

Presence of *M. leprae* in the Nipple Secretion and Lumina of the Hypertrophied Mammary Gland

IN A CASE OF GYNAECOMASTIA ASSOCIATED WITH ACTIVE AND UNTREATED LEPROMATOUS LEPROSY

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A few weeks after the discovery of *M. leprae* in human breast milk which was described in a previous paper¹, a man with very active and untreated lepromatous leprosy associated with a moderate degree of gynaecomastia, presented himself at my clinic. Being on the look-out for further ways of confirming the presence of *M. leprae* in the breast milk of a lactating woman suffering from untreated lepromatous leprosy, it occurred to me that if 2 lines of investigation in this man proved to be positive, they could provide such confirmation, or at any rate, relative information of a highly suggestive nature. These 2 lines of investigation were:—

1. To search for the presence of *M. leprae* in the secretion which it might be possible to express from this man's very enlarged and elongated right nipple. If bacilli were found in the secretion, then
2. Sectioning of this man's hypertrophied mammary gland would probably result in being able to demonstrate the presence of *M. leprae* INSIDE THE LUMINA of the mammary ducts.

Both these investigations were made and both proved to be positive.

Relevant extracts of my clinical notes and a description of how these 2 investigations were made now follow.

Right Breast: The nipple is much enlarged and stands out from the areola almost 2 cm.; nearer its summit the diameter is about 8-10 mm. and where it joins the areola its

diameter is quite 15 mm.; the areola is deeply pigmented and its area is increased. Adjoining the nipple, a nodule approximately 3.5 cm. in diameter is palpable beneath the skin.

Left Breast: This nipple, too, is enlarged to about half the size of the right but it is not connected with an underlying palpable nodule.

(See Figs. 1 and 2. *Note:* The picture is a little confused by the fact that he was also suffering from Von Recklinghausen's disease.)

Skin Slit Scrapings from 6 sites revealed: B.I. 2.8; M.I. 65%.

Nasal mucous smear revealed: B.I. 3; M.I. 90%.

Smear of secretion from right nipple: The nipple and surrounding skin were first thoroughly cleansed with several sterile swabs soaked in ether, the idea being to remove possible surface bacilli. Firm manipulation of the nipple resulted in the emergence on the summit of a bead of serum-like secretion about the size of 1½ office pinheads. This was taken up by application of a glass slide, forming a smear of almost 1 cm. in diameter. Result of systemic search of approximately 400 fields revealed 20 well stained acid-fast bacilli, all of which were in good solid rod form.

BIOPSY

The right nipple and all the underlying breast nodule were removed and fixed in Formol-Zenker's solution for 40 hours before transfer to commercial spirit.

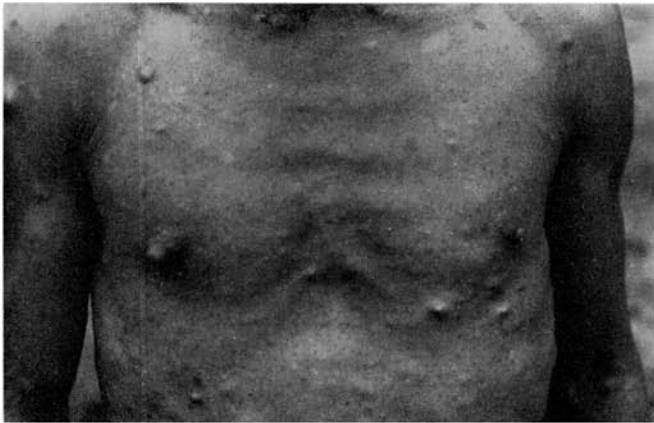


FIG. 1
Showing enlargement of the nipples, especially the right.



FIG. 2
Showing only the right enlarged nipple.

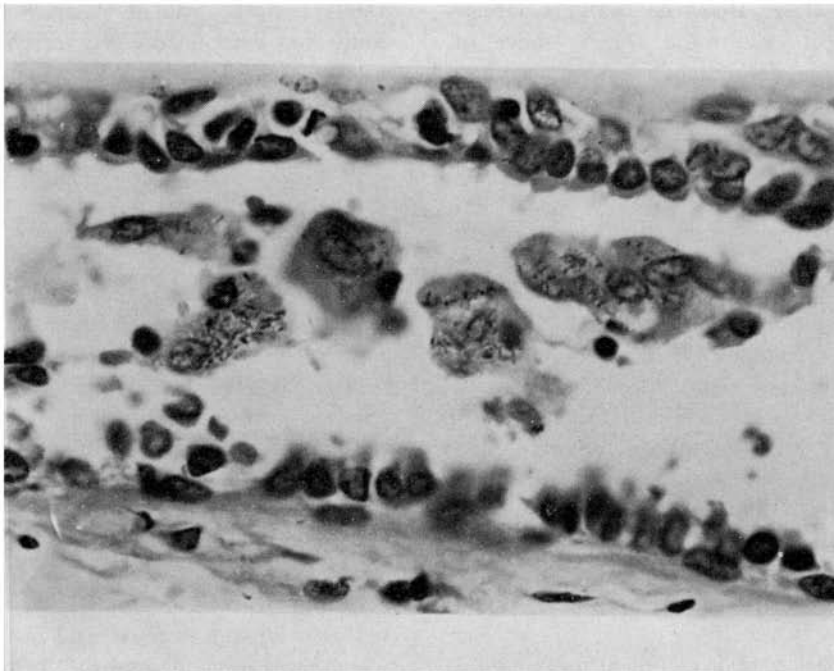


FIG. 3
Longitudinal section of a milk duct in the nipple
showing *M. leprae* in and amongst the cells of the duct
wall and in cells shed into the lumen.

HISTOPATHOLOGICAL REPORT

I am indebted to Dr. Douglas Harman of the Leprosy Study Centre in London for the following report on the breast tissue (and also for the accompanying microphotograph, Fig. 3):—

Triff Stain

This is a longitudinal section of nipple with some of the underlying mammary gland tissue from a male with gynaecomastia. There is a fairly generalized cellular infiltration of the nipple tissue and of the skin—that is, of the more superficially placed tissues—but in the lobular part of the gland the infiltrate is much less and is confined to the neurovascular bundles.

The infiltrating cells are histiocytes with a considerable number of lymphocytes and plasma cells. There is no particular arrangement of these cells and no appreciable cytoplasmic change in the histiocytes. Fairly numerous acid-fast bacilli are seen in all the nerves and in some of the blood vessels throughout the section, and in the histiocytes in the infiltrated areas. Some bacilli are also present in the smooth muscle of the nipple and scattered throughout the nipple stroma.

An occasional organism is to be found in the cells lining the ducts in the lobular part of the gland or in cells shed into the lumen. In the infiltrated part of the nipple, however, bacilli are seen in much greater numbers in a few of the nipple ducts. They are between and apparently in some of the cells lining the ducts and also in cells and cellular debris shed into the lumen of the ducts.

A large proportion of the bacilli throughout the tissue would appear to be in solid staining form. Many of them are in clusters or in small globus formations.

There is very slight cellular infiltration of the nerves.

Diagnosis and Comment

This is a biopsy of a nipple with a portion of the underlying mammary gland tissue from a patient with active leprosy and gynaecomastia. It is lepromatous with some atypical features. There is no evidence of any effect of therapy.

There is infection of some of the ducts of the mammary gland, particularly in the nipple area, with the extrusion of *M. leprae* into the breast secretion, presumably either naturally by the disintegration or shedding of the duct epithelial cells or by trauma.

DISCUSSION

The presence of *M. leprae* in the nipple secretion and in the lumina of the hypertrophied mammary gland of a man suffering from highly active and untreated lepromatous leprosy is highly suggestive that the same histopathological picture would obtain in the mammary gland of a lactating mother suffering from lepromatous leprosy.

For the help of others who may desire to check these findings I would like to stress the following points:—

1. The secretion from the male nipple may be so little that it could be easily missed.
2. It may require quite firm manipulation to express it.
3. The most favourable circumstances in which to confirm these findings is in a patient who is suffering from *highly active and untreated* lepromatous leprosy.
4. Quite a number of sections of a biopsy may have to be cut before finding one which demonstrates the bacilli **IN THE LUMINA**.

SUMMARY

The finding of *M. leprae* in the secretion expressed from the enlarged nipple of a man with gynaecomastia and highly active and untreated lepromatous leprosy led to the removal of his hypertrophied mammary gland and the demonstration of the presence of *M. leprae* in the lumina of the gland ducts. It is suggested that the same histopathological picture would obtain in the mammary gland of a lactating woman suffering from lepromatous leprosy. Some suggestions designed to help those desiring to check these findings are given.

REFERENCE

1. PEDLEY, J. C. The Presence of *M. leprae* in Human Milk. *Lep. Rev.*, 1967, **38**, 4, 239-242.