RESULTS

The results gained from our study have been gathered, analysed and collectively tabulated in tables as follow:

Table (4): Age of the studied patients

Age (ys)	Range	Mean value	± S.D
Group A	28 - 60	44.7	± 11.84
Group B	30 – 70	45.15	± 11.9

P value > 0.05 (in significant).

The age of group A ranges from 28 to 60 years with the mean age is 44.7 ± 11.84 while group B the age ranges from 30 to 70 years and the mean age is 45.15 ± 11.9 the two groups were matched in relation to age.

The table shows that no significant difference among the studied group regarding the age (Table 4).

Table (5): Menestrual history of the studied patients

Meanst. Hist	Group A		Group B	
	No	%	No	%
Pre-menopause	9	30	6	20
Post- menopause	21	70	24	80
Total	30	100	30	100

The pre-menopausal women are 30% of group A and 20% of group B, while the post-menopausal women are 70% of group A and 80% of group B (Table 5).

Table (6): Parity of the studied patient

Parity	Group A		Group B	
	No	%	No	%
Nullipara	1	3.3	1	3.3
1 to 3 children	8	26.7	12	40
4 to 6 children	19	63.3	15	50
7 or more	2	6.7	2	6.7
Total	30	100	30	100

Regarding the parity state 3.3% of both groups are nullipara, 26.7% of group A have 1 – 3 children comparing to 40% of group B, 63.3% of group A have 4 – 6 children comparing to 50% of group B, while 6.7% of both groups have 7 children or more (Table 6).

Table (7): Family history of breast cancer in 1st degree relatives

F. Hist	Group A		Group B	
	No	%	No	%
+ve	4	13.3	2	6.7
-ve	26	86.7	28	93.3
Total	30	100	30	100

In group A 13.3% have breast cancers in 1st degree relatives, while group B were 6.7% (Table 7).

Table (8): Main clinical presentation of the studied patient

M. Pres	Group A		Group B	
	No	%	No	%
Palpable mass	26	86.6	27	90
Bleeding / nipple	2	6.7	2	6.7
Axillary lymphadenopathy	1	3.3	1	3.3
Breast pain	1	3.3	0	0
Total	30	100	30	100

86.6% of group A present with palpable mass comparing to 90% of group B, 2.6% of group A and B presented with bleeding / niple, 3.3% of group A and B presented with axillary lymphadenopahty, while 3.3% of group A presented with breast pain (Table 8).

Table (9): Tumor size among the studied patients

Clinical tumor size (cm)	Group A		Group B		P value
	No	%	No	%	
≤ 2cm	4	13.3	3	10	0.62
> 2 ≤ 5cm	17	56.7	13	43.3	
> 5cm	7	23.3	11	36.7	
Unknown	2	6.7	3	10	
Total	30	100	30	100	

Regarding the size of the mass clinically in group A, 13.3% ≤ 2cm, 2 < 56.7% ≤ 5cm, 23.3% > 5cm, while in group B 10% ≤ 2cm, 2 < 43.3% ≤ 5cm, 36.7% > 5cm, the p value is statistically insignificant (Table 9).

Unknown tumor size cases were those who presented with biopsy done previously and proved the presence of breast cancer in whom no report was found about the tumor size.

Table (10): Side of the tumor in breast among the studied patients

Laterality	Group A		Group B		P value
	No	%	No	%	
Right	13	43.3	14	46.7	0.79
Left	17	56.7	16	53.3	
Total	30	100	30	100	

Regarding the laterality of the tumor 43.3% of group A were in the right side comparing to 46.7% of group B, while 56% of group A were in the left side comparing to 53.3% in group B, P.value is statistically insignificant (Table 10).

Table (11): Location of the tumor among the studied patients

Location	Group A		Group B		P value
	No	%	No	%	
Upper outer	14	46.6	16	53.3	0.95
Upper inner	5	16.7	4	13.3	
Lower inner	3	10	3	10	
Lower outer	2	6.7	2	6.7	
Central	2	6.7	3	10	
Unknown	4	13.3	2	6.7	
Total	30	100	30	100	

Regarding the location of the tumor of group A, 46.6% were in the upper outer quadrant, 16.7% were in the upper inner quadrant, 10% were in the lower quadrant and 10% were in the lower outer quadrant, while in group B 53.3% were in the upper outer quadrant, 13.3% were in the upper inner quadrant, 13.3% were in the lower inner quadrant and 6.7% were in the lower outer quadrant (Table 11). Most of the masses were found in the upper outer quadrant. P. value is statistically insignificant.

Table (12): Operative time of the studied patients

Group	Range	Mean value	± S.D
Group A	50 – 90 min	65 min	± 2.3
Group B	60 – 100 min	70 min	± 4.1

The mean operative time in group A was 65 min while in group B was 70 min the two groups were matched in relation to the time (Table 12).

Table (13): Postoperative hospital stay among the studied patients

Group	Range	Mean value	± S.D
Group A	4 – 7 days	3.8	± 0.9
Group B	6 – 9 days	4.2	± 1.1

As regard postoperative stay there is no statistically significant difference between two groups (Table 13).

Table (14): Tumor histology among the studied patients

Histology	Group A		Group B		P value
	No	%	No	%	
Infiltrating duct carcinoma	27	90	26	86.6	0.31
Medullary carcinoma	2	6.7	3	10	
Infiltrating lobular carcinoma	1	3.3	1	3.3	
Total	30	100	30	100	

As regard tumor histopathology 90% of group A were Infiltrating duct carcinoma, 6.7% were Medullary carcinoma 3.3% were Infiltrating lobular carcinoma, while in group B 86.6% were Infiltrating duct carcinoma, 10% were Medullary carcinoma, 3.3% were Infiltrating lobular carcinoma (Table 14).

Table (15): Lymph node state among the studied patients

Pathological nodal status	Group A		Group B		Total (n = 60)	P value
	No	%	No	%		
Node negative	8	26.6	7	23.3	15 (25)	
Node positive						
1-3 nodes	5	16.6	8	26.6	13 (21.6)	0.73
4-9 nodes	12	40	9	30	21 (35)	
> 10 nodes	5	16.6	6	20	11 (18.3)	

15 (25%) patients had negative nodes and 45 (75%) had positive nodes. Of the pectorals minor spared group, 26.6% had negative axillary nodes compared with 23.3% of those who had the muscle excised, of the axillary node positive patients 16.6% of group A had 1-3 positive nodes comparing to 26.6% of group B, 40% of group A had 4-9 positive nodes comparing to 30% of group B, 16.6% of group A had more than > 10 nodes comparing to 20% of group B, p value is statistically insignificant (Table 15).

Table (16): Total number of nodes removed according to level of dissection

Level	Group A		Group B		P value
	Mean	Range	Mean	Range	
Level I	10.7 ± 3.1	3-15	13.1 ± 6.2	5-30	0.09
Level II	5.2 ± 4.4	3-18	6.2 ± 2.5	4-13	0.07
Level III	2.7 ± 2.4	0-9	3.4 ± 2.2	0-12	0.18
Total	16.5 ± 3.1	7-32	17.5 ± 3.4	7-34	0.35

The mean total number of nodes removed in the group A were 16.5 ± 3.1 (range 7 – 32), while in group B were 17.5 ± 3.4 (range 7 – 34), P value is statistically insignificant, on analyzing the number of dissected lymph nodes in relation to the anatomical level, at level I the mean number of positive nodes were 10.7 ± 3.1 in group A, while in group B were 13.1 ± 6.2, at level II the mean number of the positive nodes were 5.2 ± 4.4 in group A, while in group B were 6.2 ± 2.5, at level III the mean number of positive nodes in group A were 2.7 ± 2.4, while in group B were 3.4 ± 2.2, P values are statistically insignificant (Table 16).

Table (17): Number of patients with node metastasis according to level of dissection

Number of patients with positive nodes	Level I		Level I + II		Level I + II + III		Skip distribution	Total
Group A	15	68.2	3	13.6	2	9.1	2 (9.1)	22 (100)
Group B	13	56.5	5	21.8	3	13	2 (8.7)	23 (100)
Total	28	62.2	8	17.8	5	11.1	4 (8.9)	45 (100)
P value		0.06		0.45		0.64	0.60	0.76

(Table 16) shows 68.2% of grouup A had positive nodes metatasis at level I comparing to 56.5% of group B, 13.6% of group A had positive nodes metastasis at level I & II comparing to 21.8% of group B, while 9.1 of group A had positive nodes metastasis at level I, II, III comparing to 13% of group B, the total number of cases with skip distribution was 4 cases (8.9%): 2 (9.1%) for the first group and 2 (8.7%) for the second group (Table 17).

Table (18): Estrogen and progesterone receptors status among the studied patients

Est & Prog. Receptors	Group A		Group B	
	No	%	No	%
+ ve	25	83.4	26	86.8
- ve	5	16.6	4	13.3
Total	30	100	30	100

In group A 83.4% were hormonal receptors positive, while 86.8% of group B were positive, 16.6% of group A were hormonal receptors negative comapring to 13.3% of group B (Table 18).

Table (19): Immediate postoperative Complications (within one month) among the studied patients

Complications	Group A		Group B		Total (n= 60)	P value
	No	%	No	%		
Fever up to 38.5 °C	6	20	5	16.6	11	18.3
Pain	7	23.3	9	30	16	27.6
Haemorrhage/haematoma	0	0	1	3.3	1 (1.6)	0.31
Wound infection	2	6.6	3	10	5 (8.3)	0.60
Wound edge necrosis	1	3.3	0	0	1 (1.6)	0.31
Wound dehiscence	1	3.3	0	0	1 (1.6)	0.31
Seroma after drain removal requiring aspiration	7	23.3	10	33.3	17 (28.3)	0.77

With respect to immediate postoperative complications, the incidence of fever in group A was 20%, while in group B was 16.6%, pain was found in 23.3% of group A and in 30% of group B. The rate of wound infection was 6.6% in group A and 10% of group B

Seroma formation was recorded in 23.3% patients in which the muscle was spared, and in 33.3% patients in whom the muscle was removed. Postoperative haemorhage and axilalry haematoma formation, was 3.3% in group B only, p values are statsitcally insignificant (Table 19).

Table (20): Early postoperative complications (1- 6 months) among the studied patients

Complications	Group A		Group B		Total (n = 60)	P value
	No	%	No			
Lymphoedema	1	3.3	2	6.6	3 (5)	0.16
Shoulder dysfunction	7	23.3	11	36.6	18 (30)	0.26
Pain	2	6.6	3	10	5 (8.3)	0.64
Winged scapula	0	0	0	0	0	0
Intercostobrachial syndrome	8	26.6	10	33.3	18 (30)	0.57

The early postoperative complications occurred at one to six months failed to demonstrate any difference between the two groups of patients apart from a slight increase in lymphoedema frequency and shoulder dysfunction in patients in whom the pectoralis minor was removed (1vs 2 cases) and (7vs 11 cases), respectively. P values are statistically insignificant (Table 20).

Table (21): Late postoperative complications (> 6 months) among the studied patients

Complications	Group A		Group B		Total (n = 60)	P value
	No	%	No	%		
Lymphoedema	2	6.6	3	10	7 (11.7)	0.18
Shoulder dysfunction	2	6.6	4	13.3	6 (10)	0.13
Pain	5	16.6	6	20	11 (18.3)	0.74
Winged scapula	0	0	0	0	0	0
Intercosto brachial syndrome	17	56.6	19	63.3	36 (60)	0.57
Pectoralis major atrophy	2	6.6	18	60	20 (33.3)	0.0001
Axillary node recurrence	1	3.3	1	3.3	2 (3.3)	0.64

The late postoperative complications revealed a sight difference in shoulder and arm movement restriction in favour of the first group (spared muscle) (6.6% cases) versus the second group (13.3%). Two patients in whom the pectoralis minor muslce spared had lymphoedema (6.6%) compraed with those in whom the muscle had been removed (10%), p value is statistically insignificant. No statistically significant differences in pain, winged scapula or intercostobrachial syndrome. In contrast a substantial differences was found between the two groups with regard to the partial atrophy of the pectoralis major muscle, atrophy occurred in (6.6%) of cases of the first group (spared muscle) and in (60%) of cases in whom the pectoralis minor was removed.

P. value is highly significant (Table 21).

The follow-up of 60 patients had shown axillary node recurrence in 2 patients (3.3%) for the whole series equally distributed between both groups.

nodes are those in level I (ie., those lymph nodes lateral to the pectoralis minor). It is much less common for level II lymph nodes (i.e., those lymph nodes underneath the pectoralis minor) to be involved without involvement of the level I lymph nodes. The risk of involvement of level III lymph nodes increases substantially when level I and/or II were involved ***(Senolsky et al., 1991)***.

In most cases metastases to the axillary lymph nodes occur sequentially. Level I nodes are usually involved first, followed by involvement of nodes at level II and then at level III. Some large series reports that the incidence of skip metastatases to level II or III from 4.3-9% ***(Veronesi et al., 1990)***.

In our study similar number of nodes removed at level I, II, and III in both groups. The total number of cases with positive nodes having regular pattern of distribution through the three levels was 41 (91.1%). However, the total number of cases with skip distribution was 4 cases (8.9%) in agreement with other studies ***(Veronesi et al., 1990)***.

With respect to immediate postoperative complications, there were no differences in the usual postsurgical course between the two groups of patients. Postoperative haemorrhage and axillary haematoma formation occurred in less than 1% of patients, although subcutaneous bruising is common. But necrosis or diathermy burns to the wound edges should not occur ***(Tompson, 2002)***. In our study postoperative haematoma and wound edge necrosis was 1.6%.

The rate of wound infection in axillary surgery has been reported at approximately 5% to 10% ***(Somers et al., 1992)***. Wound infection is more common in certain groups of patients: the elderly and immuno-compromised; those who undergo repleated aspiration of seroma or prolonged wound drainage. In our study incidence of wound infection was 8.3% for all patients: 6.6% in group A, and 10% in group B.

Seromas are common following most types of axillary clearance but are reported to be less with axillary sampling. Seromas occur in 17 to 53% of breast surgery wounds ***(Knight, 1995)***.

The suction drain was removed on about the tenth postoperative day (range, 6-14 days) if less than 30ml per 24 hours has accumulated. Subsequent accumulation of serous fluid was aspirated using a needle and syring under aseptic conditions if required and a firm bandage was applied on the wound.

The incidence of seroma in our study was 28.3% (33% in the muscle removed group and 23.3% in the muscle spared group). While in a study done by ***(Woodworth et al., 2000)*** out of 214 cases 12 (5.6%) had a seroma.

Arm lymphoedema is a fairly common and often very troublesome complication following axillary treatment. It can occur any time following axillary dissection, and the incidence increases with time. Various studies have reported the incidence of lymphoedema to run between 10-40% ***(Ganz, 1999)***. In patients undergoing axillary samples procedure the incidence was 0 – 2.8% ***(Kissin et al., 1996).*** In patients treated by partial axillary dissection (level I, II), the incidence was 2.7 – 7.4% and 3.1 – 8%

in patient whom complete axillary dissection (level I, II, III) was performed ***(Senolesky et al., 1991)***. In our study patients with the spared muscle group (2/30, 6.6%) had lymphoedema, compared with the removed muscle group (3/30, 10%).

Shoulder and arm movement restriction is relatively common (approximately 10%to 20%). These complications may be minimized by close attention to the extent of the axillary dissection and in particular following the lower border of the axillary vein and not dissecting lymphatic tissue superior to this ***(Haldouk et al., 1992)***. In addition, early mobilization and exercise is important for retaining normal mobility postoperatively. Shoulder and arm movement restriction revealed a slight difference in favor of the spared muscle group (6.6%) versus the removed muscle group (20%). However, the difference was not statistically significant (P = 0.13).

The intercosto-brachial nerve syndrome is characterized by paraesthesia of the inner aspect of the upper arm, shoulder, axilla and antero-lateral chest wall. Various studies have looked at this common problem and estimated that some numbness may be demonstrated in almost 80% of patients undergoing surgery ***(Abdualah et al., 1998)***. The frequency of numbness or paraesthesia in our series was 60% (36 cases): 17 in the muscle spared group and 19 in the muscle removed group, (P = 0.57). The frequency of more significant or disabling pain was in the range of 5% to 10% (28, 25) ***(Abdualah et al., 1998)***. In this series 18.3% (11 cases): 5 in the muscle spared group and 6 in the muscle removed group complained of persistent pain as well.

The medial pectoral nerve is at risk when dissecting around pectoralis minor muscle. This is particularly so if this muscle is divided, but the nerve may also be damaged during dissection where it swings along the lateral border of the pectoralis minor muscle. In up to one-third of patients, it lies lateral to the muscle and is at significant risk. Damage to the nerve results in wasting of the lower fibres of pectoralis major. This will result in the loss of the anterior axillary fold, and less desirable cosmetic result. The lesion of the lateral pectoral nerve is equally obvious, as it causes fibrosis, atrophy, shortening of the pectoralis major muscle, and limitations of the shoulder movements. Pectoralis major atrophy occurred in (2/30, 6.6%) in the pectoralis minor spared group, and in (18/30, 60%) in the pectoralis minor removed group, the difference was highly statistically significant (P = 0.0001).

Merson et al., (1992) have shown in a study of 100 patinets submitted to axillary dissection for breast cancer that pateints treated with conservation of the pectoralis minor muscle showed this atrophy in 6% of cases vs 54% observed in the muscle spared group.

In our study two patients (3.3%) developed axillary recurrence, one in the muscle spared group at 24 months, and the other in the muscle removed group at 28 months. Both cases were aged less than 50 years, with T3 tumor size and more than 10 grossly and pathologically positive nodes. The overall risk of axillary recurrence in both groups was higher than series ranging from 0-3% ***(Fredrikson et al., 2002).***