Seminar 3

BREAST DISCHARGE
Objective (1) : Describe the types of breast discharge.

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BREAST DISCHARGE

The discharge can either be:

- Physiological  ➔ If the ductal system is **NORMAL**.
- Pathological  ➔ If the ductal system is **AFFECTED**.
### Pathologic Discharge vs Physiological Discharge

<table>
<thead>
<tr>
<th>Pathologic Discharge</th>
<th>Physiological Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spontaneous, unilateral, Single duct.</td>
<td>Usually bilateral, involves multiple ducts.</td>
</tr>
<tr>
<td>Bloody, serous, clear, or associated with a mass.</td>
<td>Whitish-yellow, (serous)yellow, or green</td>
</tr>
</tbody>
</table>
**TYPES OF BREAST DISCHARGE**

- **Cloudy white color** — most common, can be galactorrhea
- **Clear or light white** — pregnancy
- **Red “contains blood”** — most often due to breast infection or intraductal papillomas, but can be breast cancer
- **Whitish-yellow, yellow, or green** — pus due to infection
The main characteristics of an innocent nipple discharge are that it is usually Bilateral (occurring in both breasts). There are also no signs of obvious lumps or presence of blood on clinical examination.

On the other hand, nipple discharge caused by cancer tends to occur spontaneously, only on one side (Unilateral), and is often from a single duct. Also a palpable mass.
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Benign / non-suspicious</th>
<th>Malignant / suspicious</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spontaneity of nipple discharge</td>
<td>Non-spontaneous</td>
<td>Spontaneous</td>
</tr>
<tr>
<td>Colour of nipple discharge</td>
<td>Milky, green, yellow, bloody or multi-coloured</td>
<td>Clear, yellow (serous), pink, bloody</td>
</tr>
<tr>
<td>Unilateral / bilateral discharge</td>
<td>Bilateral</td>
<td>Unilateral</td>
</tr>
<tr>
<td>Presence of palpable breast mass or other breast symptoms</td>
<td>Not present</td>
<td>Present</td>
</tr>
<tr>
<td>Number of ducts</td>
<td>Multiple ducts</td>
<td>Single duct</td>
</tr>
<tr>
<td>Consistency of discharge</td>
<td>Sticky</td>
<td>Clear</td>
</tr>
</tbody>
</table>
Nipple discharge is NOT normal in males.
References:

- http://www.upmcphysicianresources.com/cme-course/nipple-discharge

- http://www.mayoclinic.org/symptoms/nipple-discharge/basics/causes/sym-20050946

- https://www.myvmc.com/symptoms/nipple-discharge/
Clinical Significance of Breast Discharge

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Outline

• **Signs** of breast cancer in patients with breast discharge

• **Types** of breast discharge

• **Clinical Significance** of each type
Breast Cancer is a Possibility, Especially If:

- There is a lump the breast
- Only one breast is affected
- The discharge contains blood
- The discharge is spontaneous and persistent
- The discharge affects only a single duct
Types

1. **Milky**: white discharge; fat globules sometimes observed under microscopy

2. **Multicolored gummous**: sticky discharge

3. **Purulent**: pus with WBCs observed under microscopy

4. **Watery**: colorless discharge

5. **Serous**: faintly yellow, thin discharge

6. **Serosanguinuous**: thin, clear discharge with pink tint, RBCs observed under microscopy

7. **Bloody**
Clinical Significance
Milky Discharge
Galactorrhea

• Galactorrhea, or nonpuerperal lactation, usually results from multiple duct discharge from both breasts.

• The etiology of galactorrhea can be classified in terms of prolactin abnormalities.

• Galactorrhea associated with high prolactins can be caused by failure of the normal hypothalamic inhibition of prolactin release, enhanced prolactin-releasing factor, or autonomous or ectopic prolactin-releasing factor.

• Lesions in the hypothalamus, pituitary stalk section can decrease the inhibitory dopaminergic control of prolactin.
Drugs

• Drugs that influence the central nervous system can decrease the inhibitory dopaminergic control of prolactin.

• Common drugs interfering with prolactin inhibition are psychotropic drugs (butyrophenones, phenothiazines), antihypertensives (reserpine, alpha-methylldopa), cannabinoids and opiates (marijuana, morphine, heroin), contraceptives, and metoclopropamide.
A physiologic enhancement of prolactin release is caused by thyrotropin releasing hormone (TRH). Primary hypothyroidism resulting in increases of TRH can cause prolactin release and galactorrhea that can be cured by thyroid hormone replacement.
Pituitary Tumors

• Three types of pituitary tumors may be associated with galactorrhea:

1. **Pure prolactin-secreting tumors (micro- or macroadenoma)**

2. **Mixed tumors** that secrete both growth hormone and prolactin

3. **Chromophobe adenomas**

• Prolactin can also be rarely secreted by other malignancies, such as bronchogenic carcinoma, hydatidiform moles, chorio-carcinomas, and hypernephromas.
The majority of patients with galactorrhea will have normal prolactins. In a series of 235 women with galactorrhea, 32% had idiopathic galactorrhea with normal prolactins.

Irritative nipple stimulation or breast manipulation can cause galactorrhea with mildly elevated or normal prolactins.

One-third of normal nonpostpartum women will raise serum prolactin after repetitive breast stimulation.

Postpartum women can lactate with normal ovulatory function for one or more years following pregnancy, especially with breast manipulation.
Multicolored & Sticky Discharge
Duct Ectasia / Comedomastitis

• Duct ectasia or comedomastitis can produce a multicolored, sticky discharge that is commonly bilateral in the perimenopausal woman.

• It begins as a dilation of the terminal ducts with an irritating lipid fluid collecting and producing an inflammatory reaction resulting in discharge from the nipple.

• Duct ectasia is most frequently associated with pain, itching, and swelling in the nipple.
Duct Ectasia / Comedomastitis

- Palpation of the areola can often reveal a tubular mass, reflecting the dilated ducts.

- Often a history of nipple manipulation can be elicited.

- If the disease progresses, a mass can develop (plasma cell mastitis) that can mimic cancer.

- Surgery is indicated only if a mass forms or the discharge changes to serosanguinuous or bloody.
Purulent Discharge
Mastitis

• In patients with acute puerperal mastitis, chronic lactation mastitis, central breast abscesses, or plasma cell mastitis, pus can be discharged, usually unilaterally.

• Breast cultures and smears may reveal an organism responsible.

• Abscess formation usually requires incision and drainage if appropriate antibiotics and local soaks do not have effect.

• It is important to remove a portion of an abscess wall for histologic study to rule out the possibility of an underlying cancer with secondary necrosis and infection.
Watery, Serous, Serosanguinous, & Bloody Discharges
The most common cause of these discharges is **intraductal papillomas**, but fibrocystic disease, advanced duct ectasia, cancer of the breast, and vascular engorgement in near-term pregnancy can also be causative.

In a series of 370 patients with watery, serous, serosanguinuous, or bloody discharge, 13.5% had cancer, 50.3% had intraductal papillomas, 31.1% had fibrocystic disease, and 5.1% had advanced duct ectasia.
• In patients over the age of 50, malignancy becomes increasingly common, especially if the discharge is unilateral and associated with a mass.

• Surgical exploration is mandatory in the group of patients with this type of discharge, even if cytologic and mammographic findings are negative.
Summary

Types of Breast Discharge

- Watery, Serous, Serosanguinous, & Bloody Discharges
  - Intraductal Papillomas
  - Fibrocystic Disease
  - Advanced Duct Ectasia
  - Breast Cancer
  - Vascular Engorgement in Near-Term Pregnancy

- Milky Discharge
  - Galactorrhea
  - Drugs
  - Primary Hypothyroidism
  - Pituitary Tumors
  - Idiopathic galactorrhea
  - Nipple Stimulation
  - Postpartum Women

- Multicolored & Sticky Discharge
  - Raised Prolactin

- Purulent Discharge
  - Normal Prolactin

- Duct Ectasia
  - Acute Puerperal Mastitis
  - Chronic Lactation Mastitis
  - Central Breast Abscesses
  - Plasma Cell Mastitis
Sources

- Mayo Clinic - [http://www.mayoclinic.org/symptoms/nipple-discharge/basics/definition/sym-20050946](http://www.mayoclinic.org/symptoms/nipple-discharge/basics/definition/sym-20050946)

- Johns Hopkins - [http://www.hopkinsmedicine.org/breast_center/breast_cancers_other_conditions/nipple_discharge.html](http://www.hopkinsmedicine.org/breast_center/breast_cancers_other_conditions/nipple_discharge.html)

Breast Discharge Evaluation:
Maha AlTuwaijri, 2134485.
Breast-oriented history:

1) Breast complains.
2) Patient age.
3) Personal history of breast cancer.
4) Breast surgeries.
5) Date of last mammogram and results.
6) Some medications. (e.g. haloperidol)
Nipple discharge history:

1) Spontaneous or elicited?
2) Unilateral or bilateral?
3) From single or multiple openings?
4) Colored?
5) Bloody?
Clinical breast examination:

1) Inspection.
2) Palpation.
Mammography:

- Mammography is recommended to any patient presented with nipple discharge. (Especially over 40)
- Although there are studies that confirm that mammography is inadequate in the diagnosis of abnormal breast discharge.
- Only half of the patients presenting with nipple discharge were found to have cancer had an abnormal mammogram, the rest presented with microcalcification.
Breast Ultrasound:

- Breast Ultrasound is complementary to mammography and will help guide fine needle aspiration (FNA) and will help in obtaining cytology specimens from the abnormal area.
Further evaluation

1) Ductoscopy. (Usually done in case of bloody discharge)
2) MRI.
Fig. 3: Approach to case with nipple discharge.

- **History/Physical**
- **Complete radiology recommendations**
  - **Mammogram/ Ultrasound**
  - **Nature of discharge**
    - **Bloody**
    - Surgical consult +/- Ductography
      - *inform of next screening date
      - *recommend treatment
    - **Clear/brown/green/gray**
      - **Unilateral or Bilateral?**
        - **Unilateral**
        - **Milky/clear**
          - **Endocrine evaluation**
            - observe
          - **colored**
        - **Bilateral**
      - **Endocrine evaluation**
Management of nipple discharge

Lyla Ashry
• Nipple discharge is most often due to a benign process. This common breast problem has been reported in 10 to 15 percent of women with benign breast disease and in 2.5 to 3 percent of women with breast cancer.
Significance

• To be significant, a discharge should be true, spontaneous, persistent, and nonlactational.

• Of the 7 basic types, i.e., milky, multicolored and sticky, purulent, clear (watery), yellow (serous), pink (serosanguineous), and bloody (sanguineous), the last 4 are the surgically significant ones.
• All patients with spontaneous or unilateral nipple discharge should be referred for surgical evaluation.

• This is true for patients with bloody discharges and for those with clear or serous discharges.

• A terminal duct excision is both diagnostic and, for discharges that turn out to have a benign cause, therapeutic.
Physiologic discharge:

• Because stimulation of the nipple (i.e., squeezing to check for discharge) actually promotes discharge, patients with a physiologic discharge should be advised to avoid checking for discharge.

• A physiologic discharge often resolves when the nipple is left alone.
Bloody discharge

- Traditional treatment is surgical excision of the involved ductal system from which the discharge emanates.
Milky discharge

- Milky discharges are usually treated medically unless they are due to a pituitary adenoma. If the cause cannot be found and eradicated, bromocriptine is the drug of choice.
Sticky/multicolored

- Multicolored sticky discharges are also treated medically, chiefly by nipple hygiene, except when advanced.
Purulent discharge

- Purulent discharges are treated with appropriate antibiotics but abscesses need drainage and a biopsy of the wall.
Under 35/ want to have children:

- women under 35 years of age or in those anxious to have children, surgically significant discharges are treated by central duct excision. Good cosmetic results can be obtained with careful technique and the danger of a recurrent discharge is eliminated.
Thank you!!
References:

• https://www.ncbi.nlm.nih.gov/m/pubmed/12057078/?i=6&from=/2696228/related

• https://www.ncbi.nlm.nih.gov/m/pubmed/2696228/

• http://www.aafp.org/afp/2000/0415/p2371.html

• http://www.merckmanuals.com/professional/gynecology-and-obstetrics/breast-disorders/nipple-discharge

• https://www.uptodate.com/contents/nipple-discharge

• https://www.nytimes.com/health/guides/disease/nipple-problems/overview.html
Treatment of breast discharge

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Once the cause of the nipple discharge is found, the provider can recommend ways to treat it. It may:

• Need to change any medicine that caused the discharge
• Have lumps removed
• Have all or some of the breast ducts removed
• Receive creams to treat skin changes around the nipple
• Receive medicines to treat a health condition
TREATMENT IS BASED ON THE CAUSE.

• Papilloma:

The most common treatment for a Papilloma is surgery to remove the tumor and the affected duct.

• Ectasia:

Treatment is not always necessary, but may include antibiotics, over-the-counter pain medication, or surgery.
• **Infection:**

Treatment for a breast infection usually includes a round of antibiotics.

• **Fibrocystic breast changes:**

Fibrocystic breast changes are not dangerous and generally do not require treatment unless symptoms are severe.
Thank you

Any Questions?
References:

- https://medlineplus.gov/ency/article/001515.htm