Can Breast Conserving Surgery be Advocated for Iraqi Patients with Breast Cancer?

Ameer Salah Tawfeeq
College of Medicine/ University of Babylon

Abstract

Purpose: Prove the suitability for future implementation of breast conserving surgery for breast cancer in Iraq.

Patients and Methods: Triple assessment followed by excision biopsy & finally modified radical mastectomy had been performed for 75 patients with breast cancer between 1/11/2009 & 1/3/2012. Histopathology had been performed to the removed breasts and a full study had been performed for the size of the tumor, its pathological type, stage, grade, hormone receptors, resection margin and any residual cancer.

Results: All patients were females with ages between 26 & 75 (mean age 47 yrs). Mean age at menarche was 12.5 yrs. 14(18.5%) were nulliparous & 18(24%) were postmenopausal. Right & left breasts were equally affected. Distribution over the quadrants was: retroareolar 26 (34.7%), upper outer quadrant 17(22.7%), upper inner 14(18.7%), lower inner 10(13.3%), lower outer 8 (10.7). 67 (88%) were ductal & 8(12%) lobular. 15(20%) of the tumors were moderately-differentiated whereas the rest were moderately-differentiated. 56(75%) were estrogen receptor positive, 49(65%) progesterone receptor positive & 22/34 patients who had performed HER-2/neu receptors study were positive. Stages were: stage I 10(13.4%), stage II 39(52%), stage IIIa 20 (26.7%), stage IIIb 4(5.4%) & stage IV 2(2.6%).

Histopathology had been performed to the removed breasts and a full study had been performed for the size of the tumor, its pathological type, stage, grade, hormone receptors, resection margin and any residual cancer.

Conclusion: According to the results of the study, all the features of the patients encourage us to move forward and start performing breast conserving surgery for the suitable patients.
Introduction:
Breast cancer is the commonest female malignancy in the developing Asian countries (Agawaral et al., 2007).

The previous surgery was the aggressive radical mastectomy which had been replaced by modified radical mastectomy and simple mastectomy (Richard, 2004) and during the 1970s Fisher in New York and Veronesi in Milano revolutionized the surgical treatment of breast cancer with the shift from the standard modified radical mastectomy toward breast conserving surgery (BCS) (Fisher et al., 1989).

BCS combined with postoperative radiotherapy has been shown to be as effective as mastectomy with no significant difference in disease free and overall survival (Veronesi et al., 2002).

It had been shown that although the local recurrence rate was higher for patients who had BCS, the overall survival of the patients who experienced local recurrence did not differ significantly from the group of patients who never developed local recurrence (87% Vs 70% after 8 years) (Mechera and Orteli, 2009).

Lobular carcinoma, high grade tumors, multifocality, absence of estrogen and progesterone receptors, concomitant DCIS or LCIS were significant predictors of local recurrence (Mechera and Orteli, 2009).

In order to reduce the trauma created by conventional axillary LN dissection, it has been replaced with sentinel lymph node biopsy for clinically node negative breast cancer which affords improved staging and minimal morbidity (Guiliano et al., 1997).

As there is a trend toward minimally invasive surgery, radiofrequency ablation (RFA) is gaining acceptance as a treatment modality for several tumor types, but not yet for primary breast cancer, as there is yet insufficient evidence for its use as a standard therapy, in particular with regard to complete tumor death within the ablated whole area (Ohtani et al., 2011).

Other new techniques include cryosurgery, LASER and magnetic resonance guided high intensity focused ultrasound (Ohtani et al., 2011).

Has the time come in Iraq to take a courageous step to implement BCS surgery to suitably-selected patients and stop over doing mastectomy as a routine surgery to every patient who has breast cancer? As it has been shown that of the available surgical techniques mastectomy is associated with the highest psychosocial morbidity, and BCS with the least. If BCS is not an option, breast reconstruction may help restore patients body image, psychology, well-being and expectation after mastectomy (Krekel et al., 2011).

Patients & Methods:
In the presented prospective study, triple assessment followed by excision biopsy & finally modified radical mastectomy had been performed for 75 patients with breast cancer by two specialized surgeons between 1/11/2009 & 1/3/2012. Histopathology had been performed to the excised masses and breasts and a full study had been performed for the size of the tumor, its pathological type, stage, grade, hormone receptors, resection margin and any residual cancer.

Results:
All patients were females with ages between 26 and 75 years (mean age 47). Mean age at menarche was 12.5 years. 14(18.5%) were nulliparous and 18 (24%) were postmenopausal. Only 10 (13.4%) had family history of breast cancer and 15 (20%)
had past history of taking oral contraceptive pills. Mammography had been performed in 22 (29.4%) of the patients and was positive in 19 giving it a positive predictive value of 86.3%. Right and left breasts were equally affected. Distribution over the quadrants was as follows in table no.1:

<table>
<thead>
<tr>
<th>Quadrant</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Retroarcal</td>
<td>26 (34.7%)</td>
</tr>
<tr>
<td>Upper outer quadrant</td>
<td>17 (22.7%)</td>
</tr>
<tr>
<td>Upper inner quadrant</td>
<td>14 (18.7%)</td>
</tr>
<tr>
<td>Lower inner quadrant</td>
<td>10 (13.3%)</td>
</tr>
<tr>
<td>Lower outer quadrant</td>
<td>8 (10.7%)</td>
</tr>
<tr>
<td>Total</td>
<td>75 (100%)</td>
</tr>
</tbody>
</table>

Table no. 1
Distribution of breast cancer over the quadrants

67 (88%) were ductal and 8 (12%) were lobular on histopathology. Also 15 (20%) of the tumors were poorly differentiated and the rest were moderately-differentiated. The average clear margin of the excisional biopsy was 15mm.

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<table>
<thead>
<tr>
<th>Tumor size:</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5- 1.4 cm</td>
<td>30 (40%)</td>
</tr>
<tr>
<td>1.5- 3 cm</td>
<td>30 (40%)</td>
</tr>
<tr>
<td>&gt; 3 cm</td>
<td>15 (20%)</td>
</tr>
<tr>
<td>Total</td>
<td>75 (100%)</td>
</tr>
</tbody>
</table>

Table no. 2
Size of tumors of breast cancer

56 (75%) were estrogen receptor positive, 49 (65%) progesterone receptor positive and 22/34 patients who had performed HER-2/neu receptors study were positive. Manchester staging was as follows:

<table>
<thead>
<tr>
<th>Stage</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>10 (13.4%)</td>
</tr>
<tr>
<td>II</td>
<td>39 (52%)</td>
</tr>
<tr>
<td>IIIa</td>
<td>20 (26.7%)</td>
</tr>
<tr>
<td>IIb</td>
<td>4 (5.4%)</td>
</tr>
<tr>
<td>IV</td>
<td>2 (2.6%)</td>
</tr>
<tr>
<td>Total</td>
<td>75 (100%)</td>
</tr>
</tbody>
</table>

Table no. 3
68(90.6%) of the breast specimens which had been examined histopathologically after the excisional biopsy had no residual cancer while 4 (5.3%) had invasive carcinoma and another 3 (4%) had carcinoma in situ.

**Discussion**

The aim of the study was to prove the suitability of our patients for implementing BCS.

We do, in Iraq, a lot of unnecessary second stage mastectomy following the initial wide local excision which we perform as an excisional biopsy. This wide local excision may be enough as a curative surgery in most of the cases. The 1st proof to this is the residual tumor left in the breast when histopathology had been performed to the remaining breast after the second stage mastectomy surgery. In our study, residual tumor had been found in only 10(13.3%) (5 had invasive carcinoma and the other 5 carcinoma in situ). This low number of residual tumor may be attributed to over excision as we did not bother ourselves with the cosmetic result and we were oriented to perform mastectomy to all the cases in which cancer had been proven on histopathology. It had been shown, in a study, that many surgeons tend to over excise volume of normal tissue in an effort to obtain adequate cancer-free margins and actually the median excision volume of all palpation-guided tumor excision was over two times too large (Krekel et al., 2011).

The second proof was the tumor free resection margin of the removed excisional biopsies. Positive resection margin leads to an increased rate of local recurrence (Gage et al., 1996). The average clear margin in our study was 15mm. This number is even more than what is needed as the practical guideline during surgery is to achieve a safe and cosmetically acceptable resection margin of 5-10mm (Krekel et al., 2011).

The golden rule is to adopt BCS but take care of resection margin. Three prospective trials comparing BCS with mastectomy (Fitzal et al., 2009) showed that local recurrence-free survival was significantly worse after BCS. However all three trials included patients with cancer cells at the resection margin. The other prospective trials did not find any significant difference in local recurrence-free survival between BCS and mastectomy and included patients with resection-free margins only (Fitzal et al., 2009). Actually in case of positive or close resection margins, systemic treatment may only delay local recurrence (Freedman et al, 1999) frozen section biopsy (FSB) is better to be available when the BCS is performed as the usual practice is to perform total resection of tumor with 1cm of normal tissue. Resection edges would be subjected to FSB and when the margin was positive wider excision would be performed (Potter et al, 2007). To obtain clear surgical margin re excision is also recommended by others (Anschel et al., 1993). In case of narrow or positive margins the effect of adjuvant radiotherapy may be considered insufficient to achieve local control and hence a re excision will be required (Talsma et al., 2011).

We reviewed the size of the excised masses to show whether their sizes were actually suitable for BCS and we had found that the average lump size in our study was 4 cm. This is good as lump size exceeding 8.5cm results in a significant cosmetic failure (Krekel et al., 2011).
The current focus is on improving the accuracy of breast conserving surgery (BCS), which includes a higher rate of margin clearance with smaller excision volume, thereby improving patient satisfaction and cosmetic outcome (Al-Ghazal et al, 1999). In our study, 30(40%) of the tumors were less than 1.5 cm in size. Tumors with an initial size > 2.5 cm were 15 times more likely to have completion mastectomy after BCS than tumors < 1.5 cm 20 (Odonell, et al., 2008).

Telomerase activity levels may be used for evaluating the surgical margins in BCS (Hara et al., 2001).

It had been found in a study that adopting BCS in properly selected patients improves the quality of life (QOL) for the patients. Females with BCS reported better physical and role functioning, were sexually more active and satisfied with their body image already at one year after diagnosis. Differences in overall QOL & social functioning were gradually increasing over time and became statistically-significant only at 5 years (Arndt et al., 2008).

Also females with BCS and females after mastectomy expressed similar levels of concerns regarding recurrence of breast cancer at the end of 5 years follow up (Arndt et al., 2008).

Immediate goal nowadays is to perform immediate breast reconstruction whenever is possible even in BCS cases (Cicero et al., 2011).

In 2008 performance indicator “percentage of patients in whom cancer tissue has been left behind after the 1st BCS” was introduced in the Netherlands (Potter et al., 2007). In the presented study in the vast majority of cases (65/75) no tumor had been left behind but this may be attributed to the orientation of the surgeon toward future mastectomy and so the cosmetic result had not been an issue during the 1st surgery.

As it is well known from the literature that radiotherapy is necessary to reduce the local recurrence in the remaining breast following BCS and it does not affect the overall survival and adjuvant radiotherapy is a standard procedure for all patients after BCS (Fitzal et al., 2009).

Two etiological types of local recurrence exist:
1. True local recurrence from cancer cells that have not been completely removed during surgery.
2. New primary tumors are defined as new cancers arising from the residual ipsilateral breast parenchyma (Mechera and Orteli, 2009).

It had been shown in a study comparing the results in patients given or not given radiotherapy after mastectomy and BCS. In the BCS group the actual rate of local recurrence was 10% with and 53% without radiotherapy at 15 years (Potter et al., 2007). In the mastectomy group, the actual rate of chest wall recurrence was 16% with and 13% without radiotherapy (Potter et al., 2007). Isolated local recurrence did not but isolated chest wall recurrence did adversely affect survival (Potter et al., 2007).
Radiotherapy should never be an obstacle in the way of starting BCS in our country attributing it to the lack of the facilities and experience. It had been found that radiotherapy might not be necessary in some patients. In fact, we are offering the same treatment to all patients regardless of the age which has been demonstrated to be a predominant risk factor for local recurrence (Kurtz et al., 1990). Elderly females were more likely to undergo BCS, less likely to receive adjuvant chemotherapy and radiotherapy than their younger counterparts (Chuan-Dong et al., 2009) and the preliminary evaluation suggests that breast radiotherapy after BCS can be avoided without exposing these patients to increased risk of distant disease recurrence (Tinterri et al., 2009). Stratified by age, it could be noticed that in patients over 55 years, the local relapse rate was markedly lower than in patients with younger age. Also patients older than 65 years showed a similar incidence of local recurrence independently of whether they receive radiotherapy or not. Consequently age represents an important risk factor for local relapse (Fisher et al., 1995).

It has been found that for positive margins, younger age was an independent risk factor for finding residual tumor upon re excision (Anscher et al., 1993). Others indicate that the increased risk of local recurrence is not associated with age but rather with menopausal status as chemoopherectomy compared with chemotherapy decreases risk of local recurrence by 50%. Circulating estrogen may be adversely related to local relapse in young patients supporting the menopause hypothesis (Jakesz and Hasmaninger, 2002).

In 1990, the National Institute of Health (NHI) released a consensus statement recommending the use of BCS with adjuvant radiotherapy instead of mastectomy for the treatment of early stage i.e. (I and II) breast cancer whenever possible (Cicero, 1990). In our study 49(65.4%) of the patients were stage I & II. The results of 2 large randomized controlled series have firmly established the principles of BCS being equally as safe and effective as mastectomy for the majority of patients with stage I and II disease (Mechera and Orteli, 2009).

In the presented study DCIS constituted only 5% of the patients. This is also good as a study showed that DCIS leads more often to incomplete resection than invasive tumors (Margriet et al., 2012).

MRI of the breast had not been performed in any patient in the presented study. Multiple studies have demonstrated that breast MRI detects foci of cancer not seen with other imaging modalities in 10% to nearly 30% of patients (Esserman et al., 1999). MRI improves the selection of patients for BCS & increases likelihood of obtaining negative margins at the 1st lumpectomy attempt (Bedrosian et al., 2003) and conversion from BCS to mastectomy as a result of MRI findings happened in 6.5%-25% and performance of wider excision in an additional 3% to 13.5% (Bedrosian et al., 2003). The current literature supporting the use of MRI is based on assumption that changes in management because of true positive MRI findings are beneficial to patients (Esserman et al., 1999).

Only 10(13.3%) had multifocal disease which is a relative contraindication to BCS (Anscher et al., 1993).

Also the grade of the tumor was advantageous in our study. A previous study found tumor grade to be a significant factor in the risk of finding residual cancer (Anscher et al., 1993).
56(75%) of patients were ER positive and 49(65%) were PR positive and these have good prognosis. It is well accepted that estrogen receptor and/or progesteron receptor positivity is associated with a more advantageous clinical outcome on BCS than those tumors with negative receptor status (Knight and Osborne, 1980).

The axilla should be managed by a separate incision and the lymph nodes sample taken can be made more accurate by advocating the sentinel lymph node biopsy technique and using the gamma camera (Richard, 2004).

**Conclusion:**

According to the results of the study, all the features of the patients encourage us to move forward and start performing breast conserving surgery for the suitable patients.

**References:**


Freedman G, Fowble B, Hanlon A, Nicolaou N, Fein D, Hoffman J et al (1999) Patients with early stage invasive breast cancer with close or positive margins treated with conservative surgery and irradiation have an increased risk of breast


