Histologic Profiles of Reduction Mammaplasty Specimens among Jordanian Females

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Abstract

Objective: Reduction mammaplasty is a common surgical procedure that yields a variable amount of tissue for pathologic examination. The purpose of this study was to evaluate the histological diagnoses of the reduction mammaplasty specimens and to determine the incidence of breast lesions in otherwise asymptomatic and healthy Jordanian females.

Methods: All reduction mammaplasty specimens of 73 patients over a 10-year period (September 1999–September 2009) at Jordan University Hospital were retrospectively examined. The average number of blocks submitted per breast was 4 (range 3-5). Variables such as age and preoperative mammograms were examined.

Results: A total of 143 specimens were evaluated. Normal mammary tissue was present in 36 patients (49%). The most common benign lesion was fibrocystic disease (21%). Precancerous breast lesions were identified in 7 patients (9.6%). No case of carcinoma in situ or invasive carcinoma was encountered in our study. Most of the histopathological lesions were found in patients younger than 35 years of age. Preoperative mammograms were done for 26 patients and all were normal.

Conclusions: This study demonstrates the importance of systemic analysis of breast reduction specimens to help identify and guide the management of patients with increased risk of breast cancer following reduction mammaplasty. Consequently, thorough sampling and handling of breast reduction specimens should be emphasized.

Keywords: Reduction mammaplasty, histological profile, breast lesions.

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Introduction

Reduction mammaplasty is one of the most frequent procedures performed by plastic surgeons all around the world. Patients of different ages undergo this kind of surgery, ranging from adolescents to postmenopausal women.

Three main indications for breast reduction are congenital breast asymmetry, macromastia, and symmetry after an operation for breast cancer.

Macromastia is a benign condition with unclear etiology though it may be related to hormonal, genetic, and developmental factors. It results in back and shoulder pain, kyphosis, excoriation

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from bra straps, and chronic intertrigo in breast skin folds. Severe breast hypertrophy can limit exercise and daily activities. Reduction mammaplasty has proven to be safe and relieves symptoms, with overall excellent patient satisfaction.

In addition to the reduction of breast size, reduction mammaplasty offers the chance to examine all the resected breast tissue histologically, which may allow detection of premalignant and malignant lesions in otherwise asymptomatic and healthy patients.

Several papers suggesting a link between breast pathology and reduction mammaplasty have been published in recent decades.[1-19,24-28] Population-based studies, including surveys of plastic surgeons and analyses of cancer registry data indicate that the incidence of occult invasive breast carcinoma found during breast- reduction is between 0.06 and 2% according to different authors.[1-19, 24-28]

In Jordan, breast carcinoma is the main cause of death from cancer in women. In 2007, for example, breast cancer accounted for 35.8% of all new cases of cancer among Jordanian females and 24.4% of deaths in women caused by cancer in our country.[20] Because of this, it would not be uncommon for the plastic surgeons to find a breast tumor during preoperative investigation, during surgery, or in the post operative period when the histopathological report is received. To our knowledge, there is no study in Jordan addressing pathological evaluation of reduction mammaplasty specimens, hence we conducted a retrospective review of 73 patients who underwent inferior-pedicle technique reduction mammaplasty at Jordan University Hospital over a 10-year period, to determine the incidence of the pathological diagnoses of the resulting specimens and compare them with other studies in the literature. This will lead us to better evaluation, counseling, and management of our patients.

Patients and Methods

This retrospective study included 73 patients who had undergone reduction mammaplasty at the Department of Plastic and Reconstructive Surgery in Jordan University Hospital between September 1999 and September 2009.

One hundred forty three specimens from 73 breasts reductions constituted the basis of this study. The charts of the patients were evaluated for the following: age of the patient, previous breast disease, biopsy, family history, breast cancer risk factors, breast examination, preoperative mammography or ultrasound scanning, weight of the breast specimen, and pathologic findings.

The ages of the patients were divided into four categories: less than 25 years, 26-35 years, 36-45 years, and 46-55 years. All surgical procedures were performed by a single plastic surgeon, using the Wise-pattern inferior-pedicle technique. All resected tissue was forwarded to the pathology laboratory for sectioning and gross examination, including weight and size measurements.

The breasts were placed whole in quite large volumes of 10% buffered formalin for fixation for 24 hrs. Following fixation, each breast was serially sectioned in a sagittal plane at 0.5 mm intervals; it was then closely examined by the pathologist and evaluated slice by slice for any suspicious areas perceived either visually or by touch. If no discrete lesions were identified by gross examination, three to five random samples of representative tissue were taken from each breast, but the number of samples increased to six to ten when abnormal tissues were detected during macroscopical evaluation. The tissue selected for histological evaluation was routinely processed for embedding in paraffin blocks; afterwards each paraffin block was cut into 8 micrometer sections, stained with hematoxylin-eosin, and evaluated under a light microscopy.

Breast tissue samples were categorized based on consensus statement outlines by the Cancer Committee of the College of American Pathologists in 1988, incorporating the 1998 consensus statement update (table 1).[21]

Table (1): Relative risks for invasive breast carcinoma.

1. ***Normal breast***
2. ***No increased risk / non-proliferative lesions***
   Duct ectasia
   Fibroadenoma without complex features
   Fibrosis
   Mastitis
   Ordinary cysts
   Simple apocrine metaplasia
   Squamous metaplasia
   Slightly increased risk / proliferative lesions (1.5-2.0 times)
   Fibroadenoma with complex features
   Moderate or florid hyperplasia
   Sclerosing adenosis
   Solitary papilloma without coexisting atypical hyperplasia
3. ***Moderately increased risk (4.0-5.0 times)***
   Atypical ductal hyperplasia
   Atypical lobular hyperplasia
4. ***Markedly increased risk (8.0-10.0 times)***
   Ductal carcinoma in situ
   Lobular carcinoma in situ

Breast tissue was categorized as (1) normal breast, (2) no increased risk (non-proliferative), (3) slightly increased risk (proliferative), (4) moderately increased risk (atypical lobular or ductal hyperplasia, or (5) markedly increased risk (lobular or ductal carcinoma in situ). If the breast tissue demonstrated various lesions, the patient's risk category was placed in the highest risk category for the lesions identified. According to the American Cancer Society guidelines for the early detection of breast cancer (table 2), [22, 23] all patients 40 years of age or older and two patients with a history of breast cancer had a mammography within 1 year preceding surgery.

Statistical analysis was performed using the statistical package for the social sciences (SPSS), version 16.0 (SPSS Inc., Chicago, IL, USA). Descriptive statistics (frequencies and percentages) were used to describe the histologic evaluation of breast tissue specimens.

Inferential statistics were used to examine differences between patients' pathologic findings where ANOVA, t- test, and nonparametric statistics were used when appropriate. All statistical procedures were performed using $\alpha = 0.05$, 2-tailed.

Table (2): American Cancer Society Breast Cancer Screening Guidelines. *

Risk Group	***Guidelines***
Women at average risk	*1. Begin mammography at age 40.* *2. Clinical breast examinations should be part of periodic health examinations, at least every 3 years for women in their 20s and 30s, and yearly for women over 40.* *3. Beginning in their 20s, women should be given instructions and information on the benefits and limitation of breast self-examination.*
Older women:	*Should be individualized, considering benefits and risks of mammography in context of current health status and estimated life expectancy.* *These women may benefit from additional screening strategies such as earlier initiation, shorter intervals, or additional modalities such as magnetic resonance imaging. Annual magnetic resonance imaging screening is recommended for:*
Women at increased risk:	∗ *BRCA mutation carriers.* ∗ *First - degree relative of BRCA carrier but untested.* ∗ *Lifetime risk 20-25% or greater.* ∗ *Radiation to chest between age 10 and 30 years old.* ∗ *Li-Fraumeni syndrome and first – degree relatives.* ∗ *Cowden and Bannayan- Riley- Ruvalcaba syndromes and first- degree relatives.* *Women who have a moderately increased (15-20%) lifetime risk should speak with their physician about benefits and limitations of magnetic resonance imaging screening.*

Results

The ages of the patients ranged between 16 and 53 years, with an average of 35 years. Of the 73 patients identified, 70 patients had undergone bilateral reduction mammaplasty, and three patients had undergone unilateral reduction mammaplasty; two patients (ages 36 and 42 years) had a history of modified radical mastectomy because of breast cancer. None of the patients had complaints apart from macromastia and related symptoms, and none of them had risk factors for breast cancer, except two patients with a history of breast carcinoma. The mean breast tissue weight was 1,954 gm (right breast, 1,002 gm; left breast, 956 gm). The mammogram was done to 26 patients above the age of 40 years and two patients with a history of breast cancer. All mammograms were reported as normal in spite of the fact that 20 patients (77%) had pathological findings in their mammary tissue. The microscopic evaluation revealed normal breast tissue in 49% of the patients (n = 36) (figure1). Non-proliferate lesions were identified in 41% of patients (n = 30) (table 3). These lesions in declining order of frequency are fibrocystic changes (21%), fibrosis (6.8%), duct ectasia (6.8%), fibro-adenoma (2.7%), adenosis (2.7%), and apocrine metaplasia (1.4%). Proliferative lesions were noted in 5.4% of the patients (n = 4). These lesions were solitary papilloma in one patient (1.4%) and florid epithelial hyperplasia in three patients (4%). Atypical ductal hyperplasia was represented in 4% of the patients (n = 3). None of our patients had atypical lobular hyperplasia or carcinoma in situ. One patient with a history of breast cancer had normal histology, and the other patient had fibrocystic changes. Incidences of normal, non-proliferative and proliferative breast lesions by age group are outlined in table (4).

Age was a significant factor at the time of breast reduction (figure 2). Younger women (younger than 35 years) were more likely to have normal breast tissue (P = 0.02). Proliferative breast tissue changes were more common in patients older than 35 years. Of those patients who had non-proliferative breast changes (n = 30), 16 patients (53.3%) patients were 36-45 years old.

Suspicious firm fibrous lesions were identified intra operatively in two cases. Frozen sections confirmed these lesions to be benign fibrocystic changes. No specimen radiology was done. All patients with atypical ductal hyperplasia were referred to a breast surgeon.

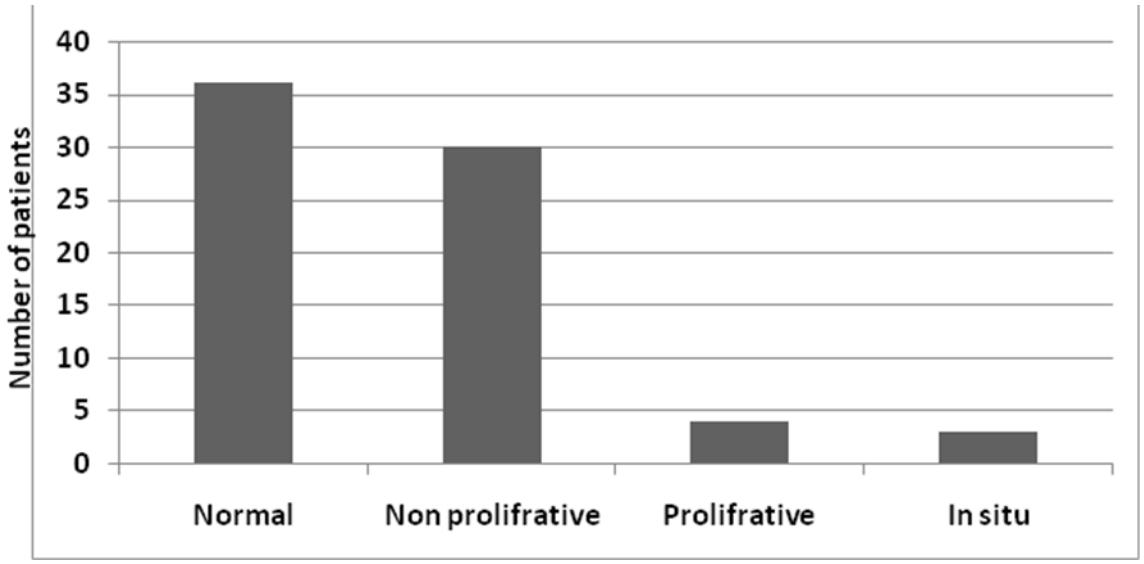

Figure (1): Distribution of histopathologic findings of the sample by relative risk category, n = 73

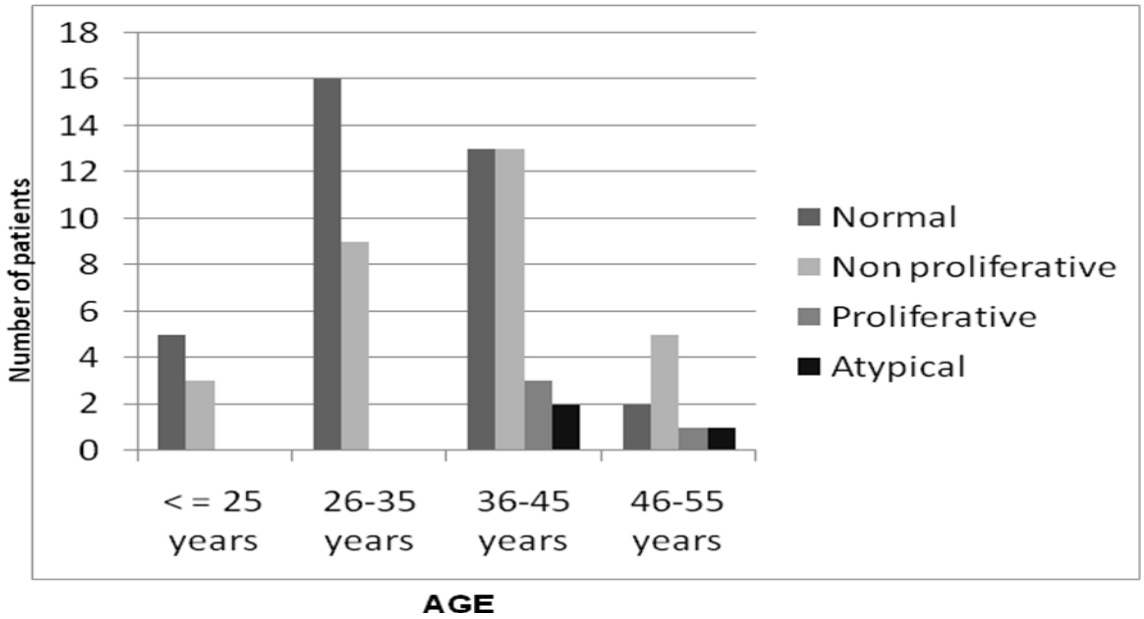

Figure (2): Distribution of breast histopathologic cancerous risk categories according to age groups.

Table (3): Distribution of histopathological findings among the sample by type and category. n = 73

Histopathologic category	***Histologic findings***	***Frequency (%)***
Normal Breast		*36 (49%)*
Non-Proliferative		*34 (47%)*
	Duct ectasia	*5 (6.8%)*
	Fibroadenoma without complex features	*2 (2.7%)*
	Fibrocystic changes	*15 (21%)*
	Adenosis	*2 (2.7%)*
	Fibrosis	*5 (6.8%)*
	Apocrine metaplasia	*1 (1.4%)*
Proliferative		*4 (5.4%)*
	Solitary papilloma	*1 (1.4%)*
	Florid hyperplasia	*3 (4%)*
Atypical	*Lobular hyperplasia*	*0 (0%)*
	Ductal hyperplasia	*3 (4%)*
In situ	*Lobular carcinoma in situ*	*0 (0%)*
	Ductal carcinoma in situ	*0 (0%)*

Table (4): Distribution of histopathologic findings according to age group. n = 73

Histopathologic findings	***≤ 25 years (n=7)***	***26-35 years (n=28)***	***36-45 years (n=33)***	***46-55 years (n=5)***	***All Ages (n=73)***
Normal Breast	*5*	*16*	*13*	*2*	*36*
Non-Proliferative					
Duct ectasia	*1*	*3*	*1*	*0*	*5*
Fibroadenoma without complex features	*0*	*2*	*0*	*0*	*2*
Fibrocystic changes	*1*	*2*	*7*	*5*	*15*
Fibrosis	*1*	*1*	*3*	*0*	*5*
Apocrine metaplasia	*0*	*0*	*1*	*0*	*1*
Adenosis	*0*	*1*	*1*	*0*	*2*
Proliferative					
Solitary papilloma	*0*	*0*	*1*	*0*	*1*
Florid hyperplasia	*0*	*0*	*2*	*1*	*3*
Atypical					
Lobular hyperplasia	*0*	*0*	*0*	*0*	*0*
Ductal hyperplasia	*0*	*0*	*2*	*1*	*3*
In situ					
Lobular carcinoma	*0*	*0*	*0*	*0*	*0*
Ductal carcinoma	*0*	*0*	*0*	*0*	*0*

Discussion

Breast reduction specimens provide an ample tissue for histological evaluation. There is variance in the literature regarding the incidence of different breast lesions diagnosed following reduction mammaplasty.[1-19, 24-29] To the authors' knowledge; this is the first study in Jordan to evaluate the histopathological profile of reduction mammaplasty specimens among Jordanian females. We conducted a retrospective study over a 10-year period at Jordan University Hospital to analyze these pathological diagnoses and compare our results with other studies in the literature. Understanding the incidence of precancerous and cancerous breast lesions in breast reduction patients can help plastic surgeons in the preoperative evaluation and counseling of patients, and in the postoperative management of patients found to have an increased risk of breast cancer.

This study characterized the histological findings in breast tissue specimens based on the Cancer Committee of the College of American Pathologists consensus statement on benign breast lesions (table 1).[21] We demonstrated in our study that the majority of patients had normal mammary tissue (49%, n = 36). Fifty eight percent of those patients were 35 years of age or younger. A breast is understood as "normal" when the glandular and ductal elements and the connective tissues do not show morphological changes, with a perfect balance among the different tissues. Some studies support our findings. Bondeson et al. [29] reviewed 200 reduction mammaplasty specimens in which the majority of patients were 30 years of age and younger and found no significant pathologic findings. Similarly, Clark et al. [24] showed that 41.8% of the patients (235 of 562 patients) had normal breast tissue. Furthermore, Ayhan et al. [15] showed in their study on 149 patients who had undergone reduction mammaplasty that 45.0% of the patients had normal breasts.

On the contrary, other studies demonstrated that only a minority of patients had normal mammary tissue. In 1963, Pitanguy and Torres [8] recognized that only 11 of 167 patients (6.6%) who had undergone reduction mammaplasty had normal mammary tissue. In an update of this study in 2005,[19] the authors studied 2,488 patients and demonstrated that only 3.7% of breast reduction patients had normal breast tissue. These contradicting results might be explained by biases in specimen processing and patient sampling and differences in histologic classification criteria. There is variability in the literature in the incidence of non-proliferative breast lesions (table 5). It ranges between 10.5% and 100%. In our study, 30 patients (41%) had non-proliferative breast lesions.

Again, this wide range in the incidences might be explained by biases in specimens and patients sampling and differences in histologic classification criteria. The most common non-proliferative lesion in our study was fibrocystic disease (21%, n = 15). According to the Cancer Committee of the College of American Pathologists, fibrocystic disease of the breast is an exaggerated physiological phenomenon rather than a disease.[30] It is a benign alteration of the breast tissues (e.g., fibrosis, adenosis, and cystic changes). Although it is impossible to know the precise incidence of fibrocystic changes in the breast, it has been estimated that more than one-third of women between 20 and 45 years of age have some clinical evidence of fibrocystic changes on routine physical examination.[15]

In a postmortem study, histologic evidence of fibrocystic changes was found in 54% of clinically normal breasts.[31] Both Pitanguy et al. [19] and Ayhan et al. [15] reported higher incidences of fibrocystic changes compared to our study (36.8% and 46.8%, respectively).

Duct ectasia is a benign condition with the histological changes of major duct dilatation, associated with periductal fibrosis and chronic inflammatory infiltration. The incidence in postmortem studies in women of all ages is 25%.[31] In our study, the incidence of duct ectasia was 6.8% (n = 5). Browing et al. [32] found that in their study on 1,256 female patients who had undergone breast surgery the incidence of duct ectasia was 8.1%, which is close to our figure. In contrast, Viana et al. [25] demonstrated an incidence of 1.7%.

Fibroadenoma is a benign tumor, which predominantly occurs in young women, especially between 20-25 years of age. This tumor is histopathologically characterized by two components: a proliferative stroma of connective fibrosis and one epithelial element (ductal and acini) so that the connective component predominates. The incidence of fibroadenoma is reported to be in 9-25% of normal breasts evaluated microscopically in a post mortem study.[30] In our study, the incidence of fibroadenoma was 2.7% (n = 2). There are some studies in the literature that support our finding. Pitanguy et al. [19] in their study on 2,488 patients who had undergone reduction mammaplasty found an incidence of fibroadenoma of 2.2% (n = 57). Similarly, Ayhan et al. [15] in their study on 149 patients revealed an incidence of 3.1%. Similar incidence (3%) was revealed in Viana et al. [25] study on 274 patients who had undergone

reduction mammaplasty.

Adenosis may be defined as the expansion of the lobules with an increased number of ductules or acini within a lobule and considered a component of fibrocystic changes according to some authors.[30] The incidence of adenosis in the autopsy series is between 6.2 and 16.7%.[30] In our series, the incidence was 2.7% (n = 2), which is close to the Ayhan et al. [15] study. However, Viana et al. [25] reported a higher incidence (6.1%) than our study.

Fibrosis of the breast is a benign condition characterized by the proliferation of stroma, with obliteration of the mammary acini and ducts. The incidence of fibrosis in our study was 6.8% (n = 5). Viana et al. [25] in their study on 274 patients who had undergone reduction mammaplasty revealed an incidence of 1.5% (n = 4), which is lower than our study.

Apocrine metaplasia is a benign disease that affects women during their reproductive life in which the acinar cells look like apocrine sweat glands. It is believed to be secondary to an irregular response by breast tissue to hormonal stimuli. It is found in 60-90% of breasts at autopsy.[32] In our study, the incidence of apocrine metaplasia was 1.4% (n = 1). This is close to the Ayhan et al. [15] study in which the incidence was 0.88%. On the other hand, Viana et al. [25] reported a higher incidence in their series (5.2%).

Patients with proliferative lesions in our study constitute 5.4% (n = 4). There was one patient (1.4%) with a solitary papilloma, which is characterized histopathologically by the proliferation of intraductal epithelium that may show a variable degree of cellular atypia, and it is considered a lesion of low malignancy. The incidence of intraductal papilloma in the Ayhan et al. [15] series was 0.68% which is close to our result. Nevertheless, Viana et al. [25] reported a higher incidence of papilloma (4.1%) in their series. Florid epithelial hyperplasia was present in three patients (4%).

This entity increases the risk of the development of breast carcinoma by 1.5-2.0 times .Clark et al. [24] reported an incidence of 4.4% (25 of 562 patients), which is close to our study. However, both Viana et al. [25] and Ayham et al. [15] reported lower incidences compared to our study (2.7% and 1.33%, respectively). Atypical ductal hyperplasia increases the risk of breast cancer by 4-5 times that in the general population. It was represented in 4% (n=3) of our patients whose average age was 46 years. Interestingly, Clark et al.,[24]

Viana et al.,[25] and Ambaye et al. [13] reported lower incidences than our study (0.2%, 0.02%, 0, and 0.6%, respectively). In our study, we did not encounter any case of a typical lobular hyperplasia the same as the Viana et al. [25] study. Pitanguy et al. [19] and Ambaya et al. [13] reported small percentages as well, (0.04% and 0.07%, respectively).

Our study revealed no cases of ductal carcinoma in situ (DCIS), lobular carcinoma in situ (LCIS), or invasive carcinoma. This could probably be explained by the relatively small number of our patients and the low incidence of these lesions in published studies in the literature. The incidences of DCIS, LCIS, and invasive carcinoma in breast reduction specimens reported in the literature is demonstrated in table 5.

The differences in the incidences of breast lesions noticed in the studies of the literature might be explained by biases in the patients' population, the sampling of specimens, and the histologic classification criteria. The role of preoperative mammography in non-oncologic breast surgery is controversial.[34,35] Few would dispute mammograms for patients over the age of 40 years, in accordance to the general guidelines of American Cancer Society. In 1990, Perras [34] reviewed 1,149 mammograms in patients over the age of 35 or with a positive family history who underwent cosmetic surgery of the breast. Cancer was detected primarily by mammogram in 34 patients; therefore, his department has implemented a policy of mandatory preoperative mammograms before these procedures.

Interestingly, Ambaye et al. [13] found that the majority of patients over the age of 40 (22 of 25 patients) with significant pathologic findings who underwent screening mammograms within the year before reduction mammaplasty, had none of the pathologic findings detected on preoperative mammograms. Similarly, all the 26 patients in our study had normal preoperative mammography in spite of the fact that 20 patients (77%) had pathological changes.

Table (5): Studies regarding histopathologic findings in breast reduction specimens.

Reference Carcinoma	*No. of Patients*	*Normal Tissue (%)*	*Benign Breast Lesions (%)*	*DCIS/LCIS (%)*	*(%)*
Dotto et al., 2008	*516*	--	*119(23)*	*1(0.2)*	*1(0.2)*
Viana et al., 2005	*274*	--	*260(95)*	*2(0.6)*	*1(0.3)*
Kakagia et al., 2005	*314*	--	*133(43)*	*1(0.3)*	*2(0.6)*
Pitanguy et al., 2005	*2488*	*91(3.7)*	*2389(92)*	*2(0.08)*	*7(0.3)*
Colwell et al., 2004	*800*	--	--	*3(0.4)*	*3(0.4)*
Ishag et al., 2003	*560*	--	*447(69)*	*1(0.2)*	*3(0.5)*
Karabela- Bouropoulou et al., 1994	*55*	*0(0)*	*55(100)*	*0(0)*	*0(0)*
Cruz et al., 1989	*100*	--	*96(96)*	*0(0)*	*0(0)*
Bondeson et al., 1985	*200*	--	*21(10.5)*	*7(3.5)*	*0(0)*

DCIS ductal carcinoma in situ; LCIS, lobular carcinoma in situ

Conclusion

This retrospective study revealed that patients 35 years of age or younger were more likely to have normal mammary tissue. Proliferative and non-proliferative breast lesions were more common in older patients. Fibrocystic disease was the most common benign lesion of the breast. No in situ or invasive carcinoma was identified in our study.

Breast cancer is a major public health problem in Jordan, and as plastic surgeons, we have obligation to actively participate in the health and well being of our patients, and this involves understanding and applying good breast cancer screening practices. Further studies are needed regarding the efficacy of mammography as a screening tool before reduction mammaplasty.

The pathologist has the great challenge of attempting to find small clinically undetected pathology in a large mass of breast tissue and fat; hence, we think that more sampling will lead to an increase in the identification of occult significant pathologic findings. Nevertheless, lack of pathological investigations or hurried examination of any mammary tissue by pathologists may cause important lesions to be overlooked.

Although reduction mammaplasty is not a prophylactic measure in the prevention of breast cancer, there is no doubt that it is a unique opportunity to evaluate with great richness of detail, a patient's breast parenchyma which is especially valuable in women in higher risk groups.

References

1. Ackerman BL, Otis C, Stueber K. Lobular carcinoma in situ in a 15- year- old girl: A case report and review of the literature. Plast Reconstr Surg .1994; 94: 714.
2. Beer G, Kompatscher P, Hergan K. Diagnoses of breast tumors after breast reduction. Aesthetic Plast Surg. 1996; 20: 391.
3. Crikelair GF, Malton SD. Mammaplasty and occult breast malignancy: Case report. Plast Reconstr Surg. 1959; 23: 601.
4. Dinner MI, Artz JS. Carcinoma of the breast occurring in routine reduction mammaplasty. Plast Reconstr Surg. 1989; 83: 1042.
5. Gery PM, Batchelor AGG Breast reduction and breast cancer. Br J Plast Surg.1996; 49:601.
6. Gottlieb JR, McKinney P, Walkinshaw MD, Sperling RL. Occult breast carcinoma in patients undergoing reduction mammaplasty. Aesthetic Plast Surg. 1989; 13: 279.

7. Janson DA, Mark Murphy BA, Kind GM, et al. Breast cancer in reduction mammaplasty: Case reports and a survey of plastic surgeons. Plast Reconstr Surg. 1998; 101: 361.
8. Pitanguy I, Torres E. Histopathological aspects of mammary gland tissue in cases of plastic surgery of breast. Br J Plast Surg. 1964; 17: 297.
9. Springer H. Reduction mammaplasty with discovery of occult breast carcinoma in twins. Plast Reconstr Surg. 1978; 62:122.
10. Tang CL, Brown MH, Levine R, et al. Breast cancer found at the time of breast reduction. Plast Reconstr Surg.1999; 103: 1682.
11. Karabela-Bouropoulou V, Liapi-Avegeri G, Iliopoulo E, et al. Histological findings in breast tissue specimens from reduction mammaplasties. Pathol Res Pract. 1994; 190: 792-8.
12. Boice JD, Friis S, McLaughlin JK, et al. Cancer following breast reduction surgery in Denmark. Cancer Causes Control. 1997; 8: 253-258.
13. Ambaye AB, MacLennan SE, Goodwin AJ, et al. Carcinoma and atypical hyperplasia in reduction mammaplasty: Increased sampling leads to increased detection. A prospective study. Plast Reconstr Surg. 2009; 124(5): 1386-1392.
14. Selber JC, Nelson JA, Asthna AO, et al. Breast cancer screening prior to cosmetic breast surgery: ASPA members' adherence to American Cancer Society Guidelines. Plast Reconstr Surg. 2009; 124(5): 1375-1385.
15. Ayhan S, Basterzi Y, Yavuzer R, et al. Histologic profiles of breast reduction specimens. Aesth Plast Surg 2002; 26: 203-205.
16. Ishag MT, Baschinsky DY, Beliacva IV, et al. Pathologic findings in reduction mammaplasty specimens. Am J Clin Pathol. 2003; 120: 377-380.
17. Colewell AS, Kukreja J, Breuing K, et al. Occult breast carcinoma in reduction mammaplasty specimen. Plast Reconstr Surg. 2004; 113(7): 1984-1988.
18. Ozmen S, Yavuzer R, Latifoglu O, et al. Coincidental breast carcinoma detection in reduction mammaplasty specimens. Plast Reconstr Surg. 2000; 106: 1219.
19. Pitanguy I, Torres E, Salgado F, et al. Breast pathology and reduction mammaplasty. Plast Reconstr Surg. 2005; 115(3): 729-734.
20. Ministry of Health, Jordan Cancer Registry, 2007.
21. Fitzgibbons PL, Henson DE, Hutter RV. Benign breast changes and the risk for subsequent breast cancer. An update of the 1985 consensus statement Cancer Committee of the College of American Pathologists. Arch Pathol Lab Med 1995; 22: 1053-1055.
22. Smith RA, Cokkinides V, Eyre HJ. American Cancer Society guide lines for the early detection of cancer. CA Cancer J Clin.2003; 53: 27-43.
23. Leitch AM, Dodd GA, Costanza M, et al. American Cancer Society guidelines for the early detection of breast cancer. Update 1997. CA Cancer J Clin.1997; 47: 150-153.
24. Clark CJ, Whang S, Paige K. Incidence of precancerous lesions in breast reduction tissue: A pathological review of 562 consecutive patients. Plast Reconstr Surg. 2009; 124(4): 1033-1039.
25. Viana GAP, Pitanguy I, Torres E. Histopathological findings in surgical specimens obtained from reduction mammaplasties. Breast. 2005; 14: 242-248.
26. Snyderman RK, Lizardo JG. Statistical study of malignancies found before, during and after routine breast plastic operation Plast Reconstr Surg. 1960; 25: 253.
27. Dotto J, Kluk M, Geramizadeh B, et al. Frequency of clinically occult intraepithelial and invasive neoplasia in reduction mammaplasty specimens: A study of 516 cases. Int J Surg Pathol.2008; 16: 25-30.
28. Cruz NI, Guerrero A, Gonzlez CI. Current findings in the pathological evaluation of breast reduction specimens. Bol Asoc Med P R. 1989; 81: 387-389.
29. Bondeson L, Linell F, Ringberg A. Breast reductions: What to do with all the tissue specimens? Histopathology 1985 9: 281-285.
30. Tavassoli FA: Pathology of the breast, second edition. Mc Graw Hill/Appleton: Hong Kong. 1999; 116.
31. Sandison AT. An autopsy study of the adult human breast. Natl Cancer Inst Monogr. 1982; 8: 11-16.
32. Cortan RS, Kumar V, Robbins SL. Robbins pathologic basis of disease, fifth edition. Philadelphia, W.B.Saunders, 1994; 1093-4.
33. Winer EP, Morrow M, Osborne GK, Harris JR. Malignant tumors of the breast. In: De Vita Jr VT, Hellman S, Rosenberg SA, editors. Cancer: principles and practice of oncology, sixth ed, Philadelphia: Lippincott Williams & Wilkins; 2001; 1651.
34. Perras C. Fifteen years of mammography in cosmetic surgery of the breast. Aethetic Plast Surg. 1990; 14: 81.
35. Snodgrass K, Yu J, Doster E , et al. The value of preoperative mammograms in non-oncologic breast surgery. South Med J. 1997; 90: 402.

تقييم التشخيص النسيجي لعينات رأب الثدي التصغيري وتحديد نسبة حدوث اورام الثدي لدى النساء في الأردن

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الملخص

الهدف: رأب الثدي التصغيري هو اجراء شائع يعمل على ازالة كمية من الانسجة للتشريح المرضي. الهدف من هذه الدراسة هو تقييم التشخيص النسيجي لعينات رأب الثدي التصغيري وتحديد نسبة حدوث اورام الثدي لدى نساء الأردن الخاليات من الأمراض وبلا اعراض.

الطريقة: جميع عينات النسج رأب الثدي التصغيري طوال 10 سنوات ل 73 مريض (ايلول1999–ايلول 2009) في مستشفى الجامعة الأردنية درست بشكل راجع. وكان متوسط عدد الكتل في الثدي المقدمة 4(مجال 3–5)، تم فحص متغيرات مثل العمر وتصوير الثدي قبل الجراحة.

النتائج: تم تقييم 143 عينة نسيجية. نسيج ثدي طبيعي كان موجودا لدى 36 مريضة (49%). الأفة الحميدة الأكثر شيوعا كانت الداء الكيسي الليفي (21%). الآفات ما قبل السرطانية وجدت لدى 7 مريضات (9.6%). ولم نجد اي ورم سرطاني في الموقع او منتشر في هذه الدراسة. معظم الآفات النسيجية المرضة وجدت لدى المريضات الأصغر من 35سنة من العمر. تصوير الثدي قبل الجراحة اجري ل 26 مريضة وجميعها كانت طبيعية.

الاستنتاجات: هذه الدراسة تبين اهمية التحليل المنهجي لعينات رأب الثدي النسيجية للمساعدة في تحديد وتوجيه العلاج للمريضات اللواتي لديهن خطر متزايد للإصابة بسرطان الثدي بعد رأب الثدي التصغيري، بالتالي يجب التأكيد على أخذ عينات شامل والتعامل مع عينات رأب الثدي.

الكلمات الدالة: رأب الثدي التصغيري، اورام الثدي، كشف التحليل النسيجي.