

# Breast cancer as seen in King Fahd University Hospital, Al-Khobar, 1983–1986

J. T. Anim, M. O. Sohaibani, C. S. Grant\* and Dalal Tamimi

Departments of Pathology and \* Surgery, King Fahd University Hospital, Al-Khobar, Saudi Arabia

**Breast cancer is the most common female cancer in Saudi Arabia as reported in several studies based on data from specialized centres. The numbers seen in most general hospitals, however, are low, making it difficult to carry out comprehensive clinicopathological studies of the disease. We present the results of a hospital-based study which confirm the low hospital case incidence. The disease appears to be commoner in a younger age group, with a higher occurrence of medullary carcinoma compared with studies carried out elsewhere. These findings emphasize the need for a national population-based study as the best method for defining the problem of breast cancer in the Kingdom of Saudi Arabia.**

Keywords: breast, cancer, carcinoma, medullary

Various epidemiological studies of cancer in the Kingdom of Saudi Arabia have rated breast cancer as the most common malignancy in the Saudi female population<sup>1–5</sup>, with an incidence of 17–20% of all cancers in women. El-Akkad *et al.*<sup>4</sup> have also observed an increasing incidence of the disease between 1979 and 1984. Most of these studies are, however, based on data from specialized referral centres and their figures may not reflect the true occurrence of the disease in different parts of the Kingdom. Despite claims from these studies that breast cancer is common, empirical observation by several surgeons would tend to suggest the contrary. Occasional hospital-based studies have tended to confirm this impression<sup>6</sup>.

This paper is a report on the study of breast neoplasms at the King Fahd Teaching Hospital in Al-Khobar (KFHU), with special emphasis on breast cancer. It also compares its occurrence in our hospital with that of Dammam Central Hospital (DCH), also in the Eastern Province of Saudi Arabia.

## Materials and methods

All breast surgical specimens received in the pathology department of KFHU over the period January 1983 to December 1986 were included in the study. Detailed clinical information on breast cancer cases were entered on a specially prepared protocol which accompanied the specimens to the pathology department. The hospital provides a histopathological service for several private hospitals and clinics in this area and breast specimens from these hospitals and clinics were also included in the study. Detailed clinical data were not, however, available on cases coming from outside KFHU.

The specimens were sampled routinely, processed into paraffin and sections stained with haematoxylin and eosin. Special stains used as necessary included Weigert's elastic-van Gieson series, periodic acid-Schiff, alone and after diastase digestion, with and without alcian blue. The sections were examined by two pathologists independently. For the purposes of comparison of case incidence in our hospital with that of DCH, the records of the pathology department of DCH were examined and the total numbers of breast biopsies obtained over the period of our study. These were grouped into cancers, benign neoplasms and non-neoplastic conditions. Non-neoplastic conditions from both KFHU and DCH were excluded from further analysis in this study.

## Results

During the period under study, 246 breast specimens were handled in the pathology department of KFHU out of a total of 21 249 surgical specimens (1.2%). Corresponding figures for DCH were 185 and 12 260 respectively (1.5%). Of these 246 KFHU specimens, 135 (55%) were benign non-neoplastic lesions including cystic disease, duct ectasia, mastitis, breast abscess and a few cases of normal breast tissue. The remaining 111 (45%) consisted of various neoplastic lesions: 47 (19.1%) were cancers; 56 (22.8%) fibroadenomas; three (1.2%) duct papillomas, two (0.8%) phyllodes tumour or cystosarcoma phyllodes; and one each (0.4%) of adenoma of the nipple, lipoma and schwannoma. Fibroadenoma is therefore the commonest occurring neoplastic condition of the breast in this study. *Table 1* compares these figures with those obtained from DCH. Of the 47 cancers seen in KFHU, one was metastatic rhabdomyosarcoma in both breasts in a 15-year-old girl, the primary site being the foot. One other cancer was duct carcinoma of the breast in a 65-year-old man which had invaded the pectoralis

Correspondence to: Dr J. T. Anim, College of Medicine and Medical Sciences, King Faisal University, P.O. Box 2114, Dammam-31451, Saudi Arabia

© 1989 Butterworth & Co (Publishers) Ltd  
0035-8835/89/040201-04 \$03.00

**Table 1** Comparison of breast neoplasms between King Fahd University Hospital (KFHU) and Dammam Central Hospital (DCH), 1983-1986

Neoplasm	KFHU		DCH	
	Number	%	Number	%
Carcinoma	46	18.7	22	11.9
Rhabdomyosarcoma	1	0.4	0	0
Fibroadenoma	56	22.8	46	24.9
Duct papilloma	3	1.2	4	2.2
Phyllodes tumour	2	0.8	3	1.8
Adenoma	1	0.4	1	0.5
Lipoma	1	0.4	5	2.7
Schwannoma	1	0.4	0	0
Total	111	45.1	81	43.8
Non-neoplastic breast lesions	135	54.9	104	56.2
Total	246	100	185	100

**Table 2** Age incidence of breast carcinoma in 45 women (KFHU, 1983-1986)

Age group (years)	Number
20-29	3
30-39	20
40-49	15
50-59	3
60-69	3
70-79	0
80-89	1
Total	45

Mean age = 41.5 years.

**Table 3** Clinical presentation in 36 breast cancer patients (KFHU, 1983-1986)

Symptoms	Number
Lump only	19
Pain only	2
Nipple discharge only	0
Pain + lump	12
Pain + lump + nipple discharge	2
Lump + nipple discharge	1
Pain + nipple discharge	0
Total	36

muscle and ulcerated through the overlying skin. This paper discusses the remaining 45 carcinomas. Thirty-six were patients of KFHU, 70% of them Saudis. Significant clinical findings related to these breast cancer patients were analysed on available complete data.

### Age

The ages of the 45 women ranged between 26 and 83 years. *Table 2* shows the age distribution of breast cancer in this study, with a mean age of 41.5 years.

### Presentation

*Table 3* summarizes the complaints of the 36 KFHU patients at the time of presentation. While the

commonest complaint was lump in the breast (34/36), a significant number complained of pain, either alone (2/36), in combination with a lump (12/36) or with nipple discharge (2/36). Nipple discharge occurred in 3/36 patients.

### Duration of complaints

In 33 out of 36 patients information was available on duration of symptoms before medical attention was sought. Of these, 15 (45.5%), presented in less than 4 months. Eight of the remaining 18 presented after 1 year, sometimes as late as 4 years after onset of symptoms.

### Parity

Information on parity was available for 27 breast cancer patients. All 27 were parous, 13/27 having more than five children each. No reliable information could be obtained on the duration of breastfeeding although the majority of women claimed they had breastfed their children.

### Tumour size and staging

Measurement of tumour size in 30 patients revealed sizes in excess of 5 cm in 16 (53.3%). Similarly, a high proportion of patients (10/30) showed deep fixation. Paget's disease was observed in two patients. Staging of the disease is summarized in *Table 4* for 35 women. As many as 16/35 patients presented in stages III or IV. Lymph node examination in 24 mastectomy specimens showed metastatic carcinoma in 18 (75%), with 12 (50%) showing metastatic deposits in three or more nodes.

### Histological types of breast carcinoma

Details of the histological types of breast carcinoma in this study are summarized in *Table 5*. The most common type was the infiltrating duct (scirrhous) carcinoma, accounting for 73.4% (*Table 5*). An

**Table 4** Stage of breast carcinoma in 35 patients, KFHU (American Joint Committee on Cancer Staging)

Stage	Number
I	7
II	12
III	8
IV	8
Total	35

**Table 5** Histological types of breast carcinoma in 45 patients (KFHU)

Histological type	Number	%
Infiltrating duct	33	73.4
Medullary	6	13.3
Papillary	1	2.2
Duct <i>in situ</i>	1	2.2
Infiltrating lobular	4	8.9
Total	45	100

interesting finding, however, was the much higher occurrence of medullary carcinoma (13.3%). Lobular carcinoma cases numbered four (8.9%) with one showing both *in situ* and infiltrating lobular carcinoma. One case presented a mixed pattern of infiltrating duct and lobular carcinoma.

## Discussion

In KFHU and DCH breast specimens accounted for only 1.2% and 1.5% respectively of all surgical specimens. The small numbers of breast cancers for both hospitals over the 4-year study period would tend to confirm the general impression of surgeons that breast cancer is not very common. The total number of breast cancers seen in DCH (22) gives a yearly case incidence of 5–6. In his 5-year study of cancers in Dhahran Health Center, also in the Eastern Province, Rabadi<sup>7</sup> found only 31 cases of breast cancer, a yearly incidence of about six. Sengupta *et al.*<sup>6</sup> reported 14 breast cancers over a 3-year period, a yearly incidence of about five. Our figures for breast cancer at KFHU (47 in 4 years) appear relatively higher, but may be due to the fact that our hospital handles cases from most other hospitals and clinics in the area, in addition to the few cases referred for chemotherapy in our oncology unit. When cases from other hospitals are excluded, the yearly case incidence of breast cancer for KFHU is nine or less and approaches that of the other three centres.

The impressive figure of 812 breast cancers referred to KFSH<sup>5</sup> over a 10-year period does not necessarily indicate the true incidence of the disease in Saudi Arabian medical centres, as most cases requiring radiotherapy and other specialist management are referred from other hospitals to KFSH. Similarly, the Armed Forces Hospital Oncology Unit in Riyadh (another reference centre) also reported 22 cases of breast cancer over a 1-year period<sup>2</sup>. The yearly case incidence for most medical centres in the Kingdom, therefore, is likely to be less than nine; similar to our figures for a 400-bed hospital. In spite of these figures, breast cancer is still ranked as the most common female cancer in the Kingdom (Eastern Province Cancer Registry, personal communication).

Stirling *et al.*<sup>1</sup>, working in Jeddah, have observed a rising incidence of breast cancer and attributed this to the changing attitude on the part of women to medical examination and treatment. El-Akkad *et al.*<sup>4</sup> have also noted a similar trend in KFSH over the 5-year period 1979–1984. One can speculate that, whatever the true causes of this trend, they are bound to affect other hospitals, and figures much higher than reported here in our study may emerge from subsequent studies.

There is a higher occurrence of breast cancer in younger age groups as shown in Table 2. In all, 84.4% of breast cancers in this study occurred in patients under 50 years (mean: 41.5 years), compared to 40% (mean: 52.8 years) reported by Haagensen in the USA<sup>8</sup>. The mean age of 41.5 years is similar to observations by other workers in the Kingdom<sup>2,5,6</sup> and other developing countries, where the peak incidence is said to be about a decade lower than that reported from the USA and Europe<sup>9</sup>. In this study one cannot exclude factors such as the small numbers and the fact that the incidence of the disease increases with age and,

therefore, with a lower life expectancy in Saudi Arabia (62 years compared with 75 in the USA); the higher numbers in younger age groups may be relative<sup>10</sup>. There is the added problem of attitudes to medical care, since in less urbanized communities older individuals, especially women, are reluctant to seek medical attention<sup>9</sup>. These issues can best be resolved using a community based study of the disease.

The most common presenting complaint of lump in the breast is in accordance with results of workers worldwide. However, pain appears to feature prominently, being a presenting symptom in 16/36 (44%) in this study. Pain as an important presenting feature in breast disease is characteristic of benign lesions such as cystic disease, although it has also been described in late cancer. Its frequent association with carcinoma in this study may be related to the presence of advanced disease in about half of the cases (16/35). This, however, requires confirmation using larger numbers.

In relating clinical history to prognosis, Chiedozi<sup>11</sup> has concluded that presentation after 4 months was associated with poor prognosis in Nigerian women. A greater proportion of our patients (54.5%) presented after 4 months. Coincidentally, as many as 53.3% of 30 patients in our study presented with tumour sizes in excess of 5 cm diameter. The late presentation (after 4 months), coupled with large tumour size, a high proportion of fixed lesions and as much as 75% of mastectomy specimens with lymph node involvement are reflected in 16/35 patients presenting in stages III or IV in this study (Table 4).

The high parity of Saudi women as confirmed even by our small numbers (13/27 with more than five children) and the known early onset of pregnancy lend support to the view of other workers<sup>3,4</sup> that these factors appear to have little protective effect on the incidence of breast cancer. We are unable to comment on the effect of breastfeeding on the occurrence of breast cancer from this study.

Infiltrating duct carcinoma is the commonest histological type of breast carcinoma as confirmed in this study. The much higher occurrence of medullary carcinoma, however, is unusual; 13.3% compared with 5–7% reported among whites<sup>12,13</sup>. A higher occurrence has also been observed among Ghanaians<sup>9</sup> and Japanese<sup>14,15</sup>, but no racial or genetic reasons have as yet been found to explain the high occurrence among Japanese. We are unable to explain its high occurrence in Saudi women either. Paget's disease was seen in two cases (4.4%), much higher than the 2% of other studies<sup>16</sup>. This difference may be due to our smaller numbers and may therefore not be real.

In conclusion, the total numbers of breast cancer seen in each hospital in the Kingdom are obviously too small to allow for meaningful clinicopathological study of the disease. Nor do the high figures from KFSH and similar specialized centres provide a true indicator of the occurrence of the condition. Only a national survey can generate adequate material for a comprehensive study of breast cancer, both epidemiological and clinicopathological. In the meantime, this study provides data from which the following useful conclusions may be drawn and used as a basis for a detailed national study of breast cancer: (a) breast cancer in Saudi Arabian women appears to occur in a much younger

age group (average age, 41.5 years); (b) the pattern of clinical presentation is similar to that found elsewhere, but patients tend to present late, with pain as an important symptom; (c) multiple pregnancy does not appear to confer much protection on the patients; (d) medullary carcinoma may have a higher incidence in Saudi women than in whites.

### Acknowledgements

We wish to thank Dr Abdulaziz Al-Jame and the entire staff of the Pathology Department of Dammam Central Hospital for permission to utilize information from their records.

### References

1. Stirling GA, Khalil AM, Nada SM, Saad AA, Raheem MA. Study of 1000 consecutive malignant neoplasms in Saudis, 1975-1977. *Saudi Med J* 1979; **1**: 89-94.
2. Korjech OM, Al-Kuhaymi R. Cancer in Saudi Arabia: Riyadh Al-Kharj Hospital programme experience. *Saudi Med J* 1984; **5**: 217-23.
3. El-Akkad SM. Cancer in Saudi Arabia: a comparative study. *Saudi Med J* 1983; **4**: 156-64.
4. El-Akkad SM, Amer MH, Liu GS, Sabbah RS, Godwin JT. Pattern of cancer in Saudi Arabs referred to King Faisal Specialist Hospital. *Cancer* 1986; **58**: 1172-8.
5. Mahboubi E. Epidemiology of cancer in Saudi Arabia 1975-1985. *Ann Saudi Med* 1987; **7**: 265-76.
6. Sengupta H, Al-Sulimani SH, Alam MK, Gurgis A. Spectrum of breast diseases seen in a hospital breast clinic in Riyadh. *J R Coll Surg Edinb* 1987; **32**: 145-7.
7. Rabadi SJ. Cancer at Dhahran Health Center, Saudi Arabia. *Ann Saudi Med* 1987; **7**: 288-93.
8. Haagensen CD. *Diseases of the Breast*, 2nd edn. Philadelphia: WB Saunders, 1971: 363.
9. Anim JT. Breast cancer in Accra. *Ghana Med J* 1979; **18**: 161-8.
10. Grant JP. *The State of the World's Children*. UNICEF Monograph, 1987.
11. Chiedozi LC. The patient history: a source of prognostic data in breast cancer. *J R Coll Surg Edinb* 1987; **32**: 142-4.
12. Moore OS Jr, Foote FW Jr. The relatively favourable prognosis of medullary carcinoma of the breast. In: Azzopardi JG, ed. *Special Problems in Breast Pathology*. London: WB Saunders, 1979: 286.
13. Richardson WW. Medullary carcinoma of the breast. A distinctive tumour type with a relatively good prognosis following radical mastectomy. In: Azzopardi JG, ed. *Special Problems in Breast Pathology*. London: WB Saunders, 1979: 286.
14. MacMahon B, Morrison AS, Ackerman I.V, Lattes R, Taylor HB, Yuasa S. Histologic characteristics of breast cancer in Boston and Tokyo. *Int J Cancer* 1973; **11**: 338-44.
15. Rosen PP, Ashikari R, Thaler H et al. A comparative study of some pathologic features of mammary carcinoma in Tokyo, Japan and New York, USA. *Cancer* 1977; **39**: 429-34.
16. Fisher E, Gregorio RM, Fisher B. The pathology of invasive breast cancer: a syllabus derived from findings of the National Surgical Adjuvant Breast Project. *Cancer* 1975; **36**: 1-85.

Paper accepted 14 December 1988