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CLINICAL, HISTOLOGICAL, AND SCINTIGRAPHIC STUDIES OF  
THE AXILLARY LYMPH NODES IN PATIENTS WITH OPERABLE  
BREAST CANCER

BY

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SUMMARY

It is surprising that there remain so many areas of controversy concerning the axillary nodes in breast cancer. There is disagreement on the value of palpation for clinical staging; on the importance of certain histological 'reactions'; on the need if any to determine the nodal status before operation; and, on how many nodes should be removed.

This thesis is the result of three investigations on axillary lymph nodes directed at these and related matters. All three projects were initiated during a year's study leave in 1979. Further evaluation and assessment of the data proceeded during 1980.

A. The first arose because of my involvement in the follow-up patients after mastectomy. All such women had been carefully assessed and documented with respect to clinical stage, and also to a series of investigations to detect occult metastases ('superstaging' tests). 172 women had been followed for over two years. Histological sections of all nodes excised were reviewed, with respect to (a) the size and number of nodal metastases and (b) the node 'reactions' of sinus histiocytosis lymphocyte predominance and germinal centre predominance.

B. In the second project a modified technique of axillary lymphoscintigraphy was developed using Technetium labelled Antimony Sulphide colloid. Although this agent had been used in other regions of the body to detect nodal metastases there had been only one previous study of the axillary nodes, and in that investigation it was claimed to be effective in the diagnosis of breast cancer.

SUMMARY cont.

C. The third project was concurrent with, but arose from, the other two. A detailed dissection, mapping, measurement and histological assessment of axillary nodes was undertaken in 50 women undergoing mastectomy and axillary node sampling. In an attempt to correlate histological features with scintigraphic appearances, a larger sample of nodes was dissected than had been excised from patients in Study A. As a result it was possible to obtain original data on the sizes of lower axillary lymph nodes, whether 'reactive', metastatic or normal (unstimulated). The site of all nodes was also defined, and inferences could be made as to the size at which axillary nodes become palpable.

The findings were as follows :

1. Careful clinical assessment is of fundamental importance in predicting recurrence.
2. Node histological appearances are no better (in a small node sample) unless features other than metastases are taken into account.
3. Sinus histiocytosis and lymphocyte predominance are favourable features, lymphocyte depletion and germinal centre predominance are unfavourable. Micrometastases are of little consequence.
4. 'Superstaging' tests are valueless except in a small, selected, group where nuclear bone scanning may have predictive value.
5. Axillary lymphoscintigraphy cannot diagnose breast cancer.
6. Axillary lymphoscintigraphy, however, is accurate in the diagnosis of prognostically significant lymph node metastases in 9 out of 10 patients.
7. A size range of all types of nodes in the axilla has been defined.

SUMMARY cont.

8. The site of such nodes has also been determined - germinal centre predominance is commonly found close to the primary tumour (as are metastases). Nodes showing other features are not.
9. For nodes to be palpable they usually contain metastases, and are 1g weight and/or 1.5 cm in diameter or more.
10. Palpable, suspicious, nodes and impalpable nodes are well correlated with the presence or absence of metastatic deposits (79%, 68%).
11. Palpable, non suspicious, nodes do not confer prognostic advantage. Nor do they predominantly show 'favourable reactions'.

In addition the appendix contains computer data, showing :

12. That tumour cellularity is an important prognostic index, and
13. That oestrogen receptor content may need modification if its level is to be used as an index of prognosis, and that
14. Precise knowledge of the number of nodes containing deposits may also be extremely important, even when obtained from a small node sample.

Findings 2, 6, 7, 8, 9, 12, 13 and 14 represent new information.

Findings 1, 3, 4 and 10 confirm and amplify some previous work, though they are at variance with others. Findings 5 and 11 refute the single previous paper on each topic. Areas of controversy are discussed, especially those publications whose results are apparently at conflict with the results in this thesis.