Cancer of the Breast - Recent Trends

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I. Recapitulation:

Although reported as rare in the East, we know that cancer of the breast is fairly common. It is estimated that one in seventeen of all female children born will develop the disease during their lifetime. The disease commences most frequently in the upper and outer quadrant of the breast. Genetic and endocrine factors have both been implicated. It is commonly found in women with a family history and more common in nulliparous women. It spreads not only by blood stream but also by means of local and lymphatic spread. Clinical types are as follows:

1. Scirrhous carcinoma -commonest form
2. Duct carcinoma - presents with blood stained discharge from nipple
3. Medullary carcinoma - earlier age groups affected, prognosis better
4. Inflammatory carcinoma - rare, usually during pregnancy / lactation
5. Paget's disease of the nipple.

Various attempts have been made to classify carcinoma of breast on the basis of its stage. Among them the Tumour, Node & Metastasis (TNM) classification & the Manchester classification systems are by far the most acceptable ones. The TNM classification will be discussed later on. The Manchester Classification is as follows:

Stage One - Growth confined to the breast. The tumor must not be adherent to the pectoral muscles or the chest wall.

Stage Two - Same as Stage One plus affected mobile lymph node, same side.

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Stage Three - Skin involvement larger than tumor but still limited to breast, fixed to pectoral muscles but not to chest wall. Homolateral axillary lymph nodes matted together or fixed to chest wall, or homolateral supraclavicular nodes mobile or fixed, or arm oedema.

Stage Four - Skin involvement wide of breast, complete fixation to chest wall, distant metastasis.

Prognosis in operable clinical stage one and two is as follows: (This is based on 10 years survival based on histological state of the axillary lymph node).

- Axillary lymph node free of tumor - 75%
- Involvement of 1-3 nodes - 50%
- More than 4 nodes involved - 25%

Prognosis in inoperable clinical stage three and four:

- Stage three 5%
- Stage four near zero.

Hormone receptor status is important; receptor positive being more favourable.

There seems to be no ideal treatment for cancer of the breast. The various modes, singly or in combination that are being tried are: Surgery (Halsted Mastectomy or its various modifications), Irradiation, Chemotherapy (in the form of CMF regimen, Adriamycin, Vincristine), and Endocrine therapy (Pituitary removal, Adrenal removal, Oophorectomy, Oestrogen administration, Antioestrogen administration).

Males are very rarely affected. Less than 1% of all breast cancer is male breast cancer. The predisposing factors are gynaecomastia and conditions producing estrogen excess.

II Recent Trends:

Hormonal Studies: The prognostic significance of estrogen receptor activity (ER) and progesterone receptor activity (PgR) in breast cancer were studied. In a series of operable cancers each of many factors was shown to have prognostic significance relating to both disease free interval and survival. These factors include tumor grade, ER status, PgR status, size, cellularity and histological type, node status and menstrual status. In summarizing, one study of 206 cases states that it has confirmed the prognostic significance of established factors such as T and N staging and ER status. No additional benefit was detected in measuring PgR activity. A very similar conclusion has been drawn by another study of PgR and ER of 332 women of stage I-II cancer which concludes that PgR status does not predict outcome in early breast cancer whereas both presence and concentration of ER were found to be associated with a longer disease-free interval amongst patients with stage II tumors.

Fine Needle Aspiration Cytology: The role of Fine Needle Aspiration Cytology (FNAC) has proved to be very fruitful. In a study of a total of 360 patients, FNAC helped to reduce the evasive rate in patients with benign disease. FNAC allows identification of all patients...
with breast cancer before surgery. Subsequent followup showed no patient who did not undergo excision biopsy to have a malignancy. Possible false positive results has been stated to be a reflection of the learning phase of the cytopathologist.

**Primary Malignant Lymphoma:** Primary malignant lymphoma of the breast is a rare condition with less than 300 reported cases. In a study of 15 patients, age ranging from 17-77, all patients presented with a breast mass and 9 had histologically proven axillary lymph node involvement. One had Hodgkin’s and the rest Non-Hodgkin’s.

**Self examination of the breast:** 50.2% of 49,573 women attended a breast self examination education programme aimed at detecting early cancer. A total of 319 breast cancer cases were detected. This lead to a better prognosis. Self examination programmes supplemented by mammography has proved to be very valuable.

**Post operative morbidity:** It is known that survival of patients with cancer breast has not been altered by the type of surgery performed. In a study of morbidity after breast cancer, it was seen that the lumpectomy group had as many problems as the mastectomy group. Morbidity includes frozen shoulder, damage to the intercostobrachial nerve, chest wall pain and arm lymphoedema.

**Only lymph nodes:** Lymph nodes have been reported to present as breast lumps. These lymph nodes belong anatomically to the external mammary group of lymph nodes. Normally these nodes are not palpable and account for less than 5% of the axillary drainage complement. Enlarged lymph nodes as breast lumps have been reported in association with psoriasis but in a study of 18 patients, only one had a skin condition.

**Does radical mastectomy still have a place in the treatment of primary operable breast cancer?** This question has been answered by Maddox et al (1987) who conducted a 10 year trial studying 311 patients. This study compared Halsted radical mastectomy (RM) with modified radical mastectomy (MRM). They claim that after a 10 year followup, there was no significant difference in the survival of the two groups (RM71% and MRM 64%). Local recurrence after RM was significantly lower than after MRM. These results indicated that overall survival is similar for either RM or MRM.

**Role of preoperative chemotherapy:** Preoperative chemotherapy has known to render the so called inoperable breast cancers (without distant metastasis) operable. In a study of 22 patients of inflammatory breast cancer, Burton et al (1987) proved all tumors resectable following initial chemotherapy with weekly administration of cyclophosphamide, doxorubicin hydrochloride, fluorouracil and vincristine sulphate for 6 weeks. Only two of these needed a booster with preop radiotherapy.

**Postop irradiation:** Is it necessary to irradiate the breast after conservative surgery for localized cancer? Yes - if not necessary, it is definitely better. This has been shown by Gisclin et al (1987) in a study of 201 patients with operable breast cancer who received post-op irradiation after limited surgery and were followed up for 5 years.
The breast cancer recurrence rate at 5 years was 14%, less than half the incidence reported for patients treated by limited surgery only. Breast irradiation after conservative resulted in decrease in local recurrence and reduced the need for salvage mastectomy.

Intraoperative implantation radiation therapy: Intraoperative implantation radiation therapy when combined with lumpectomy for carcinoma of the breast has been shown to be another therapeutic combination. In a study conducted by Jewett et al. (1987), patients were studied who were treated with immediate implantation of the tumor bed with iridium 192. His study showed that local treatment failure can be minimized by aggressive immediate intraoperative implantation of iridium 192.

TNM Classification: At last a worldwide agreement on the staging of cancer, including breast cancer, has been reached. The TNM classification which has now been internationally accepted is as follows:

**Tumor (T)**

- **T1a**: Tumor 0-0.5 cm or less
- **T1b**: Tumor 0.5-1 cm, not more than 1 cm
- **T1c**: Tumor 1-2 cm, not more than 2 cm
- **T2**: Tumor 2-5 cm and less than 5 cm
- **T3**: Tumor more than 5 cm
- **T4a**: Any size with direct extension to chest wall or skin. Chest wall includes ribs, intercostals, S. anterior but not the pectorals.
- **T4b**: Extension to chest wall
- **T4c**: Edema or ulceration of the skin or satellite nodules confined to the same breast.
- **T4d**: Both a and b above
- **T4e**: Inflammatory carcinoma

**Node (N)**

- **N0**: Regional nodes cannot be assessed
- **N1**: Metastasis to moveable ipsilateral axillary lymph node.
- **N2**: Metastasis to fixed ipsilateral axillary lymph node.
- **N3**: Metastasis to ipsilateral internal mammary lymph node.

**Metastasis (M)**

- **M0**: Presence of distant metastasis cannot be assessed
- **M1**: Distant metastasis (including metastasis to ipsilateral supravcavicular lymph node).
Histopathological grading (G):  
- G0: Differentiation cannot be assessed  
- G1: Well differentiated  
- G2: Moderately differentiated  
- G3: Poorly differentiated  
- G4: Undifferentiated

Stage Grouping:

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These days surgeons have been successful in localization and excision of non-palpable breast lesions. Three methods of excising non-palpable breast lesions have been evaluated:

1) "Blind" method, using mammographic coordinated technique
2) Preoperative localization with the Frank Needle
3) Frank Needle localization aided by a multiperforated compression plate.

Success rate has been shown to be 80% in all the 3 methods.
References: