

Microdochectomy for Single-duct Nipple Discharge

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Abstract

Introduction: Isolated single-duct nipple discharge is worrying and poses a surgical dilemma. Factors predicting malignancy are controversial. **Materials and Methods:** Retrospective review of 92 consecutive microdochectomies for single-duct nipple discharge in a tertiary referral centre over 8 years. **Results:** The commonest causes were ductal papilloma (52%) and fibrocystic diseases of the breast (21%). Five (5%) patients had breast carcinoma, of whom only 1 had an invasive component. The median age of these patients was 43 years (range 26 to 72 years) which was similar to median age of the whole cohort. Sixty-seven (73%) patients presented with blood-stained nipple discharge. The 5 patients with breast carcinoma had blood-stained discharge. Mammography was abnormal in 1 out of 4 patients in the carcinoma group. **Conclusions:** The incidence of breast carcinoma in patients presenting with isolated single-duct nipple discharge was low (5%) among Singaporean women. There was no reliable predictors of malignancy, though all patients with carcinoma presented with blood-stained discharge. Microdochectomy still remains an effective treatment for nipple discharge both for cure and diagnosis.

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Introduction

Nipple discharge is a common disturbing symptom for many women and often leads to a surgical referral. It accounts for 3% to 5% of all breast symptoms.^{1,2} In contradistinction to multiple duct discharge, unilateral and persistent discharge in a non-lactating breast is of greater significance as a local surgical pathology such as tumour is often encountered. Microdochectomy is the conventional surgical treatment for this persistent discharge. The use of predictive factors for malignancy to select patients for conservative treatment has been controversial.

We reviewed consecutive patients with persistent single-duct nipple discharge treated surgically at a tertiary referral centre so as to analyse the causes and their clinico-pathological characteristics.

Materials and Methods

Between December 1990 and September 1998, 92 cases of microdochectomy were performed for nipple discharge by the Department of Surgery, Singapore General Hospital. All patients had discharge arising from a single duct. If a breast lump was discovered on clinical examination or on mammography, these cases were excluded from the study and were managed on merit of the lump. Most patients had

a mammogram done prior to the operation. Cytological assessment of the discharge was not routinely done.

Surgery was performed under general anaesthesia. The affected duct was identified by gentle compression of the periareolar region. A lacrimal probe was then inserted into the duct. Methylene blue was sometimes injected into the affected duct to aid dissection and the duct was excised in continuity (Fig. 1). The specimen was then sent for histological examination and the wound closed with fine sutures.

Results

The median age of the patients was 42 years with an age range of 17 to 93 years. A positive family history of breast cancer was found in only 3 of the 92 patients (3.3%). The majority of cases [67 (73%)] who underwent surgery presented with blood-stained nipple discharge. Twelve (13%) had serous discharge, 6 (7%) had brown discharge, 4 (4%) had milky discharge and 3 (3%) had other coloured nipple discharge.

Mammography was performed in 71 of the 92 patients (77%) and this was reported as normal in 52 cases. It showed benign changes in 9 cases, while nodules were seen in 7 cases, and calcifications in 3 cases.

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Fig. 1. The diseased duct clearly delineated by transareolar methylene blue injection and excised via a circumareolar incision.

The histological findings were correlated with the types of nipple discharge (Table I). Ductal carcinoma *in situ* (DCIS) was found in 5 of the 92 cases. One specimen was found to have concomitant invasive mucinous carcinoma in addition to low grade DCIS.

The 5 patients with breast carcinoma on histology had a median age of 43 years with an age range of 26 to 72 years. All patients had presented with blood-stained nipple discharge. Four of the 5 patients had a mammogram done prior to surgery. The mammography results were normal in 3 patients while 1 showed coarse calcifications. The patients

with breast carcinoma were subsequently treated with mastectomy while a simultaneous axillary clearance was done for the patient with invasive carcinoma.

Discussion

The incidence of breast carcinoma in Singaporean women presenting with isolated single-duct nipple discharge was low at 5%. The majority of cases were due to ductal papillomas and fibrocystic changes of the breast. These results were similar to an earlier local series.³

The management of patients presenting with single-duct nipple discharge without an associated breast lump has been much debated. Conventionally, the treatment is surgical, with an aim to obtain a histological diagnosis and exclude malignancy. Surgery is also therapeutic and is able to alleviate symptoms which will otherwise persists. However, many have tried to correlate other patient factors with malignancy in order to adopt a more conservative approach to avoid surgery but none have been found to be reliable.^{2,4,5}

Malignancy was more likely in the elderly group with nipple discharge^{4,5} but the present study did not confirm this. Instead, the youngest patient with breast carcinoma was only 26 years old. Hence, young age does not exclude carcinoma and all women with abnormal nipple discharge should be evaluated regardless of their age.

Although all the patients with carcinoma in this study presented with blood-stained discharge, the nature of the discharge was not a reliable predictor of malignancy (Table II). The majority of patients with blood-stained discharge were found to have ductal papillomas and other benign diseases (Fig. 2). A note of caution would be that up to 67% of malignant lesions had non-blood-stained discharge. However, Chaudary et al² have suggested that nipple discharge secondary to carcinoma always contains haemoglobin and hence occult blood testing would be more reliable in defining sinister lesions rather than naked eye appearance. Preoperative cytology of nipple discharge has been advocated⁴ but its low sensitivity prevents it from

TABLE I: HISTOPATHOLOGY OF MICRODOCHECTOMY SPECIMENS AND THEIR CORRELATION WITH BLOOD-STAINED DISCHARGES

Histological diagnosis	n (%)	Blood-stained discharge (%)
Carcinoma	5 (5)	100
Papilloma	48 (52)	79
Fibrocystic disease	19 (21)	58
Ductal hyperplasia	7 (8)	71
Chronic inflammation	6 (7)	67
Others	7 (8)	57

TABLE II: SERIES OF MICRODOCHECTOMY PERFORMED FOR SINGLE-DUCT NIPPLE DISCHARGE AND THEIR PREOPERATIVE EVALUATION

	Carcinoma (+)		Blood-stained discharge	Abnormal mammogram*
	invasive	<i>in situ</i>		
Chaudary et al ²	8	8 (6%)	6 (33%)**	-
Fung et al ⁴	7	8 (9%)	8 (53%)	2/15 (13%)
Welch et al ⁵	6	10 (10%)	14 (88%)	5/15 (33%)
Locker et al ⁶	0	8 (8%)	5 (63%)	6/8 (75%)
Wong et al	1	4 (5%)	5 (100%)	1/4 (25%)

(+) Incidence of carcinoma found at microdochectomy

* Denominator denotes the number of mammograms done in the carcinoma group

** All 16 cases tested positive for haemoglobin

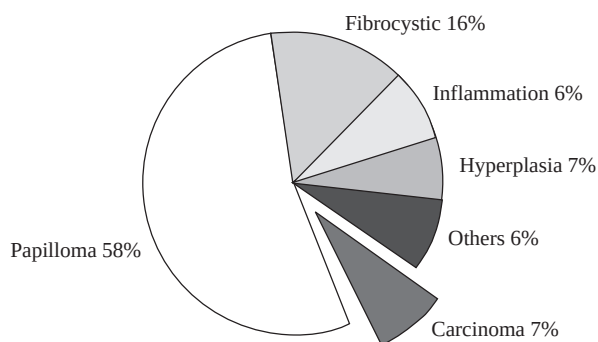


Fig. 2. Distribution of pathological causes of 67 patients with blood-stained nipple discharge.

been used as a selection tool for conservative treatment.

Mammography does not improve the sensitivity of occult malignancy (Table II). It had, however, formed the basis for selection for conservative approach.⁶ Herein lies the rationale for aggressive surveillance and follow-up of persistent discharge, that most of these lesions are premalignant and will otherwise be detected by regular clinical examination and yearly mammogram. However, many surgeons, as well as their patients tend to choose surgery to avoid the possibility of an ongoing malignant

process within one's breast.

Microdochectomy for nipple discharge is effective in alleviating symptoms, cosmetically acceptable and most importantly, it provides a histological diagnosis of the underlying disease. Hence, we recommend microdochectomy for persistent single duct nipple discharge for cure and diagnosis.

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