Original Article

Nipple Discharge: Evidenced Based Observation from Dept. of Surgery, Ad-din Hospital

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Background

Nipple discharge (ND) is the most common symptom in patients referred to breast cancer (Br-Ca) clinics accounting for 2–5% of all referrals and remains the 3rd most common breast symptom after breast pain and breast lump.[1]

Almost 15 years back, in 2007, A group of British surgeons led by Richard, T et el from Reading, UK, commented that ND remained a common sign of Br-Ca2, which 3–9% women presented as main symptom.[3,4]

The majority of patients are referred under the cancer guidelines because nipple discharge is traditionally regarded a sign of breast cancer,3 the incidence reported at 5–12%.4 However, although nipple discharge may be the presenting symptom, many cases may also have an underlying breast mass or abnormal mammography.[5-7]

The aim of this study is to assess the incidence of breast cancer in patients presenting with nipple discharge alone, who had normal clinical and radiological examinations. Nipple discharge causes significant anxiety among females, especially when bloodstained[8], although in most cases the aetiology is physiological or benign.[9] However, nipple discharge has been reported to be associated with breast cancer up to 15% of cases with remarkable variation of 5–15%.[10]

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Causes of nipple discharge:

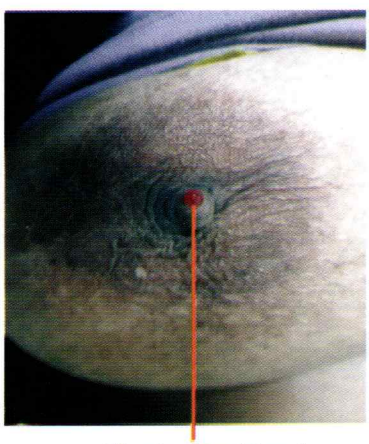
Nipple discharge may be categorized as physiological and pathological. Physiological nipple discharge is usually bilateral and originate from multiple ducts. The common causes are: pregnancy, lactation, hypothyroidism, pituitary adenoma, oral contraceptives, antihypertensives, and tranquilizers.[11] Pathological nipple discharge is spontaneous and mostly unilateral. It usually emanates from a single duct or may be associated with a mass or any skin changes.[12]

Pathological nipple discharge can again be classified as benign and malignant. Benign causes include ductal ectasia (6-59%), papilloma (35-56%),[13] papillomatosis, mastitis, fibrocystic changes.[14]

Among the malignant causes, ductal carcinoma in situ, Paget's disease of the nipple are common.

Benign breast diseases are mostly seen in women of reproductive age group, that peaks from 30 to 50 years[15]. On the other hand the incidence of breast cancer reaches its peak during postmenopause.[16]

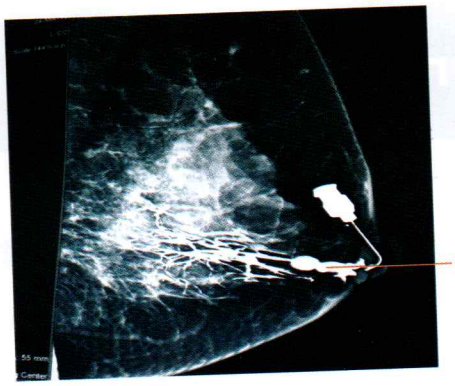
Danger signs associated
with lump
Blood stained
Unilateral
Spontaneous and persistent

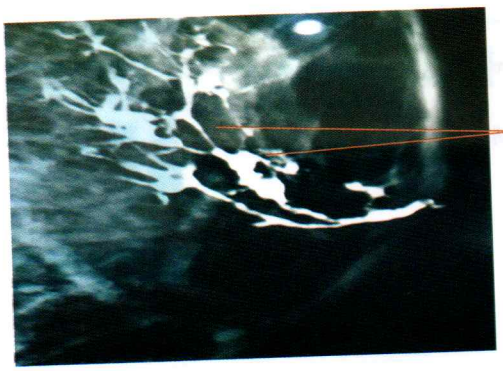


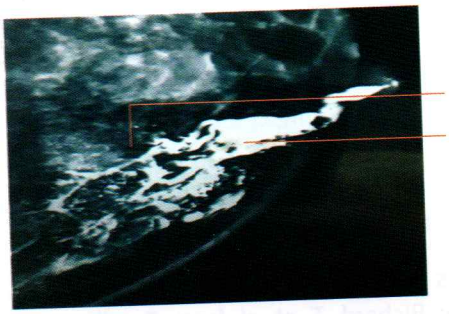
Single duct blood stained discharge

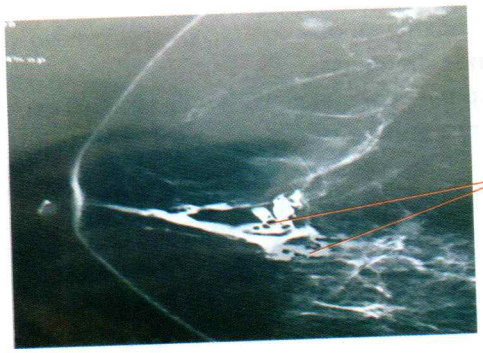
Investigations: Major investigations conducted in a patient with nipple discharge are: USG of Breast, Mammogram, Ductogram, Ductoscopy, MRI, Cytology of nipple discharge[17].

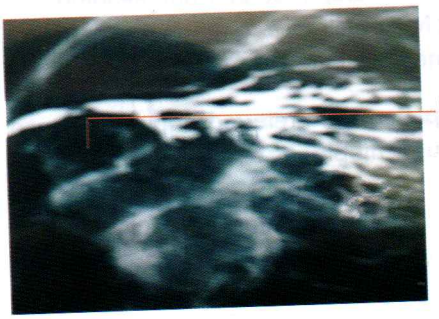
Core biopsy is done if there is any palpable lump.

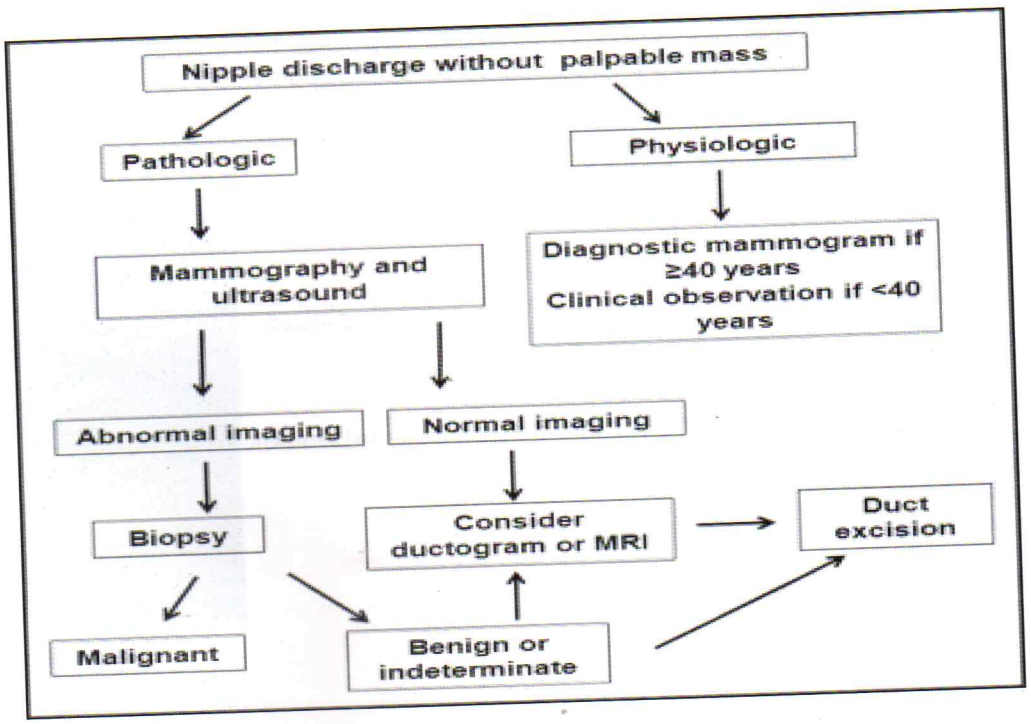












Indications of surgery:

Indications of surgery in nipple discharge depends on duct involvement.

1. In single duct involvement surgery is usually performed if there is blood stained nipple discharge.[18]

- Associate with lump
- Persistent discharge
- Recent origin age >50 years

2. **Multiple duct discharge**

- Persistent discharge, distressing

Types of surgery

In benign cases microdochectomy, total duct excision[19], vaccum assisted biopsy are usually done

In malignant cases, surgical intervention is performed according to stage current protocol[24].

Materials and Method

Study site: Ad-din Women's Medical College Hospital, Dhaka.

Popular Diagnostic Center, Dhanmondi, Dhaka.

Study design: Prospective study

Study Period: January 2018 to December 2019.

Sample size: 180 cases.

Sampling technique: Patient records, radiology findings and discharge cytology, pre-operative core biopsy findings in suspicious cases were recorded and final histopathological findings were correlated in operated cases.

Inclusion criteria:

Patients presenting with unilateral, bilateral, single or multi-ductal nipple discharge were included in this study.

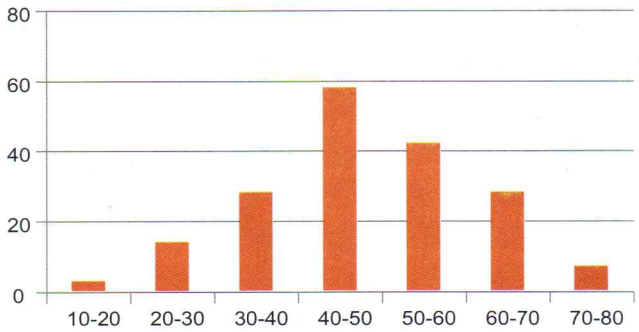
Exclusion criteria:

Pregnant patients, lactating mothers, patients with incomplete record or lack of follow-up were excluded from this study.

Results:

Of 1360 patients, 180 presented with nipple discharge (13.24%). Among them 62 had bilateral discharge (34.4) and 118 presented with unilateral discharge (65.6%).

Age distribution



Age distribution shows that most of the cases were from 30-50 years.

Associated with palpable mass:

Type of discharge	Total cases	Palpable mass	Malignancy
Serous	81	0	1
Greenish	23	3	0
Pus	26	8	0
bloody	27	11	5

Of palpable mass, the discharge type was more being serous which is 81 (45%), followed by pus (N=26), bloody discharge (27) and 27 had greenish discharge (15%).

Breast imaging findings:

Findings	Number	%
Normal	45	25%
Fibrocystic changes	58	32.2%
Duct papilloma	28	15.55%
Duct ectasia	26	14.44%
Microcalcification	9	5%
Duct wall hyperplasia	14	7.77%

Findings of breast imaging yielded Fibrocystic changes in most of the cases (32.2%), Followed by normal findings in 25% cases. 15% on average showed ductal papilloma and duct ectasia. Among 9 (5%) cases microcalcification was found.

Nipple discharge cytology revealed that atypical cells were present only in 5 cases (2.7%).

Non-operated 120 patients

For non-pathological discharge
- ✓ **bilateral discharge**
- ✓ **discharge only on expression**
- ✓ **not blood stained and**
- ✓ **negative on cytology and**
- ✓ **no other radiological or clinical abnormalities**
- ✓ **has systemic diseases such as elevated TSH**
- ✓ **or prolactin**

↓

Medical management or Follow up

Surgical procedures:

Microdochectomy	30 cases
Total duct Excision	13 cases
Duct excision with Segmental excision	10 cases
Duct excision with WLE with SLB	5 cases
Duct excision with WLE with axillary dissection	1 case
Simple mastectomy with SLB	2 cases

Among the patients, 30 underwent microdochetomy. Total duct excision and duct excision with segmental excision was done in 13 cases and 10 cases respectively. Simple mastectomy was performed in 2 cases and duct excision with WLE with axillary dissection in 1 patient.

Histopathological diagnosis

Intra ductal papilloma	28 cases
Duct ectasia	13 cases
Inflammatory & benign	10 cases
DCIS	4 cases
Invasive cancer	5 cases

Histopathological diagnosis revealed intra ductal papilloma was found in most if the cases (28), followed by duct ectasia (13 cases). 10 cases were found to be inflammatory & benign. In 4 cases ductal carcinoma in situ was found and 5 had invasive cancer.

Recently the development of endoscopic tools and fiber optics will allow safer diagnosis and treatment without any sacrifice in function and excellent aesthetic results.

Discussion:

Hemorrhagic nipple discharge with a palpable breast mass frequently signifies a malignant lesion. Among 180 cases, 4 (2.22%) were identified as DCI and the 5 (2.7%) were invasive cancer.

Intra-ductal papilloma was the leading cause of 28 cases (15.56%) whereas 13 cases (7.2%) had pathological nipple discharge and duct-ectasia as the second cause.

Our finding remain similar to Sala et al study.

Among the cause, severe discharge (81.45%) remained most common: of which one case was malignant and 27 cases (15%) had blood stained discharge; among them 5 cases (18%) were malignant. This finding remain similar to Sala et al study.

Patients with PND for whom surgical intervention is still recommended include those with abnormal imaging findings and personal history or family history of breast cancer 21, 22. Dupont et al. found that patients with BRCA 1/2 mutations, history of ipsilateral breast cancer, and atypia on core needle biopsy had higher rates of upstage to malignancy at time of surgery 23. Bloody discharge and imaging abnormalities were also strong risk factors for underlying carcinoma and atypia in their study.

For patients with copious nipple discharge, nipple discharge that causes discomfort, or nipple discharge that persists for more than two years even if imaging is negative, surgery should be considered .21

Conclusion:

Bloody discharge without a palpable mass in patients over 50 years of age must also be considered as highly suspicious of invasive carcinoma. Absence of red blood cells in the discharge is not reliable for excluding breast cancer and therefore both blood-stained and non-blood stained (serous and serosanguinous) PND should still be fully investigated in order to avoid missing an underlying malignancy.

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