Triple Diagnosis in Carcinoma of the Breast : A Replacement for Open Biopsy

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Abstract

Using the combination of clinical diagnosis, mammography and fine - needle aspiration cytology (FNA) as a "triple diagnosis" to guide management of carcinoma of the breast, we retrospectively reviewed 46 patients with FNA diagnosis of carcinoma of the breast in Ramathibodi Hospital from 1993 to 1995. Pathological diagnosis was available in 36 cases and used as a gold standard. Clinical diagnosis alone was accurate in 28 of 36 cases. Mammography was available in 24 cases of which the diagnosis was accurate in 22 cases. Triple diagnosis was available in 19 cases and all were accurate. Using this approach and review of the literature, we suggest that triple diagnosis could replace an open biopsy in diagnosis of carcinoma of the breast.

The concept that all suspected breast lesions should be excised and histologically examined before giving a definitive diagnosis has recently been challenged. It has been recently possible to diagnose palpable breast lesions preoperatively with a high degree of confidence and avoid open biopsy. The combination of fine-needle aspiration cytology (FNAC), clinical examination, and mammography, which has been termed the triple test[1], has shown a high degree of accuracy in several centers[1-6]. A large Danish study[1] showed high sensitivity of the triple test when all three elements were concordant (all indicating a benign condition or all indicating a malignant condition). In fact, several reports[7-9] have also shown that when the triple test supported the diagnosis of benign breast diseases, subsequent therapy could be proceeded without the need for open biopsy. However, in this study we did not look at the triple test in diagnosis of benign breast diseases because in our experience, as well as others[1,7,10,11], there is still controversy over the benefits of triple test in benign breast diseases. In this study, we retrospectively reviewed our experience of triple test in Ramathibodi Hospital and the literature to determine if it could replace an open biopsy in diagnosis of carcinoma of the breast.

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MATERIAL AND METHOD

From January 1993 to December 1995, 385 reports of breast cytology from fine needle aspiration were recorded. Of these, 46 were malignant and included in this study. All 46 medical records of the patients with FNAC diagnosis of carcinoma of the breast were reviewed with particular attention to clinical diagnosis, mammography and pathology. The combination of clinical diagnosis, mammography and FNAC was termed as "triple diagnosis".

Clinical diagnosis was mostly made by the author (KS). The tumor was classified as malignant, suspectedly malignant, benign or uncertain.

Mammography

All mammograms were reviewed by radiologists using accepted mammographic criteria[12-14] and classified as malignant, suspectedly malignant, benign or uncertain.

FNAC

The majority of all breast aspirations with malignant diagnosis were performed by the author (KS). A 25-gauge needle attached to a disposable 10-mL syringe was inserted into the palpable mass and three passes were made. The aspirate drawn up into the core of the needle was expelled onto a glass slide, smeared and placed in a container with 95 per cent alcohol. Six to eight slides of the fixed aspirates were sent for FNAC. These were prepared by a cytotechnologist and all interpreted by an experienced cytopathologist (SC). The results were classified as malignant, suspectedly malignant, benign or unsatisfactory.

Pathology

Histological diagnosis of carcinoma of the breast was used to confirm the accuracy of the triple diagnosis.

To assess the diagnostic potential of the triple diagnosis, we considered the subsequent findings:

Criteria for a positive diagnosis:

FNAC - malignant; clinical diagnosis - malignant or suspectedly malignant; mammography - malignant or suspectedly malignant.

Criteria for a negative diagnosis:

FNAC - benign, unsatisfactory, equivocal; clinical diagnosis - benign or uncertain; mammography - benign.

RESULTS

From January 1993 to December 1995, a total of 687 patients with carcinoma of the breast were seen in Ramathibodi Hospital[15-17]. Of whom only 46 had a FNAC diagnosis of carcinoma of the breast, which therefore constituted about 7 per cent of the cases. Figure 1 shows the results of malignant FNAC compared with total FNAC

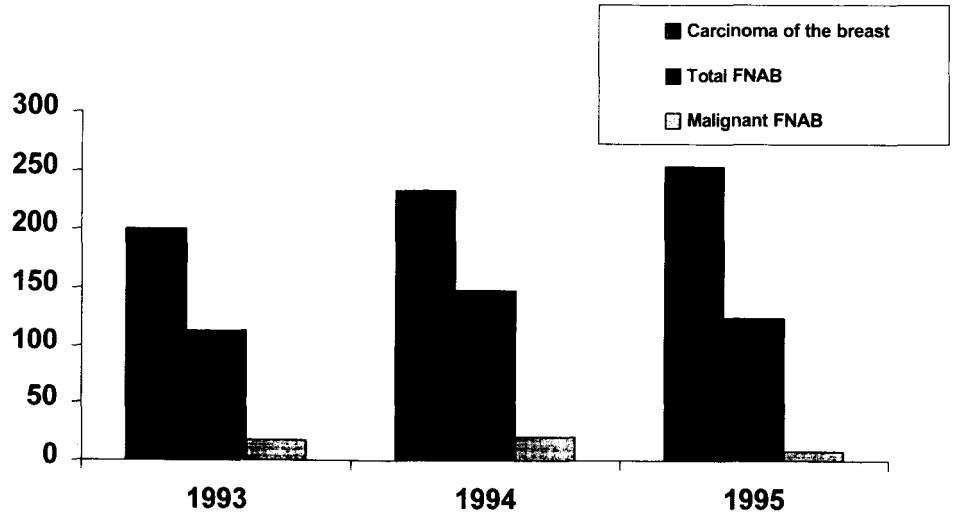

Fig. 1. Results of malignant FNAB comparing with total FNAB and carcinoma of the breast in Ramathibodi Hospital during 1993-1995.

Table 1. Results of positive triple diagnosis comparing with malignant histology.

	Ref.	Positive triple diagnosis	Confirmed malignant histology	False positive	False negative
Johnsen 1975	4	138	138	0	0
Kreuzer&Boquoi 1976	2	124	123	1	1
Hermansen et al 1987	1	51	51	0	0
Vetto et al 1995	18	9	9	0	0
Steinberg et al 1996	19	21	22	0	1
Present study		19	19	0	N/A
Total		362	362	1	2

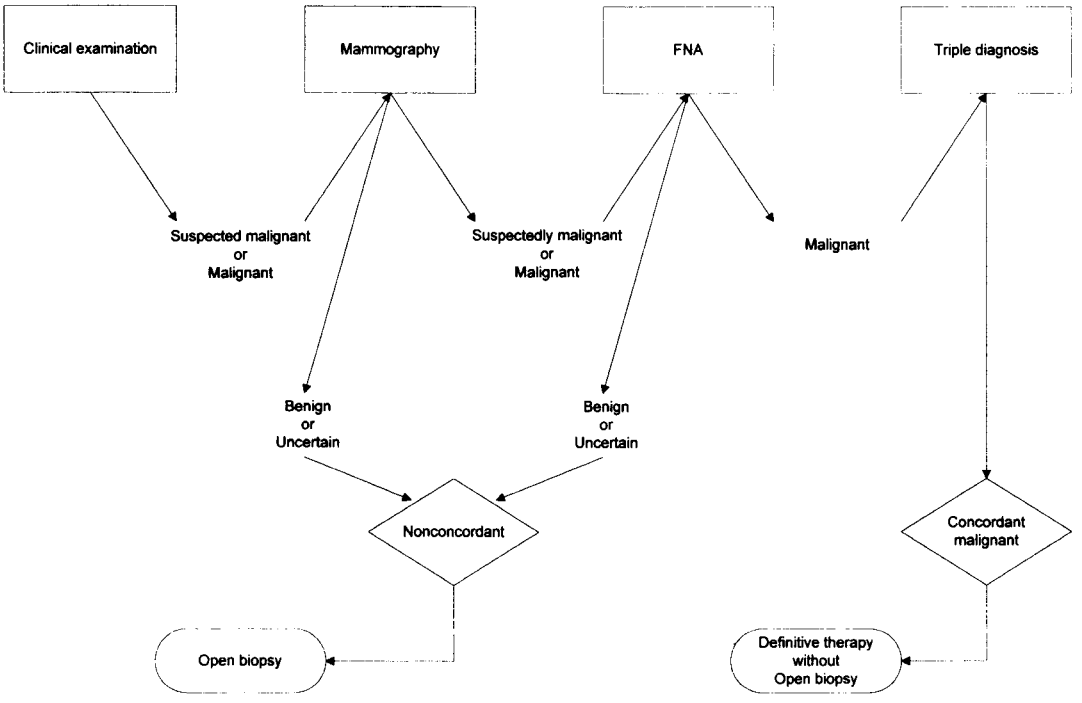

Fig. 2. Recommended management scheme for a suspected malignant breast lesion.

and carcinoma of the breast in Ramathibodi Hospital during 1993-1995.

Of 46 patients with FNAC diagnosis of carcinoma of the breast, all medical records were reviewed. Thirty-six patients had pathological reports of which all were carcinoma of the breast and the pathological reports were not available in ten.

Of 36 patients with pathological diagnosis of carcinoma of the breast, clinical diagnoses were malignant in 24, suspectedly malignant in 4 and benign or uncertain in 8. Mammographies were available in 24 of which, 19 were malignant, 3 suspectedly malignant and 2 benign or uncertain. Triple diagnosis was available in 19 patients and all were positive for carcinoma of the breast.

DISCUSSION

With isolated use of clinical diagnosis or mammography or FNAC, it may not be as accurate as an open biopsy. However, several authors have proved that the combination of clinical diagnosis, mammography and fine-needle aspiration had the same accuracy as an open biopsy[1,2,4,18,19]. Our result shown in Table 1 also confirmed those.

In this study, the small proportion of patients with carcinoma of the breast undergoing FNAC shown in Fig. 1 may be explained by a different approach in diagnostic procedures by several surgeons.

We recommend triple diagnosis for the evaluation of suspectedly palpable malignant breast lesions based on the above results. Use of triple diagnosis as presented in Fig. 2, if a breast lump is suspicious clinically malignant and mammography is either suspected or positive for malignancy. FNAC should be performed and if positive open biopsy could be bypassed.

There are many benefits if a diagnosis of breast cancer can be confirmed without an open biopsy. Counseling, optimal use of hospital resources and preoperative chemotherapy can be made possible. Currently, The National Surgical Adjuvant Breast and Bowel Project B-18 trial[20], in addressing the question of preoperative chemotherapy, required a definitive diagnosis without open surgical biopsy. Benefits of preoperative chemotherapy either in early or locally advanced breast cancer have been confirmed in several reports[21-24].

In summary, use of triple diagnosis in carcinoma of the breast yielded high diagnostic accuracy and we suggest that it could replace an open biopsy.

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การใช้ Triple Diagnosis เพื่อวินิจฉัยโรคมะเร็งเต้านม

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คณะผู้ทำการวิจัยได้ทำการศึกษาผลการใช้ Triple Diagnosis (ซึ่งประกอบด้วยการวินิจฉัยทางคลินิก, Mammography และการพิสูจน์เซลล์ที่ได้โดยวิธี fine-needle aspiration) ในการวินิจฉัยมะเร็งของเต้านมเปรียบเทียบกับการวินิจฉัยด้วยการพิสูจน์ชิ้นเนื้อ โดยทำการศึกษาย้อนหลังในผู้ป่วยของโรงพยาบาลรามาธิบดีจำนวน 46 ราย ในระหว่างปี พ.ศ. 2536-2538 ซึ่งมีผลพิสูจน์เซลล์ที่ได้โดยวิธี fine-needle aspiration ว่าเป็นมะเร็งเต้านม ผู้ป่วย 36 ราย มีผลพิสูจน์ชิ้นเนื้อพบว่าเป็นมะเร็งเต้านมจริงส่วนผู้ป่วยอีก 10 ราย ไม่มีผลพิสูจน์ชิ้นเนื้อ พบว่าการวินิจฉัยทางคลินิกอย่างเดียวถูกต้อง 28 ใน 36 ราย การวินิจฉัยมะเร็งเต้านมด้วย mammography พบว่าถูกต้อง 22 ใน 24 ราย ผู้ป่วยทั้ง 19 ราย ซึ่ง การใช้ Triple Diagnosis ให้การวินิจฉัยว่าเป็นมะเร็งเต้านมมีผลพิสูจน์ชิ้นเนื้อว่าเป็นมะเร็งทั้งหมด จากการศึกษาครั้งนี้และการทบทวนผลงานวิจัย อื่นๆ ที่ตีพิมพ์ในวารสาร คณะผู้ทำการวิจัย สรุปว่า Triple Diagnosis อาจจะนำมาใช้แทนการพิสูจน์ผลชิ้นเนื้อในการวินิจฉัยมะเร็งเต้านม และได้เสนอแนวทางปฏิบัติในการให้การวินิจฉัยผู้ป่วยที่มีก้อนที่เต้านมซึ่งสงสัยว่าอาจจะเป็นมะเร็งเต้านม

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