

Management of fibroadenoma of the breast

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Fibroadenoma is a common cause of discrete breast lumps in young women. There is agreement that fibroadenomas can be diagnosed preoperatively with a high degree of confidence and that some of the lesions thus diagnosed will resolve, possibly obviating the need for excision. There is, however, wide disagreement over the proportion of fibroadenomas that resolve spontaneously and therefore the benefit that accrues from an expectant policy. The aim of this study was to audit the management of fibroadenomas on one unit and clarify their natural history over a 5-year period.

A cohort of 70 women with 87 fibroadenomas diagnosed using a triple assessment of clinical examination, cytology and imaging (sonomammography) have been followed for a minimum of 5 years. In all, 53 of the 'fibroadenomas' have been excised. In four cases the histology revealed benign disease other than fibroadenoma; there were no neoplasms. The sensitivity of cytology and sonomammography for the diagnosis of fibroadenoma were 84% and 98% respectively. Thirty-four fibroadenomas have not been excised. Of 25 fibroadenomas that have been reassessed after at least 5 years of follow-up, 13 (52%) have reduced in size, 4 (16%) are unchanged in size and 8 (32%) have grown. No patient has developed a carcinoma at the site of the presumed fibroadenoma.

This study confirms that an expectant management policy of fibroadenomas has not resulted in misdiagnosis of carcinomas. Further, since a significant proportion of fibroadenomas remain static or reduce in size over a 5-year period many women can avoid excision.

The dogma that all discrete breast lumps should be excised has recently been challenged. The most frequent cause of a discrete breast lump in a young woman is a fibroadenoma (1). It is possible to diagnose a fibroadenoma preoperatively with a high degree of confidence and thereby avoid surgery. Although it seems likely that many fibroadenomas eventually regress, their short-term behaviour is uncertain. If most fibroadenomas increase in size in the short term, then there would be little to gain from conservative management, which may only serve to delay surgery. If, however, only a minority of lesions enlarge then a trial of conservatism would be appropriate.

This study follows prospectively a group of women with a breast lump deemed to be a fibroadenoma using a triple assessment of examination, breast imaging and cytology. Some lesions were excised, permitting the accuracy of diagnosis to be judged. Others were managed expectantly, allowing insight into the natural history of these lesions.

Materials and methods

Women presenting to the breast unit in the period 1 July 1986 to 31 December 1988 with a discrete breast lump that was clinically thought to be a fibroadenoma were entered into the study. The diagnosis was confirmed using cytology and breast imaging. Those breast lumps that were not typical of fibroadenoma on these assessments were excluded from the study. Excision biopsy was advised in women of 30 years and older and was also performed in younger women if, despite reassurance that the lump in their breast was innocent in nature, they wanted the lesion removed. Those women who did not have immediate excision biopsy were followed for 2 years

by 3-monthly clinical examination and 6-monthly breast imaging. Biopsy was performed at the request of the patient or if the lump was increasing in size.

Those patients who still had a breast lump at the end of the 2-year period have now been reviewed (conservative group). The size of the breast lump was assessed both clinically and by breast imaging. The sonomammograms of all patients have been reassessed by one observer (CR) and the size of the lesions seen measured to the nearest millimetre.

Results

There were 70 women included in the study. The fibroadenomas were multiple in 12 (17%) of women and a total of 87 fibroadenomas has been studied. The mean age of the women was 28 years (range 15–48 years) and 69% were under 30 years of age at entry into the study. The fibroadenomas were found slightly more frequently in the left breast (54%) than the right. Most were in the upper half of the breast (82%) and, overall, 50% were in the upper outer quadrants.

Surgery group

In all, 53 fibroadenomas in 40 patients have been excised. The mean age of this subgroup was 28.3 years and 60% were under 30 years of age. The mean size of the lesions in this group was 13 mm (range 5–20mm).

The results of the diagnostic tests used are shown in Table I. It is apparent that both cytology and sonomammography were used in the majority of patients. The indication for excision of the breast lump was age > 30 years in 15, patient wishes in 21 and increasing size in four. The findings on histology are shown in Table II. There were four lesions incorrectly diagnosed preoperatively as fibroadenomas; all errors have occurred in women over 30 years of age and none were carcinomas. The woman who had an area of histologically normal breast tissue removed has recently had a normal sonomammogram. The data in Table I and Table II allow the sensitivity of cytology and sonomammography for the diagnosis of histologically confirmed fibroadenoma to be calculated. The sensitivity of cytology was 84% (88% excluding the unsatisfactory specimens) and that of

Table I. Diagnostic tests used and results obtained

Result	Test		
	Cytology	Mammography	Ultrasound
<i>Surgery group</i>			
Fibroadenoma	40	6	49
Benign	4	3	1
Unusual/atypical	1	1	1
Unsatisfactory	3		
None	5	43	2
<i>Conservative group</i>			
Fibroadenoma	23	4	32
Benign	1	2	1
Unsatisfactory	4		
None	6		1

sonomammography was 98%. The positive predictive value of a cytology result indicating fibroadenoma was 95% and for sonomammography 94%. Nine patients were followed for 1–3 years before having their fibroadenoma excised. The lesion decreased in size in two patients, was of stable size in three and increased in size in four.

Conservative group

Thirty-four fibroadenomas in 30 women have been followed for a period of 18 months to 7 years. The mean age of this group of women is slightly younger at 26.6 years than that of the study group as a whole or of those having excision, and a higher proportion (80%) were under 30 years of age. The method of securing the diagnosis is illustrated in the lower half of Table I. Of the 34 fibroadenomas, four were lost to follow-up; 25 have been followed clinically and by ultrasound for at least 5 years (60–81 months). In all, 13 (52%) have reduced in size (mean 8 mm, range 1–15mm) of which eight have resolved entirely, 4 (16%) were the same size at the beginning and end of the study and 8 (32%) have increased in size (mean 5 mm, range 2–12mm). The other five patients were lost to follow-up after 18 to 24 months; two lesions had reduced in size (by 8 mm and 1 mm), two were unchanged in size and one had increased in size by 2 mm. The mean sonomammographic size of all lesions not excised was 12 mm (range 5–22 mm). Of the 14

Table II. Correlation between the results of preoperative investigations and final histology in those lesions that were excised

Histology	Number of lesions	Cytology	Mammogram	Ultrasound
Fibroadenoma	49	38	6	46
Fibroadenosis	2	Fibroadenoma	Not done	Not done
		Unsatisfactory		Fibroadenoma
Papilloma	1	Unusual	Benign	Fibroadenoma
		?fibroadenoma		
Normal tissue	1	Fibroadenoma	Fibrosis	Fibroadenoma

lesions smaller than the mean, the average change in size was a reduction of 3.5 mm and one-half of the lesions resolved completely. Among the 16 larger lesions, the mean change in size was a reduction by 1.4 mm, with only one resolving completely.

Discussion

Fibroadenoma is a common cause of discrete breast lumps in young women, with a peak age of incidence of 20–30 years (2). Fibroadenomas occur with similar frequency in either breast and are situated most often in the upper outer quadrant (3). Multiple fibroadenomas were found in 17% of women in this study, a similar proportion to that noted previously (2,4).

It is probably more appropriate to consider a fibroadenoma to be an aberration of normal breast development (5) rather than a benign neoplasm. Fibroadenomas arise from a breast lobule rather than a single cell and show hormone dependency, participating in lactation and involution at menopause (1). Fibroadenomas do not undergo malignant change. Those cancers that are reported in fibroadenomas are thought to be chance occurrences, and have tended to occur in women of 40 years and over (1,6). Considering fibroadenoma to be at one end of the spectrum of normal breast tissue rather than as a disease entity gives encouragement to a policy of non-surgical management.

The clinical diagnosis of fibroadenoma is apparently straightforward given a discrete, smooth, mobile, non-tender breast lump. However, this assessment is confirmed on histology in only one-half to two-thirds of cases (4,7,8). The majority of errors resolve to be other forms of benign breast disease (4) but, more significantly, some clinical fibroadenomas are found to be carcinomas. The risk of a clinical fibroadenoma being a neoplasm is of the order of 5% and most of these in women over 35 years of age (4,7,8). The diagnostic accuracy can be improved by the addition of cytology, which will detect most of the neoplasms (7). An inadequate cytology sample does not exclude a carcinoma and would not support conservative therapy (4). The use of breast imaging, usually sonomammography in this age group, has a high sensitivity for the diagnosis of fibroadenoma (9) and this has been confirmed in this study. A high degree of accuracy is particularly relevant if a selective conservative policy is to be adopted. In this study of those lesions thought to be fibroadenomas preoperatively, histology differed in only 4 (7.5%) and no carcinomas were misdiagnosed.

The natural history of fibroadenomas remains uncertain. Studies are difficult to interpret, since one can never be certain that a breast lesion that has regressed was in fact initially a fibroadenoma. The rate of resolution of a breast lump indicated by clinical and cytological assessment to be a fibroadenoma over a period of 1–3 years has been reported as between 16% and 37% (2,8–10). Over a follow-up period of over 5 years, 32% of fibroadenomas in this study have resolved, with resolution

being more frequent in those lesions <12 mm in diameter at presentation. In the study with the lowest rate of resolution, which was also that conducted over the shortest follow-up period (8), only 40% of the lesions that resolve had cytology entirely consistent with a fibroadenoma. The high positive predictive values of cytology (95%) and ultrasound (94%) found in the first part of the study indicate that the majority of the lesions that have resolved are likely to have been fibroadenomas. Between 30% and 40% of fibroadenomas that do not resolve completely in short-term studies, do reduce in size or remain stable (2,8); the higher figure accords with the findings of the present study. There is an even wider range of estimates for fibroadenomas that increase in size (0–53%) (2,8,9). In this study one-third of non-excised lesions increased in size and increasing size was the indication for operation in a further four patients. The reduction in size of the majority of fibroadenomas in the short term is consistent with the view that they tend to regress after the menopause. Fibroadenomas in older women are of lower cellularity and smaller than in the young (3,11,12) and fibroadenomas are rare in mastectomy specimens (11).

Which patients with a fibroadenoma of the breast can be treated conservatively? The risk of a clinical fibroadenoma being a neoplasm is virtually confined to women over 35 years of age and this has been advocated as a cut-off age below which fibroadenomas can be treated expectantly (3,8,10). Others have more conservatively advised a cut-off age of 25 years, calculating that there is a 1:229 risk of missing a carcinoma above this age given the sensitivity of the triple assessment for the diagnosis of cancer in young women (7). However, these authors ignore the fact that only 30% of carcinomas in young women clinically simulate a fibroadenoma (13) and therefore the risk is more likely to be about 1:700. The younger the cut-off age, the fewer patients will be eligible for conservative therapy. In this study the age of 30 years has been used, representing a compromise between the arguments expressed above. This allows about two-thirds of women with a fibroadenoma to be considered for expectant management. Our data indicate that of these women nearly one-half will nevertheless opt for excision. Other authors have indicated that an even higher proportion of women would opt for surgery (2).

With a confident diagnosis of fibroadenoma using the triple assessment of examination, cytology and breast imaging, many women can be offered a choice of expectant management rather than immediate excision. For women under 30 years of age this does not expose them to a significant risk of missed cancer. We now discharge such women from clinic after 6 months and advise them to re-attend only if they think the lesion has increased in size or is causing other anxiety. This study suggests that over a 5-year follow-up period, two-thirds of these lesions will remain stable in size or get smaller. There is therefore a substantial chance that surgery will ultimately be avoided, with obvious savings for both the patient and the health service.

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The 'nodding' sign

A new sign to locate the site of the distal end of the marking wire, inserted to localise a mammographic abnormality is reported.

The sign is produced by pressing with the tip of the index finger, in the area of the breast where the wire tip is estimated to be buried, and watching the extent of the movement of the protruding part of the wire. The maximal movement (the 'nod') occurs when the finger tip presses directly over the buried tip of the wire (Fig. 1a, b).

The site of the incision for removal of the mammographic abnormality can then be planned accordingly.

The author has been using this sign for many years and has found it to be completely reliable.

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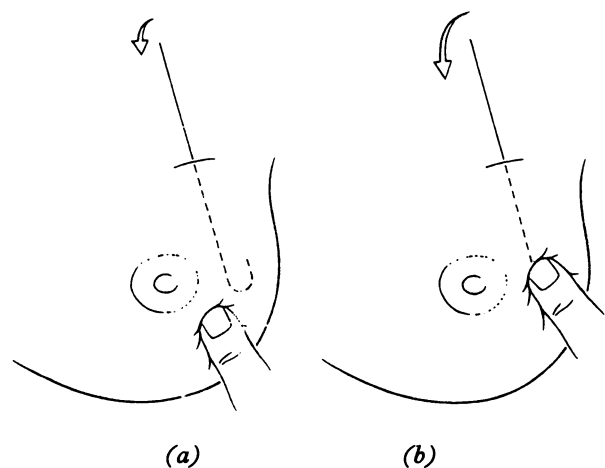


Figure 1