

## Original Article

## Atiological prevalence of Nipple Discharge

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International License](https://creativecommons.org/licenses/by/4.0/).**ABSTRACT**

**Background:** Nipple discharge is a common symptom in clinical practice. It is the third most common symptom after breast pain and lump. The risk of malignancy is higher when discharge unilateral, spontaneous bloody or serous. **Objectives:** The objective of this study is to find out the cause of nipple discharge and its relation to the breast cancer. **Methods & Material:** Patient present with nipple discharge about 85 cases selected from outpatient and indoor patient department of Mugda Medical College & Hospital from July 2019 to December 2020. Women age between 18 to 50 years present with nipple discharge without clinically palpable lump. All patient with nipple discharge evaluated by Triple assessment such as History, Clinical Examinations, USG, Mammography, Cytology and Histopathological examination and hormonal status of TSH and prolactin level. **Results:** These case series showed bilateral nipple discharge of 70 cases were mechanical stimulation, 1 year after cessation of lactation, hypothyroidism, hyperprolactinemia and fibrocystic disease. Rest 15 cases had unilateral nipple discharge were papilloma, duct ectasia and 1 case found duct cell carcinoma in situ (DCI). **Conclusion:** Benign breast lesions are the most common cause of nipple discharge. Breast cancer is rare. We must be assessed the patient step wise and exclude malignancy.

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**Key words:** Nipple discharge, Ultrasonography, Mammography, Histopathology

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**INTRODUCTION:**

Nipple discharge is the third most frequent complaint of patients visiting a breast clinic, after breast lump and pain, being the presenting symptom in 4-7% of cases<sup>11,24</sup>. Nipple discharge is categorized as physiological, para-physiological and pathological. Physiological nipple discharge may be related to lactation. It is

expected during pregnancy and lactation and may persist for up to one-year post-partum or after cessation of breastfeeding. Physiological nipple discharge is usually bilateral and white, green, or yellow in color. It involves multiple ducts and is associated with nipple squeezing. Para-physiological nipple discharge may be

caused by hypothyroidism, pituitary adenoma, ectopically produced prolactin, hypothalamic disease and pharmacotherapy. Nipple discharge associated with some medicine like methyldopa, reserpine, verapamil, cimetidine, ranitidine, opioid and anti-dopamine drug, phenothiazines, tricyclic antidepressant etc. Some other chronic diseases like chronic renal failure, chronic liver disease responsible for nipple discharge. Pathological nipple discharge (PND) is defined as a clear, serous, or bloody secretion (not green or milky), spontaneous, discharging from a single duct and unilateral<sup>1,5</sup>. It is frequently caused by a benign lesion, such as intraductal papilloma(s) (35–56% of cases) or ductal ectasia (6–59%), but an underlying malignancy can be present in a percentage of cases reported to be variable from 5 to 33%<sup>1,5</sup>. The incidence of malignancy ductal carcinoma in situ (DCIS) and invasive ductal carcinoma (IDC) in pathological nipple discharge (PND) patients varies from 1 to 23%<sup>2,4,6</sup>. Nipple discharge is a complex diagnostic challenge for the clinician because variety of diseases can manifest as nipple discharge. Nipple discharge is important for both patient and the physician. Because

## RESULTS:

In the series of 85 cases of nipple discharge, all were female patient. The patient age ranged from 18-50 years with mean age of 32.6 years. Table I show

**Table I: Mode of presentation**

Mode of presentation	Number of patients 85	%
Bilateral nipple discharge	70	82.3
Unilateral nipple discharge	15	17.7

Table II show causes of bilateral nipple discharge were Mechanical stimulation (21.4%), 1 year after cessation of lactation (18.6%), Hypothyroidism (10%), Hyperprolactinemia (28.6%), Fibrocystic

there is the possible association with an underlying carcinoma. Due to awareness of breast cancer, an increase number of women are asking their health care provider about nipple discharge. So detailed clinical evaluation is in valuable to determine the pathophysiology, assess risk of malignancy and plan treatment of the patient with nipple discharge<sup>10</sup>.

## METHODS AND MATERIALS

Patient present with nipple discharge about 85 cases selected from outpatient and indoor patient department of Mugda Medical College & Hospital from July 2019 to December 2020. That case series design as prospective type study.

**Inclusion Criteria:** Women age between 18 to 50 years present with nipple discharge without clinically palpable lump.

**Exclusion Criteria:** Pregnancy, Lactating mother, Breast lump, Drug related to nipple discharge, Male patient.

All patient with nipple discharge evaluated by Triple assessment such as History, Clinical Examinations, USG, Mammogram, Cytology and Histopathological examination and hormonal status of TSH and prolactin level.

bilateral nipple discharge (82.3%) was common than Unilateral nipple discharge (17.7%).

disease (14.3%) and idiopathic (7.1%). In case of bilateral nipple discharge Hyperprolactinemia was common than other.

**Table II: Causes of bilateral nipple discharge**

Causes	Number of patients=70	%
Mechanical stimulation	15	21.4
1 year after cessation of lactation	13	18.6
Hypothyroidism	7	10
Hyperprolactinemia	20	28.6
Fibrocystic disease	10	14.3
idiopathic	5	7.1

Table III show causes of unilateral nipple discharge were Duct ectasia (66.7%),

Papilloma (13.3%), Mastitis (13.3%) and Duct cell carcinoma in situ (DCIS-6.7%).

**Table III: Causes of unilateral nipple discharge**

Causes	Number of patients 15	%
Duct ectasia	10	66.7
Papilloma	2	13.3
Mastitis	2	13.3
DCIS	1	6.7

Table IV show Ultrasonography was done in all cases and mammography were done in 15 patients.

**Table IV: Imaging**

Imaging	Number of patients 85	%
USG	85	100
MMG	15	17.6

Ultrasonography of 50 cases showed normal findings and other 35 cases of Table V findings were fibrocystic changes

(40%), Duct ectasia (40%), ill- defined solid mass (12%) and mastitis (8%).

**Table V: USG findings**

Findings	Number of patients 35	%
Fibrocystic breast	10	40
Duct ectasia	10	40
Ill-defined solid mass	3	12
Mastitis	2	8

Table VI show 15 cases of mammography findings were fibrocystic changes (47%), Duct ectasia (33%), mastitis (8%) and

Hyperdense mass with microcalcification (7%).

**Table VI: MMG findings**

Findings	Number of patients <sup>15</sup>	%
Fibrocystic breast	7	47
Mastitis	2	13
Duct ectasia	5	33
Hyperdense mass with microcalcification	1	7

Table VII show 8 number of patients presented with bloody discharge; we were done cytology. Cytological findings were duct ectasia (62.5%), papilloma (2%) and

Duct cell carcinoma in situ (DCIS-12.5%). We were done histopathological examination 13 number of patients for confirm diagnosis.

**Table VII: Cytological findings**

RBC present	Number of patients 8	%
Duct ectasia	5	62.5
Papilloma	2	25
DCIS	1	12.5

Table VIII show histopathological findings were Duct ectasia (77%), papilloma (15%)

and Duct cell carcinoma in situ (DCIS-8%).

**Table VIII: Histopathological findings**

Histopathological	Number of patients <sup>13</sup>	%
Duct ectasia	10	77
papilloma	2	15
DCIS	1	8

**DISCUSSION:**

Nipple discharge means fluid come from nipple of the breast. It is the third most common breast complaint for women seek medical attention, after lump and breast pain. It is the symptom that makes many women both discomfort and anxiety. In our study 85 cases selected from both OPD (outpatient department) and IPD (indoor patient department). Age of the patients between 18 to 50 years with nipple discharge. Benign is bilateral not spontaneous and occurs with breast manipulation or stimulation. Suspicious discharge is generally unilateral, spontaneous, persistent and not associated with lactation. Carcinoma association

when discharge clear, serous, serosanguinous (pink) or bloody.

Clinical history and physical examination, with visual inspection and palpation of the breasts and nipple areola complex, play essential roles in the differentiation between physiological and pathological nipple discharge. The approximate date of onset of the symptom, its duration, frequency, and quantity, as well as whether it is spontaneous or induced, color of nipple discharge (clear, milky, serous, yellow, green, serosanguinous, bloody, brown or black), unilateral or bilateral and single or multiple duct discharge. It is also important to investigate the date of the last pregnancy, breastfeeding within 2 years,

spontaneous abortion, intentional termination of pregnancy, use of medications (anticoagulants or neuroleptics), trauma and smoking as well as patient hormonal status and (personal and family) history of breast or ovarian disease.

Abnormal discharge usually related to intraductal papilloma, duct ectasia, papillomatosis, mastitis, fibrocystic changes, breast carcinoma and Paget's disease of the nipple. Bloody, unilateral discharge originating from one duct are features associated with suspicious lesions. In our study the first diagnostic work-up of females with suspected pathological nipple discharge includes clinical history and physical examination. Although conventional imaging including mammography and ultrasonography were also done. These investigations were not always able to exclude an underlying malignancy. Other's investigation was proposed such as ductography and MRI. Ductal imaging by ductography is helpful but non-specific. Consequently, new diagnostic tools are being developed like

Fiberductoscopy (FDS) is a new diagnostic option in PND patients<sup>2,4</sup>. But it is not available in our country. The incidence of malignancy ductal carcinoma in situ (DCIS) and Invasive ductal carcinoma in PND patients varies from 1 to 23%<sup>7</sup>. Differentiate between a benign from malignant etiology of a pathological nipple discharge (PND) based on clinical and diagnostic assessment is not easy, surgical excision has been considered the main way for getting both definitive diagnosis and eliminating the symptoms.

**Ultrasonography:** Most available investigation of nipple discharge below 35 years old. In case of nipple discharge USG sensitivity 63-100%, on other hand MMG sensitivity is low 7-26%. In a study evaluating 38 patients with nipple discharge (32 of them with PND) with mammography and ultrasound, the overall sensitivity for malignant and high-risk lesions (papilloma's and atypical

intraductal hyperplasia) were 26% for mammography and 63% for ultrasound; specificity was 94% and 84%, respectively<sup>11,15</sup>. In our study we did 85 cases USG and found following result such as fibrocystic disease 40%, mastitis 8%, duct ectasia 40% and ill-defined solid lesion 12%.

**Mammography:** It is the first conventional imaging technique to investigate nipple discharge above 35 years old. Patients with PND, aged between 30 and 50 years old with high-risk, could be appropriated in order to exclude the presence of microcalcification, as well as for females younger than 30 of age when initial ultrasonography shows suspicious findings<sup>9</sup>. The sensitivity of mammography ranged from 7 to 26%<sup>4</sup>. In our study 15 patient had done MMG. We have found fibrocystic disease 47%, mastitis 13%, duct ectasia 33% and hyperdense mass with microcalcification 7%.

**Cytology:** It is simple and fast examination, easy to perform and painless but limited by a low sensitivity for cancer, with a false negative rate over 50%. Presence of RBC cells in nipple discharge is not reliable marker for breast cancer<sup>4</sup>. In my study 8 patient had bloody discharge and found duct ectasia 62.5%, papilloma 25% and DCIS 12.5%.

**Magnetic Resonance Imaging:** It is sensitivity for breast cancer ranging from 90 to 99%. Morrogh et al studied 306 patients with PND. They reported a positive predictive value of 56% and a NPV of 87% for contrast-enhanced MRI<sup>4,6,7</sup>. We did not do any MRI because it's expensive.

**Surgical Excision:** Most commonly performed operations for nipple discharge are Microdochectomy with isolation and removal of the affected duct or radical subareolar duct excision otherwise known as Hadfield's procedure<sup>11,12</sup>. These operations are both diagnostic and therapeutic. Histopathology of excised tissue is often benign<sup>5</sup>. In this series, the

most common benign histopathological findings were duct ectasia (53%) and duct papilloma (47%). The majority with underlying intraduct papilloma had RBC-positive discharge. Data from pathological series suggest incidence of undetected Duct cell carcinoma in situ (DCIS) may be 5–10% depending on age<sup>14</sup>. Lobular carcinoma in situ (LCIS) is uncommon. In our study after Hadfield's operation (13 patient) we have found duct ectasia 77%, intraductal papilloma 15% and Duct cell carcinoma in situ 8%.

#### Follow Up:

PND patients between a high- risk group patients requiring surgery versus a low - risk patients include those in whom a short-term surveillance is reasonable. Low-risk patients include those without abnormal findings on clinical and radiological assessment that can be monitored every 6 months up to 2 years or until the discharge resolved, follow up the patient with History, physical and USG examination<sup>4</sup>.

If nipple discharge is persistent or recurrent after 2 years monitoring or for patient choice for symptomatic relief, duct excision may be considered.

#### CONCLUSION:

Fortunately, the cause of nipple discharge is usually benign. Nipple discharge alone is not usually a sign of breast cancer,

Occult malignancy is rare. A period of watchful waiting may prevent patient underlying unnecessary surgery.

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