

# LACTIFEROUS DUCT FISTULA

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The true nature of lactiferous duct fistulae was described for the first time in 1951 by Zuska, Crile and Ayres<sup>1</sup> when they reported 5 cases in the American literature. They offered an explanation of the pathology of these chronic breast fistulae and at the same time suggested a rational form of treatment for the condition.

Before publication of their paper there were numerous references in the literature to the problem of the chronic breast sinus. Deaver *et al.*,<sup>2</sup> in 1917, described chronic sinuses following inadequate drainage of breast abscesses. Dean Lewis<sup>3</sup> described sinuses following chronic pyogenic mastitis, and he, too, cited inadequate incision as an aetiological factor. Foote and Stewart<sup>4</sup> called the condition periductal mastitis.

## PATHOGENESIS

Zuska, Crile and Ayres<sup>1</sup> postulated the following steps in the pathogenesis of this condition:

1. Stasis of secretions within a lactiferous duct.
2. Dilatation and infection in the region of the ampulla.
3. Ulceration of the ductal epithelium with extension of the inflammation into the breast tissue.
4. The formation of a subareolar breast abscess.
5. Rupture of the abscess through the skin with the formation of an infected fistulous tract.

Microscopically, they found the duct to be lined for the most part by hyperplastic squamous epithelium. Within the duct there are flat scales of keratin derived from the lining epithelium. These keratin scales form the paste-like secretion which acts as the obstructing agent and which can be expressed from the duct. A similar description of the pathology has been given by Patey and Thackray.<sup>5</sup>

There have been several further reports of this condition since the classical description by Zuska, Crile and Ayres.<sup>1</sup> Kilgore and Fleming<sup>6</sup> reported 68 cases, drawing attention

TABLE I. DETAILS OF PATIENTS WITH LACTIFEROUS DUCT FISTULAE \*

Case	Age	Marital status	Recurrences	
			After incisions	Without incisions
E.H.	47	Unmarried .. ..	2	—
D.M.	36	Unmarried .. ..	2	—
B.B.	49	Unmarried .. ..	4	—
M.B.	33	Married. Lactation ..	3	—
A.M.	40	Married .. ..	—	3
S.S.	29	Married .. ..	—	2

\*In all the patients the nipples were inverted on the side of the disease only.

to the common occurrence of inverted nipples in their cases. In Atkins<sup>7</sup> series of 28 patients, 19 had inverted nipples. According to these authors and others, inverted nipples, either congenital or acquired, are incriminated as a cause of this condition.<sup>8</sup>

#### PRESENT SERIES

Six patients with lactiferous duct fistulae have been encountered over a period of 1 year at the Johannesburg General Hospital (Table I).

These cases can be divided into 2 clinical groups:

1. A group of patients who had subcutaneous abscesses at the margin of the areola, which discharged spontaneously with apparent resolution, only to recur again and again.

2. A group in which the patients underwent a series of operations for breast abscesses, but the condition recurred relentlessly.

The clinical findings were as follows (Fig. 1):

1. A small sinus at the margin of the areola.
2. A band of dilated duct between the sinus and nipple.
3. A pasty secretion from the nipple.

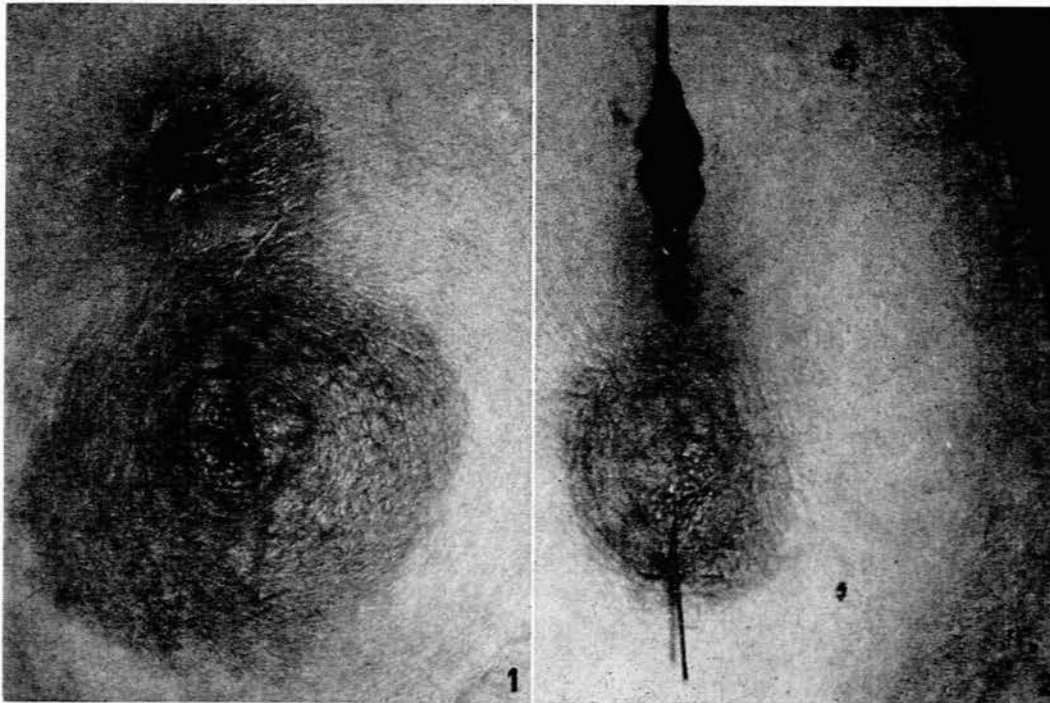


Fig. 1. Patient A. M. Note sinus at the margin of the areola and the inverted nipple.  
Fig. 2. Patient A. M. Lacrimal probe in position.

4. Frequently an inverted nipple on the side of the sinus.

Or, in the second group, in addition, multiple incisions which have failed to heal, leaving a sinus situated at the margin of the areola or somewhere along the incisional scar.

In this series 3 of the patients were unmarried and in only 1 case was the abscess associated with lactation. All the patients had inverted nipples confined to the side of the disease. On questioning, all the patients insisted that the inverted nipples were normal before the condition occurred. Thus it would seem that inverted nipples in this series might well be a result and not a cause of the condition.

#### PATHOLOGY

The specimen from patient M.B. was studied in serial sections by Mr. C. Toker, F.R.C.S., who reported the following:

'Histologic study of this resected specimen revealed alterations similar to those reported by Patey and Thackray, and their views on the pathogenesis of the fistula appear to be applicable in this instance. A plug of keratin was found to be occluding the ampullary area of the duct. The channel displayed marked dilatation, its greatest dimension being attained shortly below the ampulla. As the duct was followed more deeply into the breast substance the dilatation diminished, although some tortuosity was evident. Ultimately the epithelial lining disintegrated completely and the ductal wall was replaced by a fistulous track which could be followed to the surface. This track was lined by inflammatory granulation tissue with considerable surrounding fibrosis.

'The histologic features were strongly suggestive of obstruction at the ampullary level, for it was here that

the dilatation was maximal. The mass of keratin filling the ampulla was clearly discernible, and it was thought justifiable to regard this as the occluding agent, for no other organic obstructing lesion was detectable along the entire course of the affected channel.'

#### TREATMENT

A rational form of treatment of this condition should thus be excision of the whole duct and fistula, and not simply incision of the abscess.

*Procedure (Fig. 2)*

A lacrimal probe is passed through the sinus to appear on the nipple. In so doing, a thick pasty secretion is usually extruded on the nipple by the probe. The whole duct is then excised from the sinus to the opening on the nipple, and the wound is then left to granulate. Five patients in the present series were cured by this method. The other patient did not undergo operative treatment.

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## REFERENCES

1. Zuska, J. J., Crile, G. and Ayres, W. W. (1951): *Amer. J. Surg.*, **81**, 312.
2. Deaver, J. B., McFarland, J. and Herman, L. (1917): *The Breast*, p. 198. Philadelphia: Blakiston.
3. Lewis, D. (1937): *Practice of Surgery*, vol. 5, p. 20. Hagerstown, Maryland: W. F. Prior.
4. Foote, F. W. and Stewart, F. W. (1945): *Ann. Surg.*, **121**, 6 and 197.
5. Patey, D. H. and Thackray, A. C. (1958): *Lancet*, **2**, 871.
6. Kilgore, A. R. and Fleming, R. (1952): *Calif. Med.*, **77**, 190.
7. Atkins, H. J. B. (1955): *Brit. Med. J.*, **2**, 1473.
8. McGregor, A. L. (1959): *Med. Proc.*, **5**, 86.