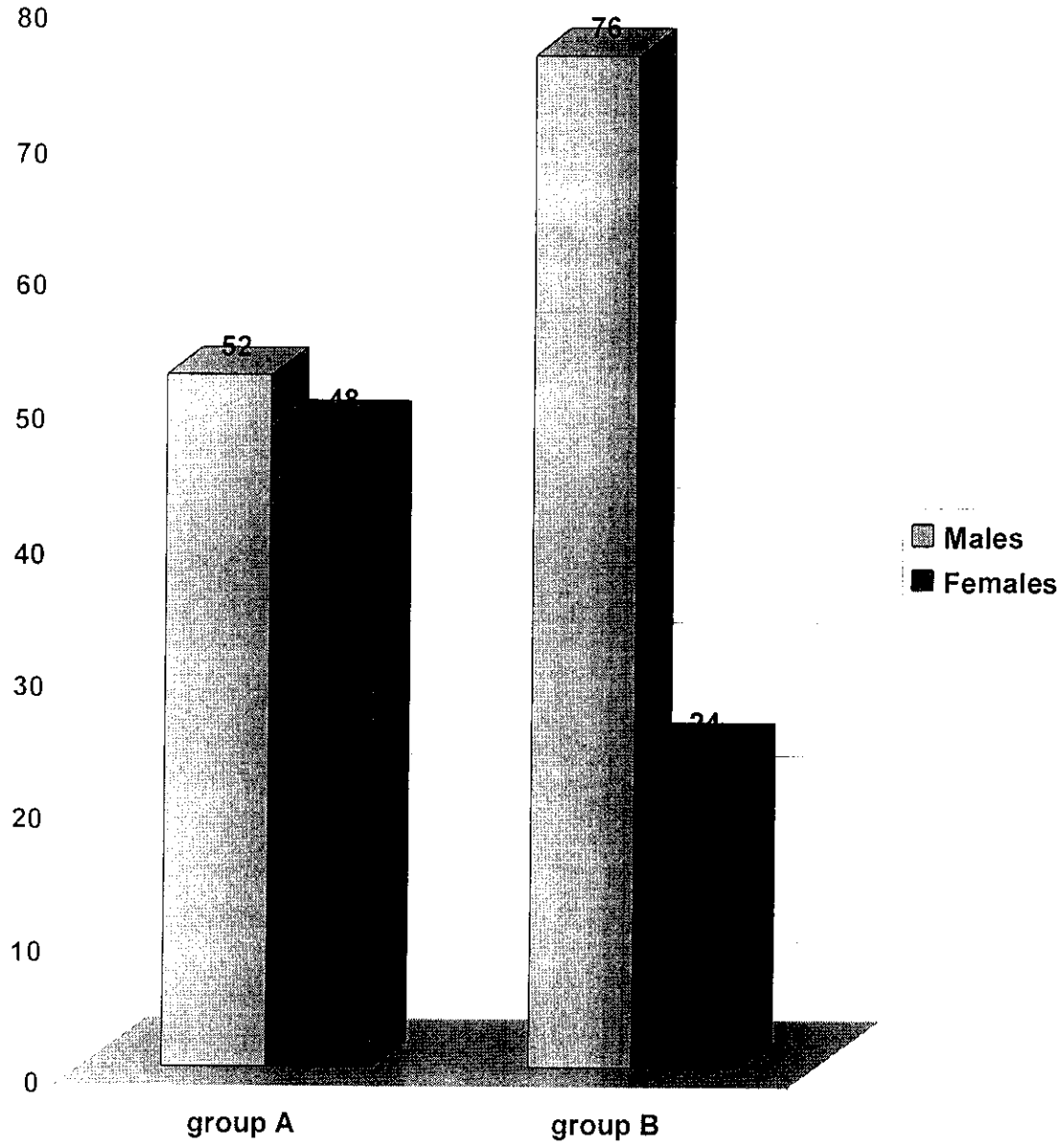


Table (9) : Shows the body mass index (B.M.I) distribution in kg/m^2 of studied groups preoperative and post operative.

Variable / Operation	B.M.I	
	Group (A) $\bar{x} \pm SD$	**Group (B)** $\bar{x} \pm SD$
Preoperative	27.08 ± 2.78	38.83 ± 10.17
Postoperative	27.68 ± 3.52	38.61 ± 10.14
$\bar{x}$ of difference	0.14 ± 2.52	0.21 ± 5.83
Paired "t"	1.67	0.18
P	> 0.05	> 0.05

- B.M.I in the 1st group (A) preoperative was 27.08 ± 2.78.
- B.M.I in the 1st group (A) postoperative was 27.68 ± 3.52.
- B.M.I in the 2nd group (B) preoperative was 38.83 ± 10.17.
- B.M.I in the 2nd group (B) postoperative was 38.61 ± 10.14.
- And this show no significant changes between preoperative and postoperative values.
- Also it shows that the obesity is a major risk factor especially in the2nd group (adult).

Fig. (18) : Show the body mass index (B.M.I) distribution in kg/m2, of studied groups preoperative and postoperative

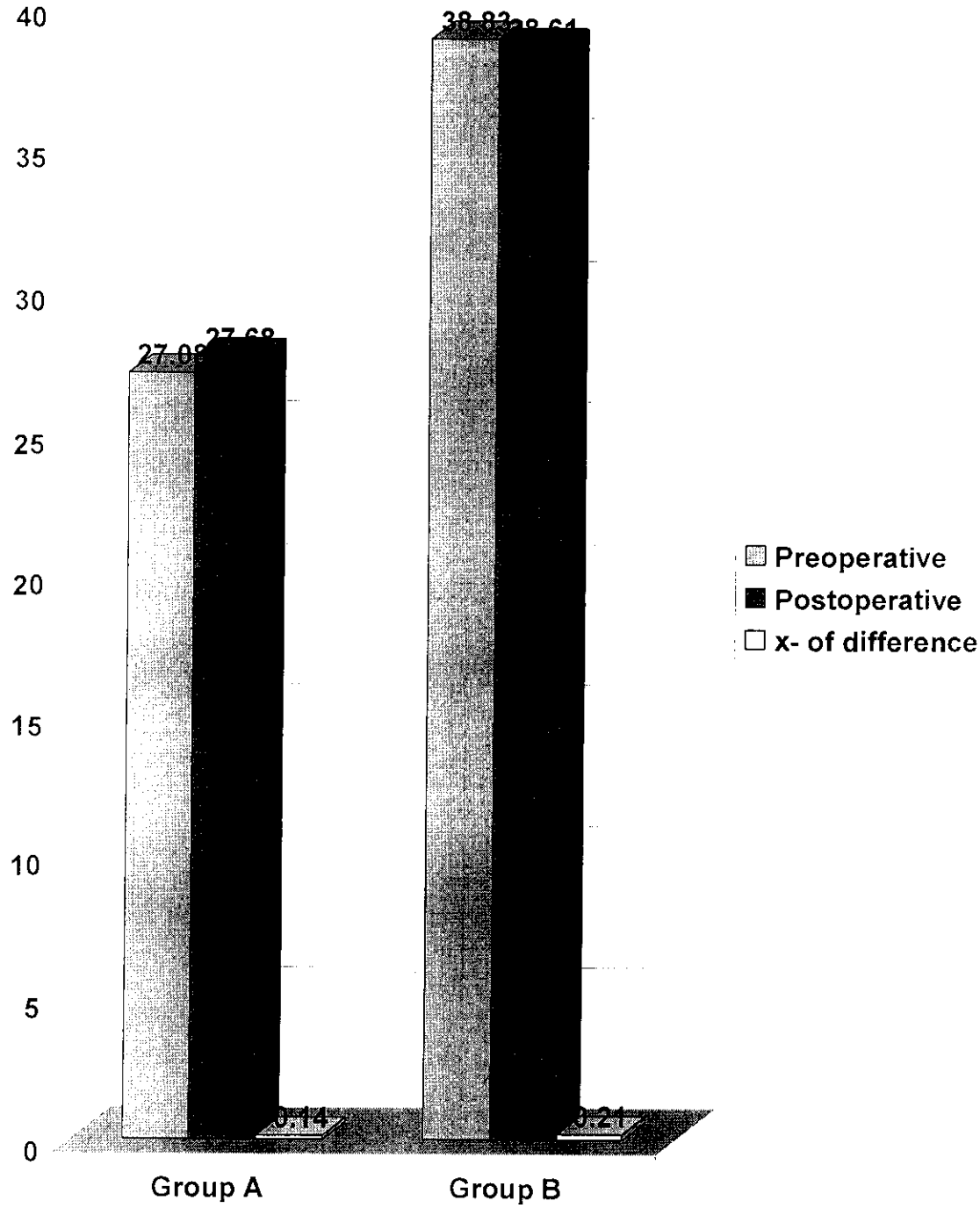


Table (10) : Shows the No. of patients in each group according to the degree or grade of apnea.

Grade	1st group (A)		2nd group (B)		Total	
	No.	%	No.	%	No.	%
Mild (5-20)	10	40.0	6	24.0	16	32.00
Moderate (20-40)	13	52.0	16	64.0	29	58.0
Sever (> 40)	2	8.0	3	12.0	5	10.0
Total	25	100.0	25	100.0	50	100.0

$X^2 = 3.35$ $P < 0.05$

Our study included

Mild apnea :

- 10 patients of the 1st group (40%).
- 6 patients of the 2nd group (24%).
- I.e., 16 patients of the two groups (32%).

Moderate apnea :

- 13 patients of the 1st group (52.0%).
- 16 patients of the 2nd group (64.0%).
- I.e., 29 patients of the two groups (58%).
- (Moderate apnea is the common grade).

Sever apnea :

- 2 patients of the 1st group (8.0%).
- 3 patients of the 2nd group (12.0%).
- I.e., 5 patients of the two groups (10.0%).

So moderate > mild > sever

Fig. (19) : Shwos the No. of patients in each gorup according to the degree or grade of apnea.

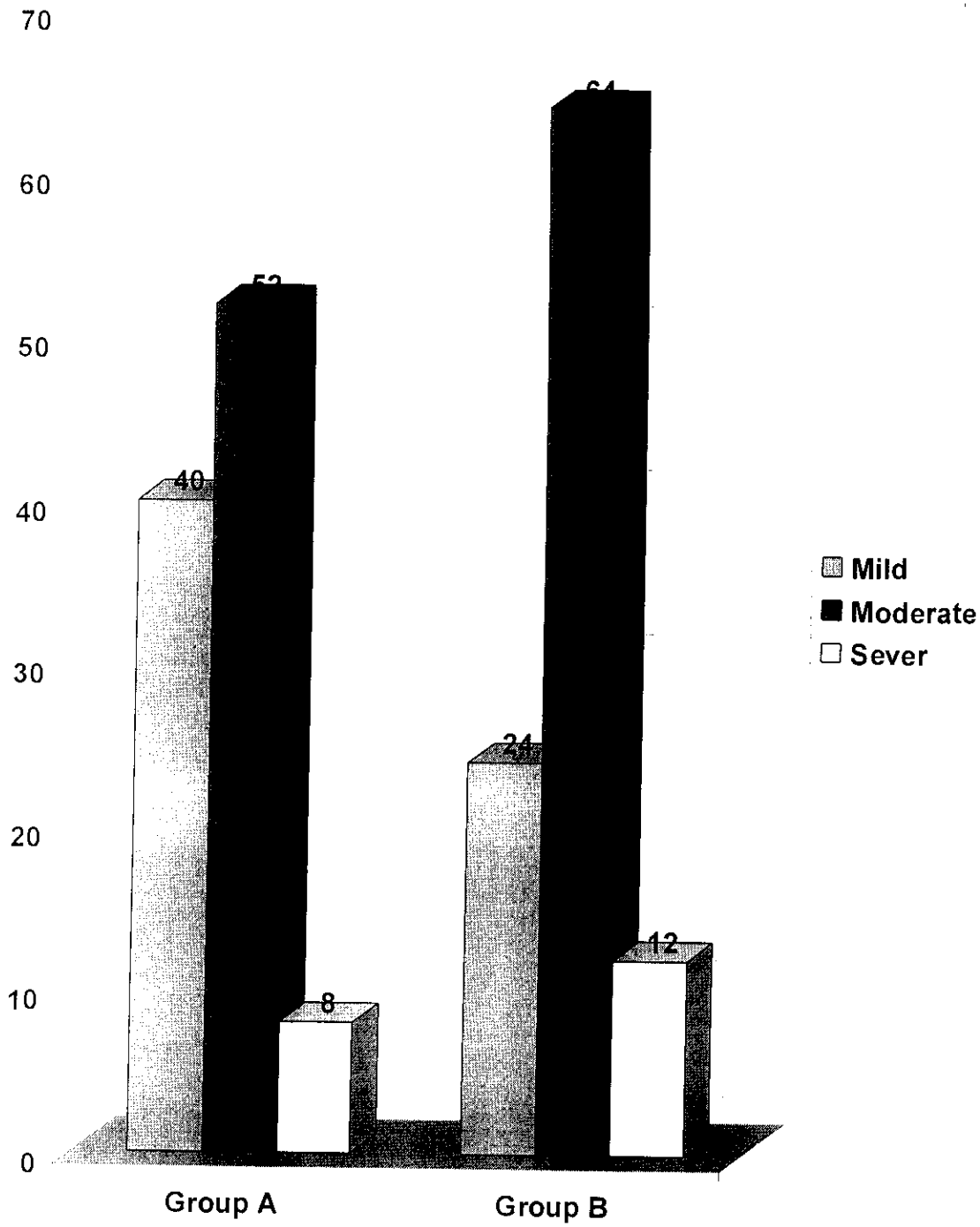


Table (11) : Shows $\bar{x} \pm SD$ of AI among the studied groups preoperative and postoperative

Variable / Operation	AI		Test of significant	
	Group (A) $\bar{x} \pm SD$	Group (B) $\bar{x} \pm SD$	"t"	"P"
Pre-operative	24.08 ± 7.25	27.52 ± 9.04	-1.18	>0.05
Post-operative	8.53 ± 9.28	13.44 ± 11.27	-0.69	>0.05
x-of the difference	15.48 ± 9.46	12.52 ± 13.64		
Paired "t"	6.07	4.22		
P	<0.001	<0.001		

- A.I in the 1st group preoperative was 24.08 ± 7.25.
- A.I in the 1st group postoperative was 8.53 ± 9.28.
- A.I in the 2nd group preoperative was 27.52 ± 4.04.
- A.I in the 2nd group postoperative 13.44 ± 13.64.

And this shows significant improvement.

This improvement was 64.64% in the 1st group.

And it was 51.17% in the 2nd group.

Fig. (20) : Show mean of AI among the studied groups preoperative and postoperative

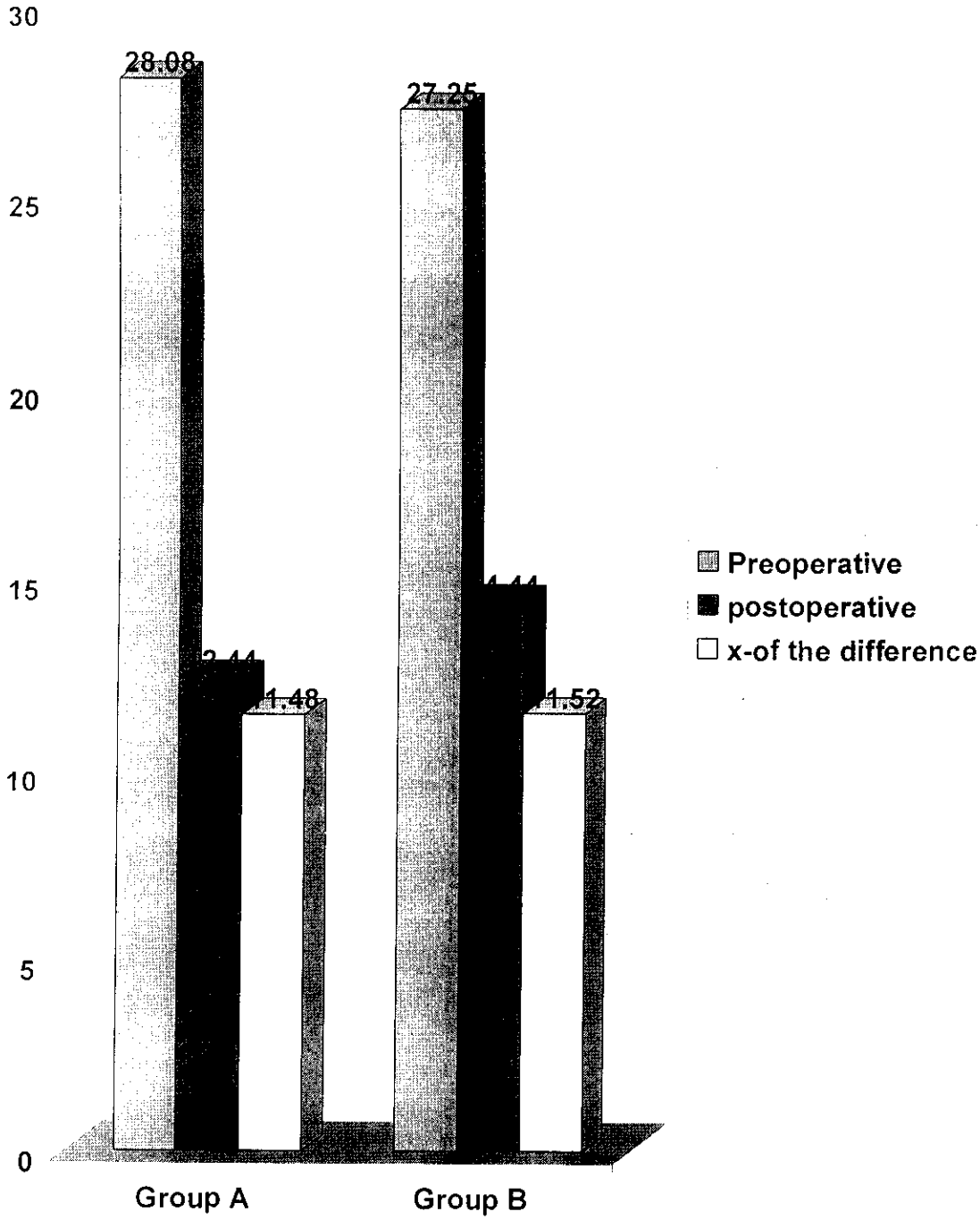


Table (12) : Shows $\bar{x} \pm SD$ of Po_2 among the studied groups preoperative and postoperative

Variable / Operation	Po_2		Test of significant	
	Group (A) $\bar{x} \pm SD$	Group (B) $\bar{x} \pm SD$	"t"	"P"
Pre-operative	68.46 ± 8.19	67.6 ± 10.69	0.318	>0.05
Post-operative	76.09 ± 12.01	77.12 ± 12.49	-0.297	>0.05
x-of the difference	-7.58 ± 13.69	-8.96 ±10.81		
Paired "t"	-2.77	-4.15		
P	<0.05	<0.001		

- Po_2 in the 1st group preoperative was 68.46 ± 8.19.
- Po2 in the 1st group postoperative was 76.09 ± 12.01.
- Po_2 in the 2nd group preoperative was 67.6 ± 10.69.
- Po_2 in the 2nd group postoperative was 77.12 ± 12.49.

And this shows significant improvement

This improvement was 7.68 ± 13.69 in the 1st group.

And it was 8.96 ± 10.81 improvement in the 2nd group.

Fig. (21) : Show x- of Po2 amoung the studied groups preoperative and postoperative

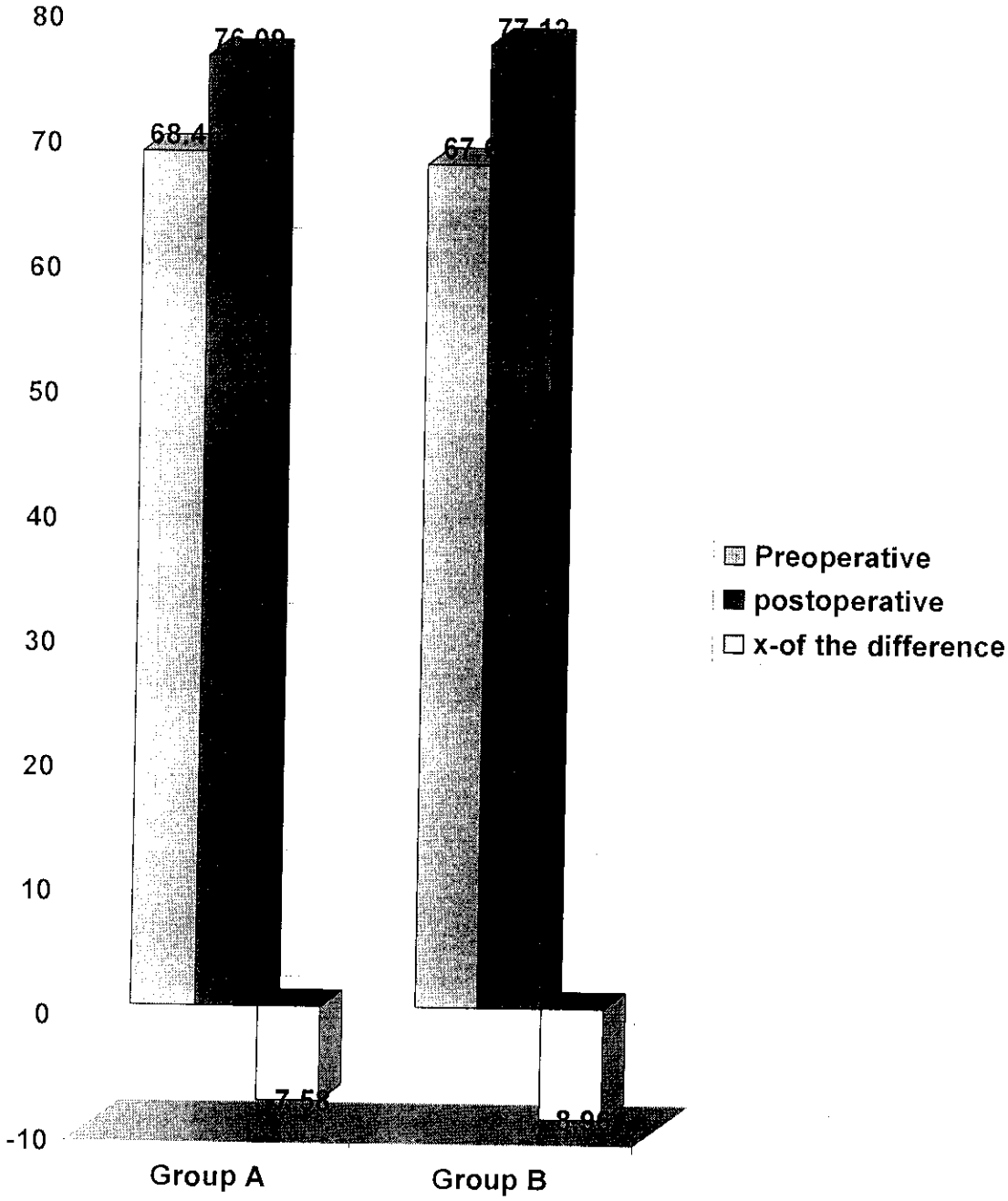


Table (13) : Shows $\bar{x} \pm SD$ of Pco_2 among the studied groups preoperative and postoperative

Variable / Operation	Pco_2		Test of significant	
	Group (A) $\bar{x} \pm SD$	Group (B) $\bar{x} \pm SD$	"t"	"P"
Pre-operative	48.78 ± 5.14	41. 84 ± 7.42	3.85	<0.01
Post-operative	33.66 ± 13.42	31.4 ± 10.06	0.674	>0.05
x-of the difference	13.72 ± 14.6	10.12 ± 10.97		
Paired "t"	4.7	4.61		
P	<0.001	<0.001		

- Pco_2 in the 1st group preoperative was 48.78 ± 5.14.
- Pco2 in the 1st group postoperative was 33.66 ± 13.42.
- Pco_2 in the 2nd group preoperative was 41.84 ± 7.42.
- Pco_2 in the 2nd group postoperative was 31.4 ± 10.06.

And this shows significant improvement

This improvement was 13.72 ± 14.6 in the 1st group.

And it was 10.12 ± 10.97 improvement in the 2nd group.

Fig. (22): Show x- of Pco2 among the studied groups preoperative and postoperative

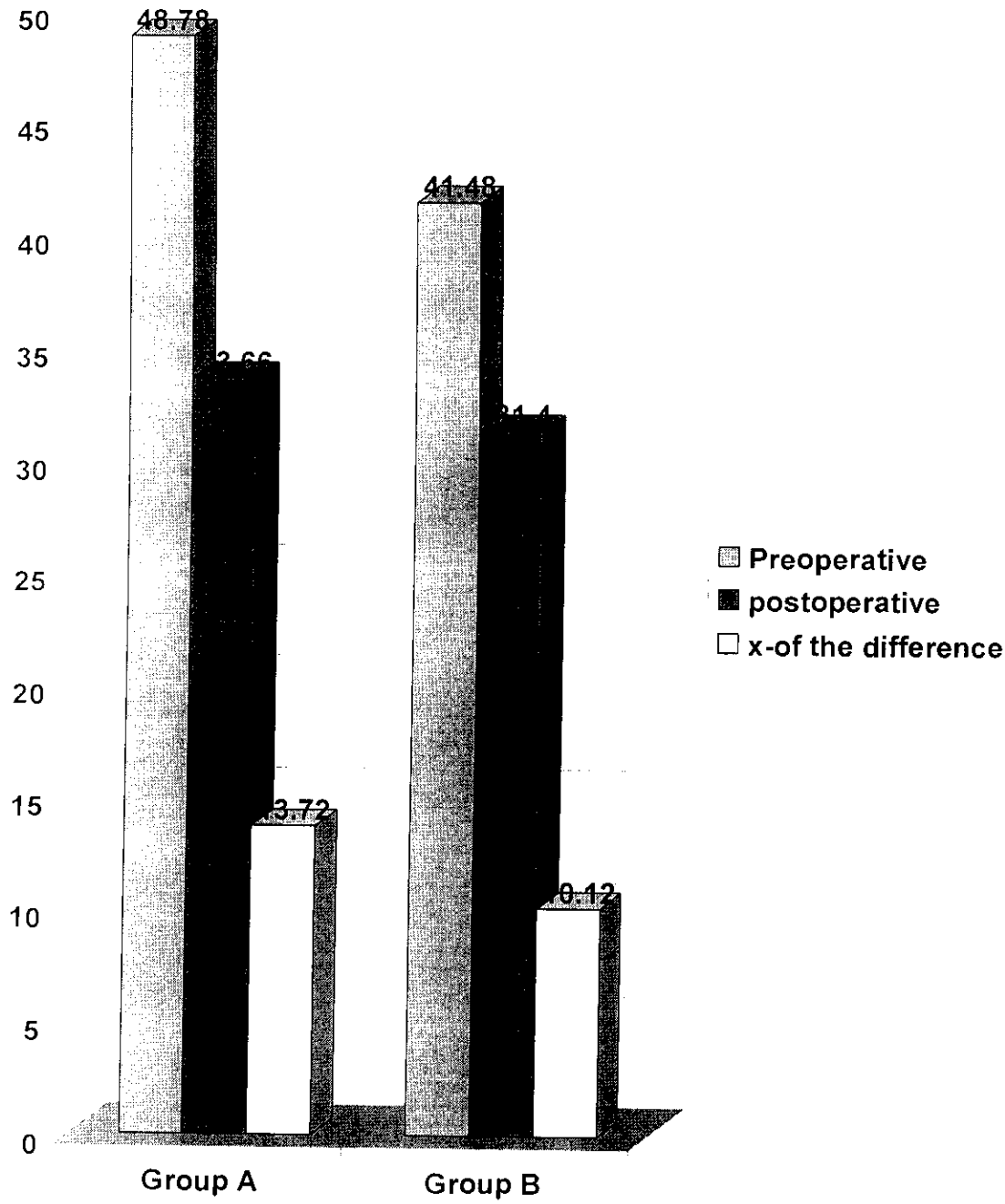


Fig. (23) : This figure shows blood gases and O_2 saturation of the case No. (10) group (A) preoperative.

PATIENT SAMPLE REPORT
SYSTEM 850 – 2905

April 19 2001 11 : 04
Analysis Date April 19 2001
Analysis Time 11 : 04 p.m

Sequence no 620
Accession no
Source Arterial
Draw Date
Draw time
Operator I D

Patient I D
Birth date
Age : 9 YS
Sex ♂
Physician I D
Location

SYRINGE SAMPLE ACID / BASE 37°C		Units	References Range
pH	7.486↑		(7.350 – 7.450)
pC02	52.0↑	mmHg	(35.0 – 45.0)
p02	61.0↓	mmHg	(75.0 – 100.0)
HC03 – a c t	20.8	mmol/L	
HC03 – s t d	23.5	mmol/L	
CtC02	21.7	mmol/L	
BE (B)	-1.2	mmol/L	
BE (e c f)	-2.6	mmol/L	
OXYGEM STATUS 37°C			
P02	61.0	mmHg	(75.0 – 100.0)
O2 SAT	76.0	%	
ELECTROLYTES			
Na+	******	mmol/L	(135.0 – 148.0)
K+	4.00	mmol/L	(3.50 – 5.30)
Cl-	100	mmol/L	(98 – 106)

↑ Or ↓ = exceeds reference range
****** = Not in calibration

Fig. (24) : This figure shows blood gases and O_2 saturation of the case No. (10) group (A) postoperative.

PATIENT SAMPLE REPORT
SYSTEM 850 – 2905

Guly 20 2001 11 : 04
Analysis Date Guly 20 2001
Analysis Time 10 : 50 p.m

Sequence no 620
Accession no
Source Arterial
Draw Date
Draw time
Operator I D

Patient I D
Birth date
Age : 9 YS
Sex ♂
Physician I D
Location

SYRINGE SAMPLE ACID / BASE 37°C		Units	References Range
pH	7.486↑		(7.350 – 7.450)
pC02	28.0↓	mmHg	(35.0 – 45.0)
p02	85.0↑	mmHg	(75.0 – 100.0)
HC03 – a c t	20.8	mmol/L	
HC03 – s t d	23.5	mmol/L	
CtC02	21.7	mmol/L	
BE (B)	-1.2	mmol/L	
BE (e c f)	-2.6	mmol/L	
OXYGEM STATUS 37°C			
P02	85.0	mmHg	(75.0 – 100.0)
O2 SAT	90	%	
ELECTROLYTES			
Na+	******	mmol/L	(135.0 – 148.0)
K+	4.00	mmol/L	(3.50 – 5.30)
Cl-	100	mmol/L	(98 – 106)

Fig. (25) : This figure shows blood gases and O_2 saturation of the case No. (12) group (B) preoperative.

PATIENT SAMPLE REPORT
SYSTEM 850 – 2905

May 26 2001 11 : 50

Sequence no 620		
Accession no		
Source Arterial		
Analysis Date May 26 2001		
Analysis Time 11 : 50 p.m		
Draw Date		
Draw time		
Operator I D		
Patient I D		
Birth date		
Age : 40YS		
Sex ♂		
Physician I D		
Location		
SYRINGE SAMPLE		
ACID / BASE 37°C		
		Units References Range
pH	7.440	(7.350 – 7.450)
pCO2	46.0↑	mmHg (35.0 – 45.0)
pO2	53.0↓	mmHg (75.0 – 100.0)
HCO3 – a c t	21.6	mmol/L
HCO3 – s t d	23.1	mmol/L
CtCO2	22.6	mmol/L
BE (B)	-1.6	mmol/L
BE (e c f)	-2.5	mmol/L
OXYGEM STATUS 37°C		
PO2	53.0	mmHg (75.0 – 100.0)
O2 SAT	80.0	%
ELECTROLYTES		
Na+	131.91	mmol/L (135.0 – 148.0)
K+	3.66	mmol/L (3.50 – 5.30)
Ca++	******	mmol/L (1.13 – 1.32)
Cl-	1131	mmol/L (98 – 106)
An Gap	0.9	mmol/L

↑ or ↓ = exceeds reference range
Sample Temperature Out of Range
****** = Not in calibration

Fig. (26) : This figure shows blood gases and O_2 saturation of the case No. (12) group (B) postoperative.

PATIENT SAMPLE REPORT
SYSTEM 850 – 2905

AUG 1 2001 11 : 50

Sequence no 620		
Accession no		
Source Arterial		
Analysis Date AUG 1 2001		
Analysis Time 11 : 04 p.m		
Draw Date		
Draw time		
Operator I D		
Patient I D		
Birth date		
Age : 40YS		
Sex ♂		
Physician I D		
Location		
SYRINGE SAMPLE		
ACID / BASE 37°C		
		Units References Range
pH	7.440	(7.350 – 7.450)
pCO2	26.0↓	mmHg (35.0 – 45.0)
pO2	80.0↑	mmHg (75.0 – 100.0)
HCO3 – a c t	21.6	mmol/L
HCO3 – s t d	23.1	mmol/L
CtCO2	22.6	mmol/L
BE (B)	-1.6	mmol/L
BE (e c f)	-2.5	mmol/L
OXYGEM STATUS 37°C		
PO2	80.0	mmHg (75.0 – 100.0)
O2 SAT	87.0	%
ELECTROLYTES		
Na+	131.91	mmol/L (135.0 – 148.0)
K+	3.66	mmol/L (3.50 – 5.30)
Ca++	******	mmol/L (1.13 – 1.32)
Cl-	1131	mmol/L (98 – 106)
An Gap	0.9	mmol/L

↑ or ↓ = exceeds reference range
****** = Not in calibration

Table (14) : Shows $\bar{x} \pm SD$ of FEV_1 among the studied groups preoperative and postoperative

Variable / Operation	FEV_1		Test of significant	
	Group (A) $\bar{x} \pm SD$	Group (B) $\bar{x} \pm SD$	"t"	"P"
Pre-operative	63.6 ± 10.9	63.16 ± 9.64	0.151	>0.05
Post-operative	68.6 ± 7.19	69.2 ± 12.23	-0.211	> 0.05
x-of the difference	-4.68 ± 12.9	-5.56 ± 16.79		
Paired "t"	-1.81	-1.66		
P	>0.05	>0.05		

- FEV_1 in the 1st group preoperative was 63.6 ± 10.9 %.
- FEV_1 in the 1st group postoperative was 68.6 ± 71.9 %.
- FEV_1 in the 2nd group preoperative was 63.16 ± 9.64 %.
- FEV_1 in the 2nd group postoperative was 69.2 ± 12.23 %.

And this shows significant improvement

This improvement was 4.68 ± 12.9% in the 1st group.

And it was 5.56 ± 16.79 improvement in the 2nd group.

Fig. (27) : Show X- of EFV1 among the studied groups preoperative and postoperative

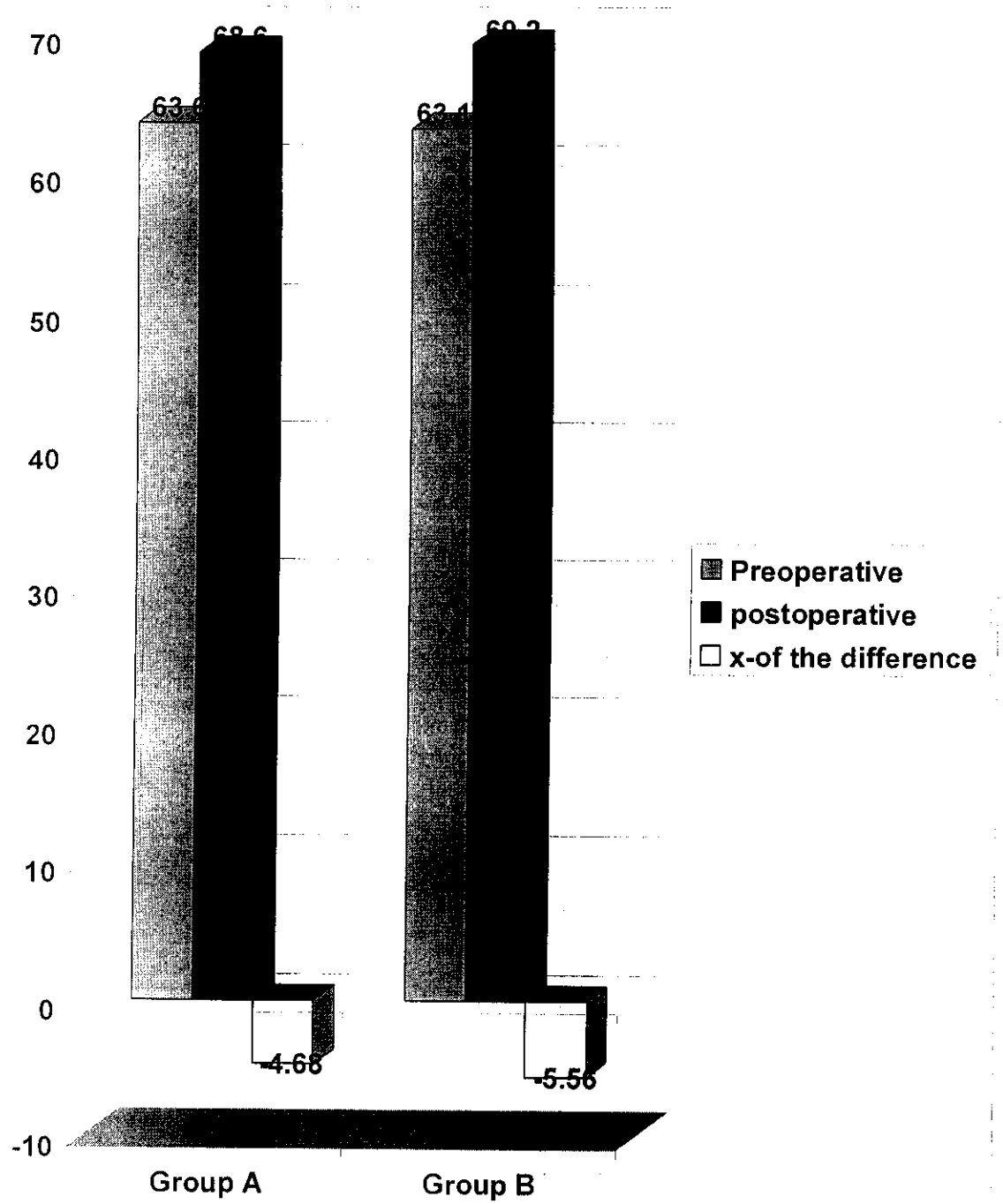


Fig. (28) : This figure shows pulmonary function testes in the case No. (21) group (A) preoperative.

PULMONARY FUNCTION TEST REPORT

Ver 1.5

Tested By :
DATE : *06/05/01*

TEMP : *°C*
BARO PRES : *mmHg*

NAME:
PT. NO.: *1*
SEX: *FEMALE*
RACE : *ORIENTAL*
Pred. *KUNDSON*

AGE: *10 yrs*

RACE ADJ : *100%*

			PRE-BRONC	POST-BRONC	%	
UC	*1.63*	*1.28*	*79*	*1.40*	*86*	*9*
ERV	----		----		----	
FVC	*1.63*	*1.00*	*61*	*0.92*	*56*	*-7*
FEV.5	*1.25*	*0.96*	*77*	*0.89*	*71*	*-6*
FEV 1	*1.44*	*1.00*	*69*	*0.92*	*66*	*-7*
FEV3	---	*1.00*	---	*0.92*	---	*-7*
FEV1/FVC	*92.8*	*100.0*	*108*	*100.0*	*108*	*0*
FEV3/FVC	---	*100.0*	---	*100.0*	---	*0*
FEF.2-1.2	---	*0.04*	---	*0.04*	---	*0*
FEF25-75%	*1.94*	*2.00*	*103*	*2.10*	*108*	*5*
FEF75-85%	---	*2.32*	---	*2.85*	---	*23*
BEST FVC	*1.63*	*1.00*	*61*	*0.92*	*56*	*-7*
BEST FEV1	*1.44*	*1.00*	*69*	*0.92*	*64*	*-7*
EX TIME	---	*1.00*	---	*6.67*	---	*-36*
PEF	*3.78*	*2.15*	*57*	*2.37*	*63*	*10*
MEF75%	*3.57*	*1.60*	*45*	*2.07*	*58*	*29*
MEF50%	*2.59*	*2.13*	*82*	*2.34*	*90*	*10*
MEF25%	*1.19*	*1.89*	*159*	*2.01*	*169*	*6*
PIF	---	*2.79*	---	*1.62*	---	*-41*
MIF50%	---	*2.53*	---	*1.30*	---	*48*
E50/I50	---	*84.2*	---	*180.0*	---	*104*
MVV	*62.2*	*37.7*	*61*	*46.3*	*75*	*23*
RR	---	*85.6*	---	*116.2*	---	*36*
MTV	---	*0.44*	---	*0.40*	---	*-8*

NOTE : LITERS EXPRESSED BTPS
PRE BD VC : # 1 Test, 2 accepted.
PRE BD FVC : # 1 test, 3 accepted.
POST BD VC : # 1 test, 2 accepted.
POST BD FVC : # 3 test, 3 accepted.

*** DIAGNOSIS ***

PESTRICTIVE	NORMAL
COMBINED	* OBSTRUCTIVE

75%
(FEV1/FVC%)

Fig. (29) : This figure shows pulmonary function testes in the case No. (21) group (A) postoperative.

PULMONARY FUNCTION TEST REPORT

Ver 1.5

Tested By :
DATE : *02/08/01*

TEMP : *°C*
BARO PRES : *mmHg*

NAME:
PT. NO.: *1*
AGE: *10 yrs*
SEX: *FEMALE*
RACE : *ORIENTAL*
Pred. *KUNDSON*
RACE ADJ : *100%*

			PRE-BRONC	POST-BRONC	%
UC	*1.63*	*1.28*	*79*	*1.40*	*86*	*9*
ERV	----		----		----	
FVC	*1.63*	*1.00*	*61*	*0.92*	*56*	*-7*
FEV.5	*1.25*	*0.96*	*77*	*0.89*	*71*	*-6*
FEV 1	*1.30*	*1.00*	*70*	*0.83*	*76*	*-6*
FEV3	---	*1.00*	---	*0.92*	---	*-7*
FEV1/FVC	*92.8*	*100.0*	*108*	*100.0*	*108*	*0*
FEV3/FVC	---	*100.0*	---	*100.0*	---	*0*
FEF.2-1.2	---	*0.04*	---	*0.04*	---	*0*
FEF25-75%	*1.94*	*2.00*	*103*	*2.10*	*108*	*5*
FEF75-85%	---	*2.32*	---	*2.85*	---	*23*
BEST FVC	*1.63*	*1.00*	*61*	*0.92*	*56*	*-7*
BEST FEV1	*1:44*	*1.00*	*69*	*0.92*	*64*	*-7*
EX TIME	---	*1.00*	---	*6.67*	---	*-36*
PEF	*3.78*	*2.15*	*57*	*2.37*	*63*	*10*
MEF75%	*3.57*	*1.60*	*45*	*2.07*	*58*	*29*
MEF50%	*2.59*	*2.13*	*82*	*2.34*	*90*	*10*
MEF25%	*1.19*	*1.89*	*159*	*2.01*	*169*	*6*
PIF	---	*2.79*	---	*1.62*	---	*-41*
MIF50%	---	*2.53*	---	*1.30*	---	*48*
E50/I50	---	*84.2*	---	*180.0*	---	*104*
MVV	*62.2*	*37.7*	*61*	*46.3*	*75*	*23*
RR	---	*85.6*	---	*116.2*	---	*36*
MTV	---	*0.44*	---	*0.40*	---	*-8*

NOTE : LITERS EXPRESSED BTPS
PRE BD VC : # 1 Test, 2 accepted.
PRE BD FVC : # 1 test, 3 accepted.
POST BD VC : # 1 test, 2 accepted.
POST BD FVC : # 3 test, 3 accepted.
*** DIAGNOSIS ***

PESTRICTIVE	* NORMAL
COMBINED	OBSTRUCTIVE

75%
(FEV1/FVC%)

Fig. (29) : This figure shows pulmonary function testes in the case No. (21) group (A) postoperative.

PULMONARY FUNCTION TEST REPORT

Ver 1.5

Tested By :
DATE : *02/08/01* *TEMP :* *°C*
BARO PRES : *mmHg*
NAME:
PT. NO.: *1* *AGE:* *10 yrs*
SEX: *FEMALE*
RACE : *ORIENTAL*
Pred. *KUNDSON* *RACE ADJ :* *100%*

				PRE-BRONC	POST-BRONC	%
UC	*1.63*	*1.28*	*79*	*1.40*	*86*	*9*
ERV	----		----		----	
FVC	*1.63*	*1.00*	*61*	*0.92*	*56*	*-7*
FEV.5	*1.25*	*0.96*	*77*	*0.89*	*71*	*-6*
FEV 1	*1.30*	*1.00*	*70*	*0.83*	*76*	*-6*
FEV3	---	*1.00*	---	*0.92*	---	*-7*
FEV1/FVC	*92.8*	*100.0*	*108*	*100.0*	*108*	*0*
FEV3/FVC	---	*100.0*	---	*100.0*	---	*0*
FEF.2-1.2	---	*0.04*	---	*0.04*	---	*0*
FEF25-75%	*1.94*	*2.00*	*103*	*2.10*	*108*	*5*
FEF75-85%	---	*2.32*	---	*2.85*	---	*23*
BEST FVC	*1.63*	*1.00*	*61*	*0.92*	*56*	*-7*
BEST FEV1	*1:44*	*1.00*	*69*	*0.92*	*64*	*-7*
EX TIME	---	*1.00*	---	*6.67*	---	*-36*
PEF	*3.78*	*2.15*	*57*	*2.37*	*63*	*10*
MEF75%	*3.57*	*1.60*	*45*	*2.07*	*58*	*29*
MEF50%	*2.59*	*2.13*	*82*	*2.34*	*90*	*10*
MEF25%	*1.19*	*1.89*	*159*	*2.01*	*169*	*6*
PIF	---	*2.79*	---	*1.62*	---	*-41*
MIF50%	---	*2.53*	---	*1.30*	---	*48*
E50/I50	---	*84.2*	---	*180.0*	---	*104*
MVV	*62.2*	*37.7*	*61*	*46.3*	*75*	*23*
RR	---	*85.6*	---	*116.2*	---	*36*
MTV	---	*0.44*	---	*0.40*	---	*-8*

NOTE : LITERS EXPRESSED BTPS
PRE BD VC : # 1 Test, 2 accepted.
PRE BD FVC : # 1 test, 3 accepted.
POST BD VC : # 1 test, 2 accepted.
POST BD FVC : # 3 test, 3 accepted.
*** DIAGNOSIS ***

PESTRICTIVE	* NORMAL
COMBINED	OBSTRUCTIVE

75%
(FEV1/FVC%)

Fig. (30) : This figure shows pulmonary function test in the case No. (8) group (B) preoperative

PULMONARY FUNCTION TEST REPORT

Ver 1.5

TESTED BY			
DATE :	*05/08/01*	*TEMP :*	*37 °C*
		BARO PRES:	*760 mmHg*
NAME :		*AGE :*	*40 Yrs*
ETHC :		*HEIGHT :*	*165 cm*
SEX :	*FEMALE*	*WEIGHT :*	*115 kg*
RACE :	*DRIENTAL*	*RACE ADJ :*	*100%*
Pred.	*KNUDSON*		
	AOT	*PRED*	*% PRED*
VC (L)	*2.34*	*3.46*	*68*
IRV (L)		---	---
ERV (L)		---	---
TV (L)		---	---
FVC (L)	*1.69*	*3.46*	*49*
FEV 1 (L)	*1.25*	*2.17*	*58*
FEV 1 (L)	*1.69*	*2.90*	*68*
FEV 3 (L)	*1.69*	---	---
FEV1/FVC (%)	*100.0*	*83.6*	*120*
FEV3/FVC (%)	*100.0*	---	---
FEF 25-75% (L/S)	*2.37*	---	---
FEF25 - 75% (L/S)	*2.35*	*3.30*	*71*
MEFV 25% (L/S)	*2.52*	---	---
BEST FVC (L)	*1.69*	*3.46*	*49*
BEST FEV1 (L)	*1.69*	*2.90*	*58*
EX TIME (SEC)	*0.92*	---	---
PEF (L/S)	*2.65*	*6.35*	*42*
MEF75% (L/S)	*2.56*	*5.97*	*43*
MEF50% (L/S)	*2.53*	*3.90*	*65*
MEF25% (L/S)	*1.80*	*1.68*	*107*
PIF (L/S)	*6.56*	---	---
MIF50%	*4.97*	---	---
MEF50/MIF50	*50.9*	---	---
MVV (L/M)	*57.2*	*114.5*	*50*
RR (Br/M)	*91.6*	---	---
MTV (L)	*0.62*	---	---

NOTE : LITERS EXPRESSED BTPS.
VC : #2 test, 2 accepted.
FVC : # 2 test, 3 accepted.
*** DIAGNOSIS ***

RESTRICTIVE	NORMAL	75% (FEV1/FVC%)
COMBINED	* OBSTRUCTIVE	

Fig. (31) : This figure shows pulmonary function tests in the case No. (8) group (B) postoperative.

[illegible] FUNCTION TEST REPORT

Ver 1.5

TESTED BY:			
DATE :	*05/08/01*	*TEMP :*	*37 °C*
		BARO PRES:	*760 mmHg*
NAME :		*AGE :*	*40 Yrs*
PT.NO. :		*HEIGHT :*	*165 cm*
SEX :	*FEMALE*	*WEIGHT :*	*115 kg*
RACE :	*ORIENTAL*	*RACE ADJ :*	*100%*
Pred. :	*KNUDSON*		
	AOT	*PRED*	*% PRED*
VC (L)	*2.34*	*3.46*	*68*
ERV (L)		---	---
IRV (L)		---	---
TV (L)		---	---
FVC (L)	*1.69*	*3.46*	*49*
FEV.5 (L)	*1.25*	*2.17*	*58*
FEV 1 (L)	*1.71*	*2.63*	*72*
FEV 3 (L)	*1.69*	---	---
FEV1/FVC (%)	*100.0*	*83.6*	*120*
FEV3/FVC (%)	*100.0*	---	---
FEF .2-.8, 2 (L/S)	*2.37*	---	---
FEF25 – 75% (L/S)	*2.35*	*3.30*	*71*
FEF75-85% (L/S)	*2.62*	---	---
BEST FVC (L)	*1.69*	*3.46*	*49*
BEST FEV1 (L)	*1.69*	*2.90*	*58*
EX TIME (SEC)	*0.92*	---	---
PEF (L/S)	*2.65*	*6.35*	*42*
MEF75% (L/S)	*2.56*	*5.97*	*43*
MEF50% (L/S)	*2.53*	*3.90*	*65*
MEF25% (L/S)	*1.80*	*1.68*	*107*
FIF (L/S)	*6.56*	---	---
MIF50%	*4.97*	---	---
MEF50/MIF50	*50.9*	---	---
MVV (L/M)	*57.2*	*114.5*	*50*
F.R. (Br/M)	*91.6*	---	---
MEV (L)	*0.62*	---	---

NOTE: LITERS EXPRESSED BTPS. VC : #2 test, 2 accepted.
FVC : # 2 test, 3 accepted. *** DIAGNOSIS ***

RESTRICTIVE	* NORMAL
COMBINED	OBSTRUCTIVE

75% (FEV1/FVC%)

Table (15) : Shows $\bar{x} \pm SD$ of the overnight oximtery among the studied groups preoperative and postoperative

Variable / Operation	Overnight oximtery		Test of significant	
	Group (A) $\bar{x} \pm SD$	Group (B) $\bar{x} \pm SD$	"t"	"P"
Pre-operative	74.08 ± 4.96	74.44 ± 7.32	-0.21	>0.05
Post-operative	81.13 ± 12.05	80.56 ± 7.97	0.197	>0.05
x-of the difference	-6.57 ± 13.57	-5.72 ± 10.64		
Paired "t"	-2.42	-2.69		
P	<0.05	<0.05		

- Overnight oximetry in the 1st group preoperative was 74.08 ± 4.96 %.
- Overnight oximetry in the 1st group postoperative was 81.13±12.05 %.
- Overnight oximetry in the 2nd group preoperative was 74.44 ± 7.32 %.
- Overnight oximetry in the 2nd group postoperative was 80.66±7.97 %.

And this shows significant improvement

This improvement was 6.57 ± 13.57 % in the 1st group.

And it was 5.72 ± 10.64 improvement in the 2nd group.

Fig. (32) : Shwo X- of the overnight oximtery between the studied groups preopreative and postoperative

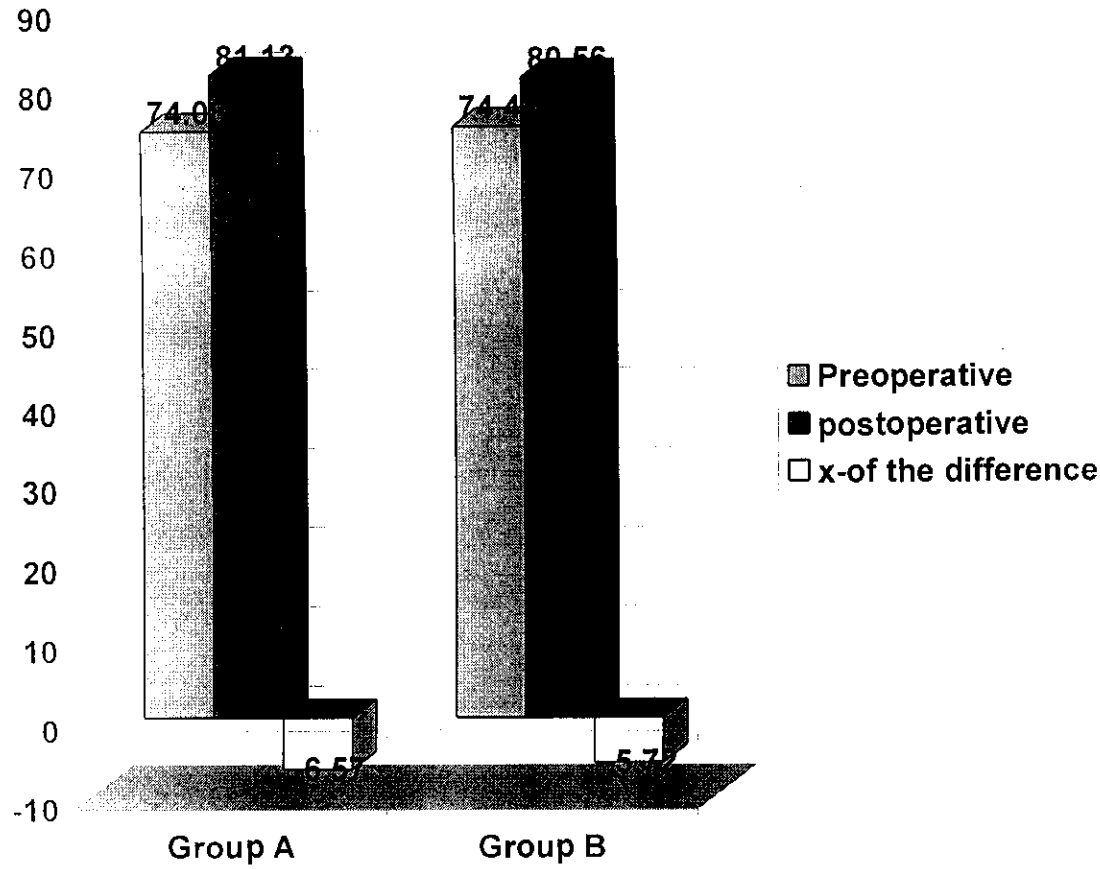


Table (16) : Shows the cross sectional area of the orophrynx in the 2nd group preoperative and postoperative with C.T axial view.

Variable / Operation	Cross sectional area of the oropharynx with C.T.		Test of significance	
	$\bar{x} \pm SD$	$\bar{x} \pm SD$ of the difference	Paired "t"	"P"
Preoperative	0.74 ± 0.33	-3.7 ± 2.95	-6.43	<0.001s
Postoperative	4.53 ± 2.92			

- The cross sectional area preoperative was 0.74 ± 0.33 cm^2.
- The cross sectional area postoperative was 4.53 ± 2.92 cm^2.

And this show significant improvement by about 3.7 ± 2.95 cm^2

Fig. (33) : Show the cross sectional area of the oropharynx in the 2nd group preoperative and postoperative with C.T axial view

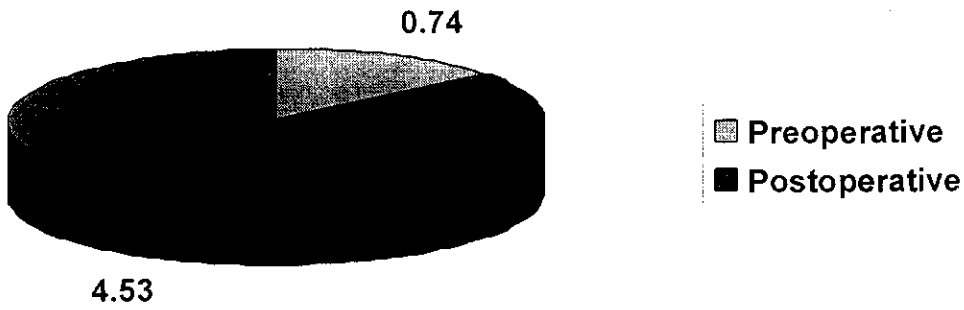
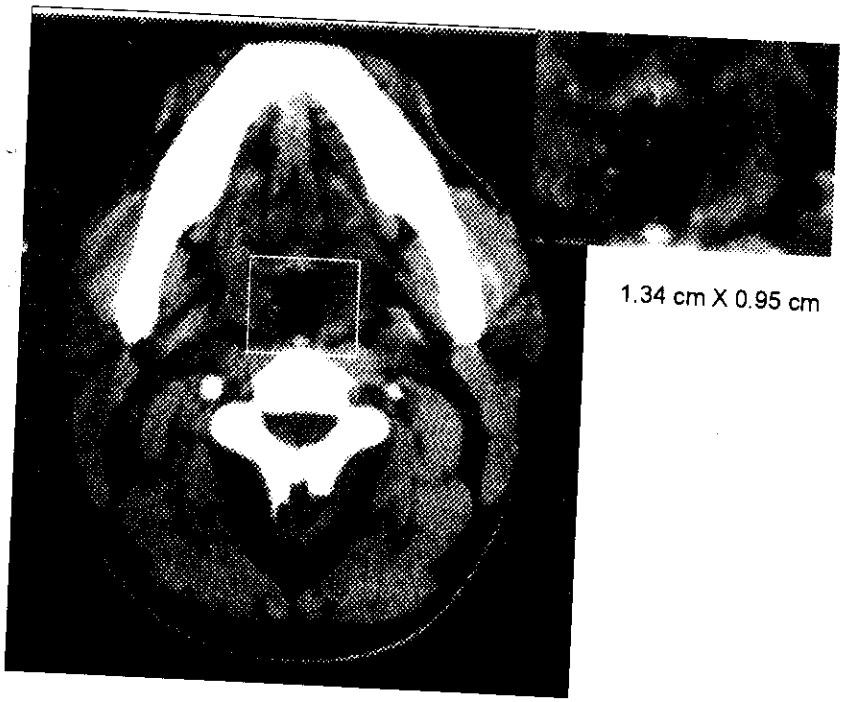


Figure (34): CT. axial view oropharynx

Case No. 2: Preoperative (Group B).



The same case postoperative

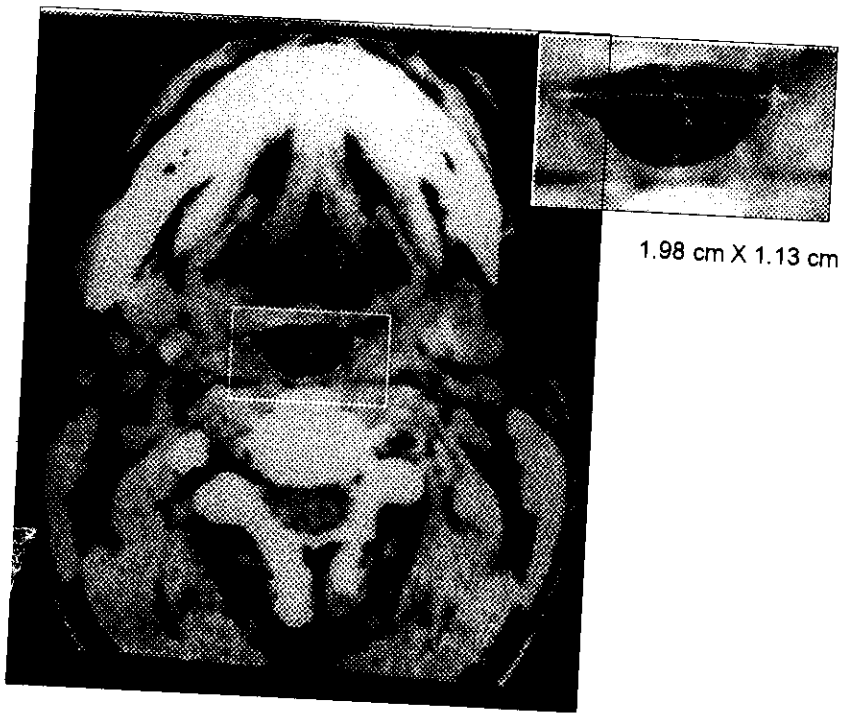
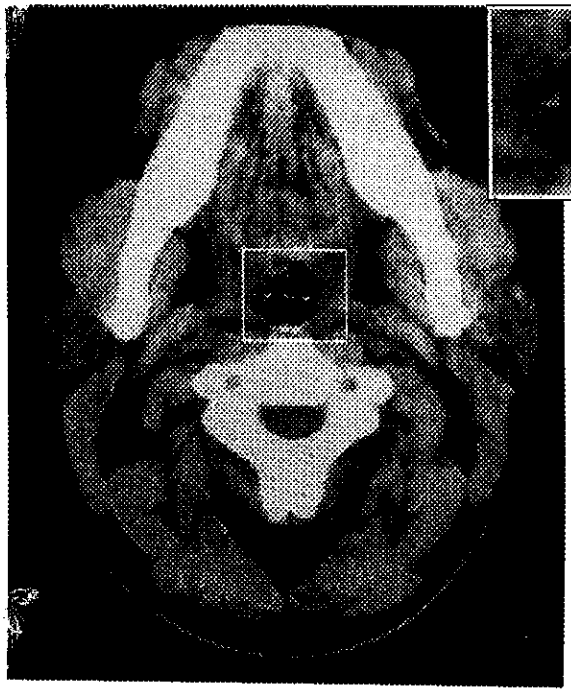
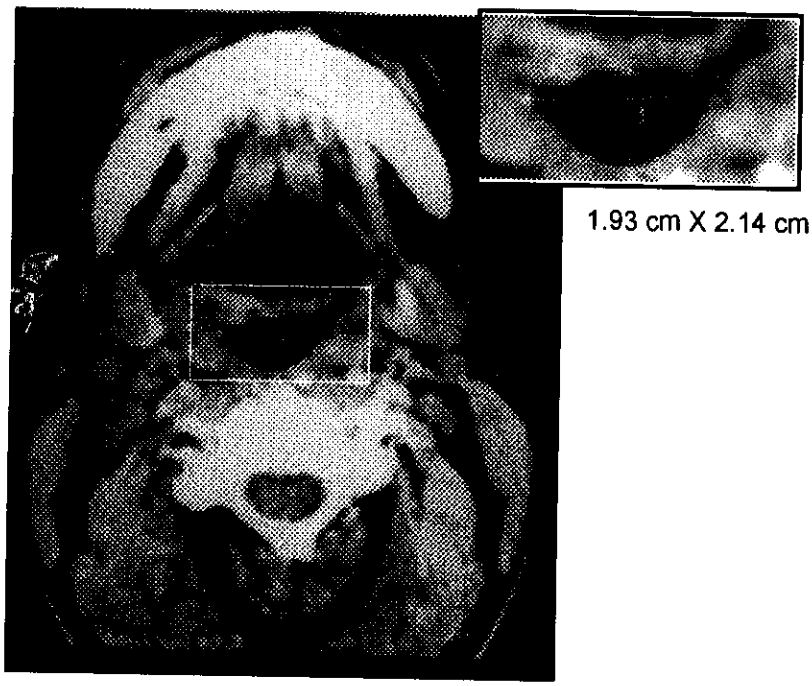


Figure (35): CT axial view oropharynx.
Case No. 21 Preoperative (Group B).



1.39 cm X 0.97 cm.

Postoperative picture of the same case.



1.93 cm X 2.14 cm

Figure (36) : CT axial view oropharynx Case No. 4 preoperative (Group B).

Postoperative picture of the same case

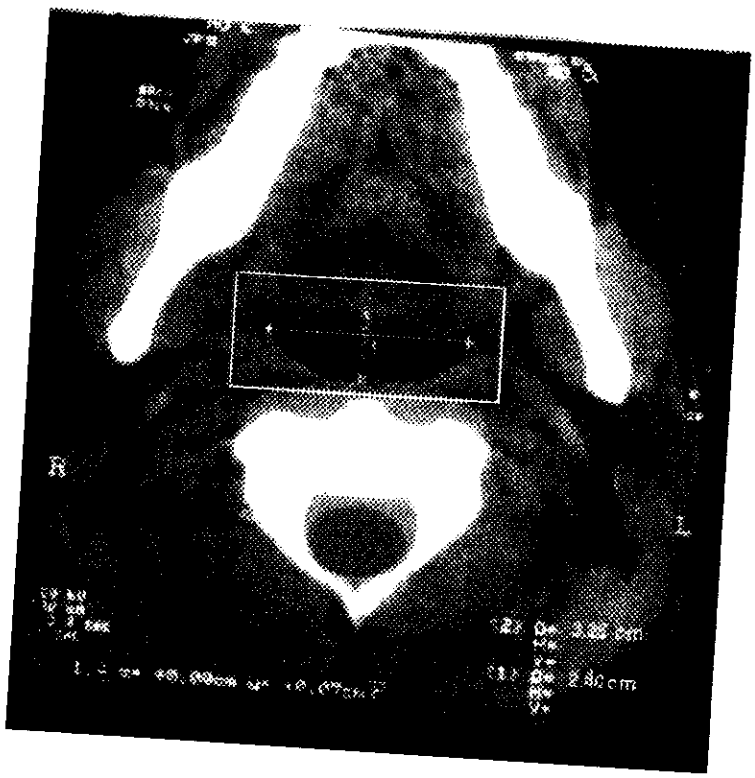


Figure (37): CT axial view oropharynx.
Case No. 8 : Preoperative (Group B).

Postoperative picture of the same case

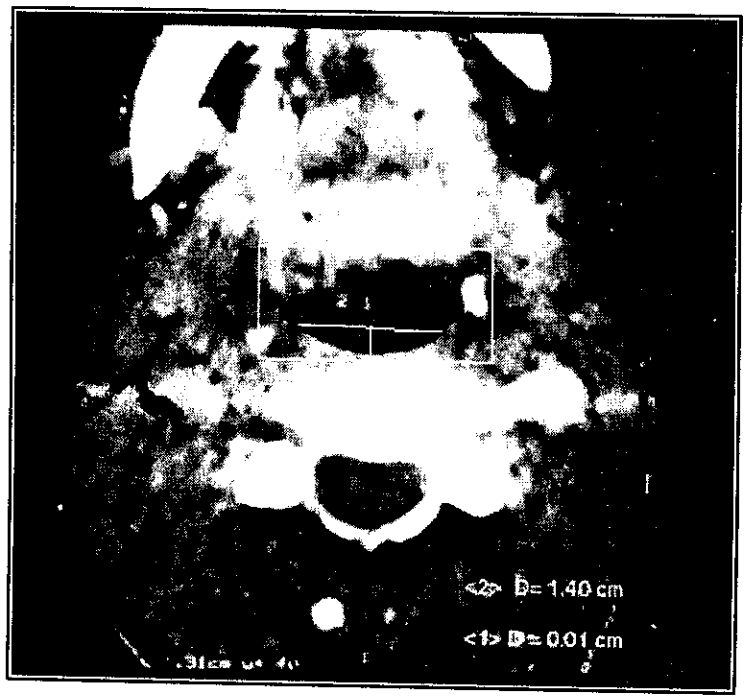
Figure (38): Sagittal CT oropharynx (reconstruction).
Case No. 4 : preoperative (Group B)

Postoperative picture of the same case

Figure (39): Sagittal CT oropharynx (reconstruction). Case No. 8: Preoperative (Group B).

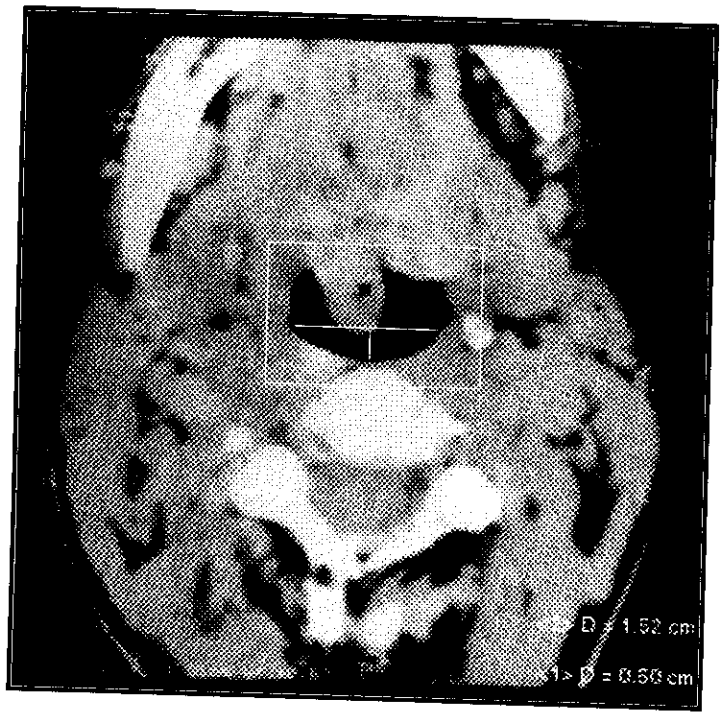
Postoperative picture of the same case

Figure (40) CT axial view oropharynx
Case No. 14: Preoperative (Group B).



Postoperative picture of the same case

Figure (41): CT axial view oropharynx Case No.18: Preoperative (Group B).



Postoperative picture of the same case

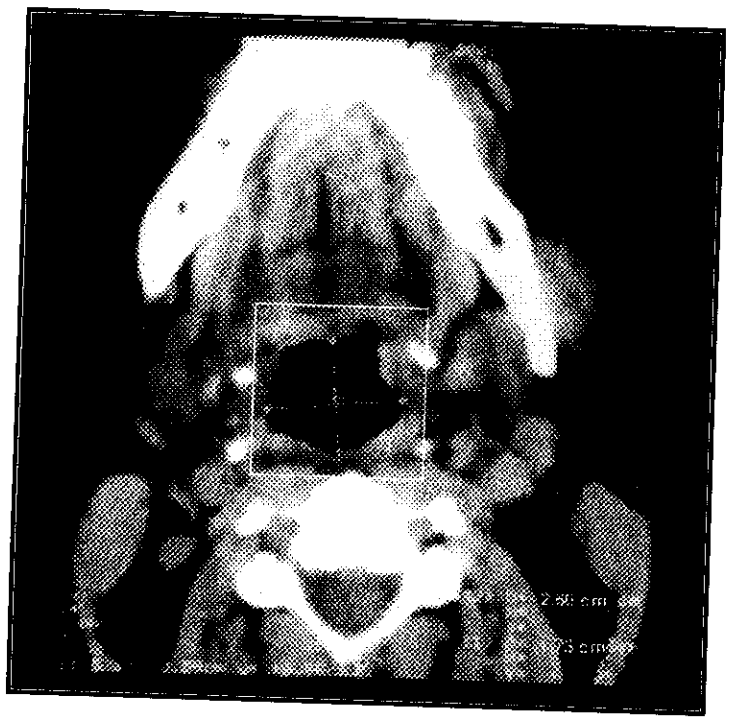
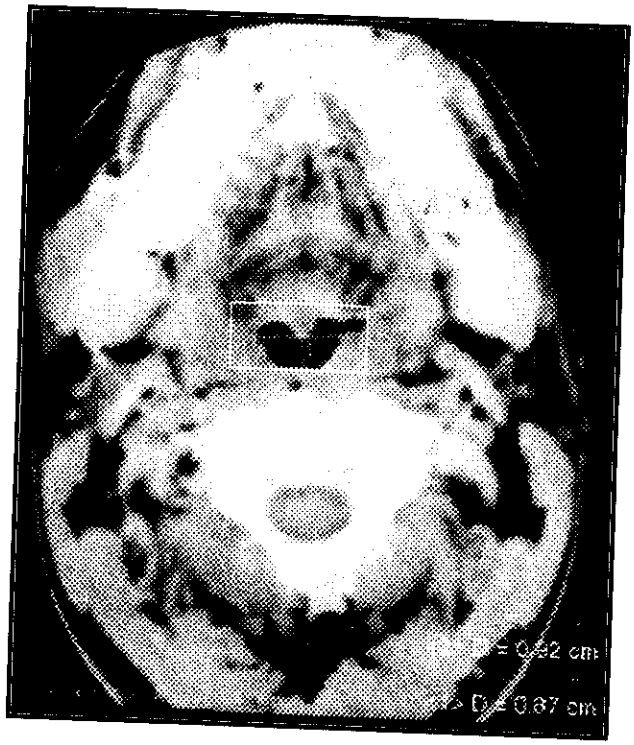


Figure (42): CT axial view oropharynx Case No.13: Preoperative (Group B).

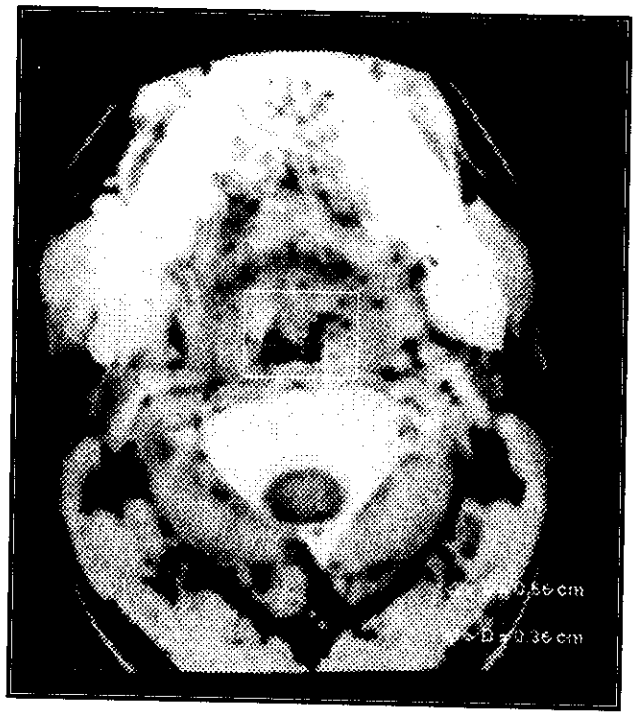
Postoperative picture of the same case.

Figure (43): CT axial view oropharynx Case No.12: Preoperative (Group B).



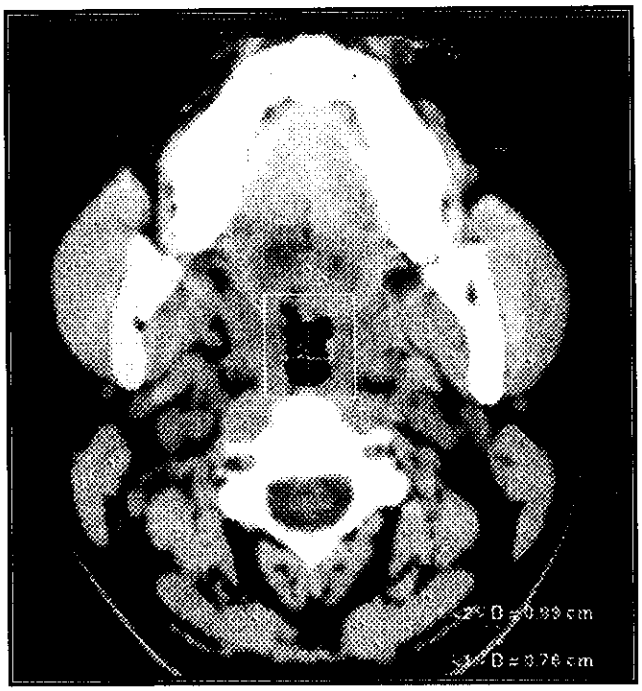
Postoperative picture of the same case.

Figure (44): CT axial view oropharynx Case No.3: Preoperative (Group B).



Postoperative picture of the same case.

Figure (45): CT axial view oropharynx Case No. 15: Preoperative (Group B).



Postoperative picture of the same case.

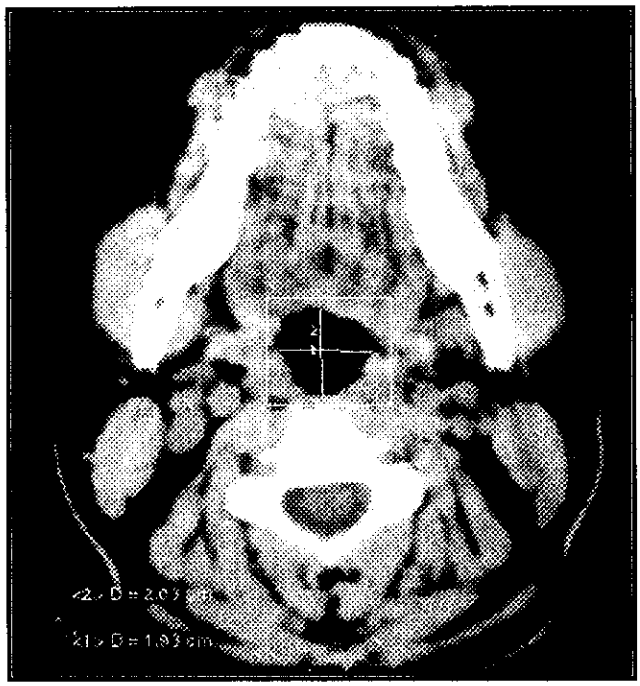


Figure (46): CT axial view oropharynx.
Case No. 11: Preoperative (Group B).

Postoperative picture of the same case.

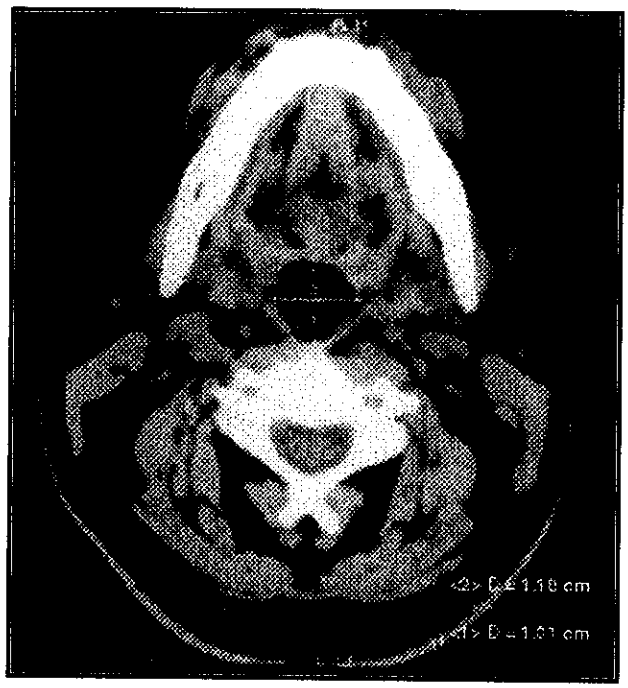
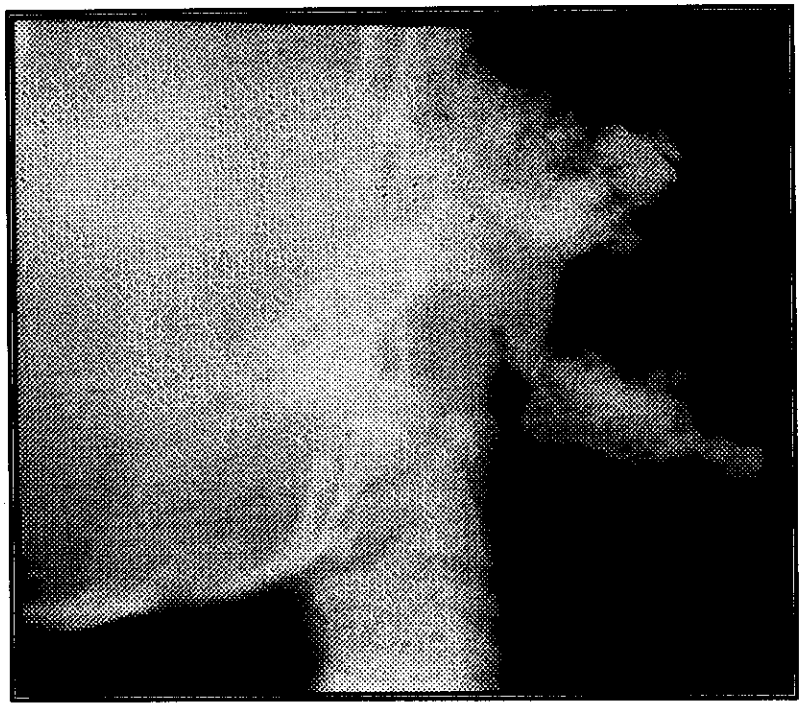


Figure (47): Plain X-Ray neck lateral view (Group A)
Case No. : Preoperative.



Postoperative picture of the same case.

Figure (48): Plain X-Ray neck lateral view (Group A)
Case No. : Preoperative.

Postoperative picture of the same case.