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4**A comprehensive review of the Anatomy, types, composition, and both traditional and modern treatments of Leucorrhoea****Mohd Abid*, Md Furquan Khan, Niyaz Ahmad Ansari, Fatima zahra, Nayeem Ahmad, Abdulla Ansari**

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ABSTRACT: Leucorrhoea is the term for a white, yellow, or greenish discharge that may or may not be indicative of an infection coming from a woman's vagina. These discharges can come from the fallopian tubes, ovaries, vagina, or, most frequently, the cervix. Leucorrhoea has a complicated and poorly known etiology. Leucorrhoea is thought to be predisposed by alterations in the vaginal epithelium, the pH of the vaginal discharge, and the usual bacterial flora. Leucorrhoea has been linked to a number of conditions, including chronic disease, exhaustion, starvation, mental disorders, chronic retroverted uterus, congestive heart failure, gonococcal and monilial infections, vulvovaginitis, lesions of the vaginal wall and uterine cervix. It was discovered that 34 % had bacterial vaginosis and 23 % had a yeast infection (vaginal candidiasis). The study also revealed that 32 % of the participants had sexually transmitted diseases, including Chlamydia, Gonorrhoea, Trichomonas, or Genital Herpes. Understanding the anatomical basis and the variations in presentation is crucial for accurate diagnosis and effective treatment. While traditional treatments have provided relief for many, modern therapeutic approaches offer more targeted and scientifically validated options.

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E. Mail ID: fromabid@yahoo.com**INTRODUCTION:**

Leucorrhoea is the term for a white, yellow, or greenish discharge that may or may not be indicative of an infection coming from a woman's vagina. These discharges can come from the fallopian tubes, ovaries, vagina, or, most frequently, the cervix. Pregnancy can cause leucorrhoea, which is typical if the discharge is thin, white, and mostly odorless. Physiologic leucorrhoea is a common illness that typically lasts one to two months in newborn girls and occurs several months to a year after the commencement of menses in adolescent females. However, in many cases, leucorrhoea is a sign of infection, especially when the discharge is yellow or

Keywords: Leucorrhoea, Vaginal Epithelium, Vulvovaginitis, Cervical Mucus.

green, has an offensive odour, and is accompanied by irritation, itching, pain, or tissue inflammation ^[1].

Leucorrhoea is a highly prevalent issue in the fields of medicine and obstetrics. When an abnormal vaginal discharge occurs that is not hemorrhagic and is not brought on by a tumor or other major organic illness, it is referred to as "leucorrhoea." Because of its unclear etiology, it is also a challenging illness to treat effectively ^[2].

Leucorrhoea has a complicated and poorly known etiology. Leucorrhoea is thought to be predisposed by alterations in the vaginal epithelium, the pH of the vaginal discharge, and the usual bacterial flora. Leucorrhoea has been linked to a number of conditions, including chronic disease, exhaustion, starvation, mental disorders, chronic retroverted uterus, congestive heart failure, gonococcal and monilial infections, vulvovaginitis, lesions of the vaginal wall and uterine cervix ^[3].

TYPES OF LEUCORRHOEA:

Physiologic leucorrhoea:

Leucorrhoea is a defense mechanism that the vagina naturally employs to keep the chemical equilibrium of the vagina intact and to maintain the tissue's suppleness. Leucorrhoea brought on by oestrogen stimulation is referred to as "physiologic leucorrhoea". Leucorrhoea is a natural part of pregnancy. This is brought on by increased vaginal blood flow as a result of elevated estrogen. A brief period of leucorrhoea in female neonates may occur from their in-uterine exposure to oestrogen. Leucorrhoea inflammatory results from vaginal mucosal irritation or congestion. If it has a yellowish color or has an odor, it may indicate one of various medical conditions, such as an organic bacterial infection (aerobic vaginitis) or sexually transmitted diseases. Following childbirth, hemorrhage accompanied by backache and foul-smelling lochia (post-partum vaginal discharge, containing blood, mucus, and placental tissue) may suggest the failure of involution (the uterus returning to prepregnancy size) due to infection. A number of investigations such as wet smear, Gram stain, culture, pap smear and biopsy are suggested to diagnose the condition ^[4].

Parasitic leucorrhoea:

Leucorrhoea is also caused by trichomonads, a group of parasitic protozoans, specifically *Trichomonas vaginalis*. Common symptoms of this disease are burning

sensation, itching and discharge of frothy substance, thick, white or yellow mucus ^[4].

Factors affecting excessive secretion ^[5-7]:

Physiologic Cause:

When estrogen levels rise, normal secretion is predicted to increase. These situations include: increased production throughout puberty; increasing levels of endogenous estrogen cause the endocervical epithelium to expand noticeably, perhaps encroaching on the ectocervix and causing congenital ectopy (erosion).

During ovulation:

There is a peak spike in estrogen and an increase in the cervical glands' secretory activity.

Premenstrual syndrome:

Increased mucus output from the hypertrophied endometrial glands and pelvic congestion.

During pregnancy:

Hyperestrogenism and enhanced vascularity are present. Increased cervical gland production and vaginal transudate result from this.

During an intense sexual encounter:

There is a copious release of secretions from the Bartholin glands. There is no need for such therapy for physiological leucorrhoea, however maintaining personal cleanliness can help prevent worsening of the condition.

Cervical cause:

Non-infective cervical lesions may produce excessive secretion, which pours out at the vulva. Such lesions include cervical ectopy, chronic cervicitis, mucous polyp and ectropion.

Vaginal cause:

Increased vaginal transudation occurs in conditions associated with increased pelvic congestion. The conditions are uterine prolapse, acquired retroverted uterus. Chronic pelvic inflammation, pill use & vaginal adenosis. Irritation due to mechanical factors such as use of chemical contraceptives, intrauterine devices, etc. Ill health is one of the important causes of excessive discharge. It produces excess exfoliation of the superficial cells ^[5].

Other Cause:

Emotional causes such as stress, anxiety, work pressure and sexual anxiety, Hormonal irregularities, Errors in diet, excessive use of stimulants, e.g., tea, coffee,

alcohol and smoking and Medical conditions such as anaemia, tuberculosis, etc.

TYPES OF DISCHARGE ^[7-9]:

- Whitish homogen discharge.
- Whitish thick discharge suggestive of candidiasis.
- A foamy, whitish color indicating Trichomonas vaginalis infection.
- Hemorrhagic petechial on the vaginal wall are called “strawberry cervix.
- Purulent discharge from the Bartholin glands of a woman with gonococcal Bartholin glands abscess.
- Purulent urethral discharge and penile edema in-patient with gonococcal urethritis.

Normal discharge:

Regular vaginal fluid is made up of cervical mucus, vaginal secretions, cells from the vagina and cervix, and bacteria. Most of the fluid in vaginal fluid is mucus created by the cervix's glands. The remaining part is from the vaginal walls and secretions from certain glands (Skene's and Bartholin's). The solid parts include dead cells from the vaginal and cervix areas, along with some of the bacteria living in the vagina. Regular vaginal fluid is usually clear, white, or slightly off-white in color. It can be either milky or lumpy, and usually has a faint or no smell. The majority of the fluid collects in the deepest part of the vagina (the posterior fornix) and is expelled from the body throughout the day, aided by gravity. An average woman of reproductive age creates about 1.5 g (about half to one teaspoon) of vaginal fluid daily ^[10,11].

Abnormal discharge:

Irregular vaginal discharge can happen due to various reasons, such as infections or imbalances in the natural bacteria or acid levels in the vagina. Occasionally, the reason for this irregular discharge might not be clear. In a research study on women visiting clinics with worries about vaginal discharge or an unpleasant odor from their vagina, it was discovered that 34 % had bacterial vaginosis and 23 % had a yeast infection (vaginal candidiasis) ^[12]. The study also revealed that 32 % of the participants had sexually transmitted diseases, including Chlamydia, Gonorrhoea, Trichomonas, or Genital Herpes. Identifying the reason behind irregular vaginal discharge can be challenging, but tests like a potassium hydroxide test or checking the vaginal pH levels might help. If there's burning, irritation, or itching around the vulva along with the discharge, it's referred to as vaginitis ^[13].

Composition:

Leucorrhoea is a fluid and dead cell discharge from your vagina, indicating a healthy vaginal environment. This fluid, similar to mucus, helps maintain the vaginal area's moisture and removes potential contaminants that could cause infections. Its hue varies based on its content: bluish white from dead cells and mucus, yellow or greenish yellow from pus and bacteria, chocolate brown from old blood, or blood-colored from new blood; it might be thin from serum, sticky from mucin, or thick from pus; it could be odorless or emit a strong, unpleasant smell ^[14]. The cervical mucus is typically alkaline at 9.2, appears clear and shiny, whereas the vaginal mucus is acidic at 3.8 to 4.5. The chemical makeup of vaginal discharge includes a variety of substances such as acids, alcohols, hydroxyketones, and aromatic molecules. Common components found in all individuals include lactic acid, acetic acid, and urea, which experience significant fluctuations in concentration throughout the menstrual cycle, reaching their highest levels at mid cycle in all cases ^[15,16].

MANAGEMENT ^[17-19]:

Conventional:

After confirming a pathological leucorrhoea, medicines to be taken orally and broad spectrum (antifungal & antibacterial) ointments for local application are given in order to relieve local symptoms like itching etc. In case of infections diagnosed through lab investigations, antibiotics are given. Nutritional supplements may be added to improve general health.

Homeopathic:

Homeopathic remedies have also been found very effective in treatment of leucorrhoea.

Ayurvedic:

Ayurveda considers use of coriander and fenugreek seeds important in the treatment of leucorrhoea. Coriander seeds should be taken in the form of infusion. Fenugreek seeds can be taken in the form of decoction internally or a neutral douche of fenugreek seeds should be administered to the patient for 1 week.

The other medicines which are advised in Ayurveda include Pushyanug churna, Patrangasava, Chandraprabhavati, Amla, Mulethi and Pradrantak churna etc. which aim at moderating the frequency of excessive white discharge.

- Treatment of sweat pradara is based on the use of drugs with kashaya rasa and Kapha shamak

properties. Even Balyachikitsa to provide strength to female reproductive organs also proves good while treating leucorrhoea.

- A warm vaginal douche with Triphala water is recommended.
- Rice water wash is advised to maintain hygiene.
- Panchkarma is also beneficial for leucorrhoea like shirodhara, abhyanga, mardana, pinda sweda and shiroabhyanga are done for the treatment ^[17].
- Cold hip bath: Similarly a cold hip bath twice a day is also useful in removing the morbid matter.
- Washing and cleaning of vagina and internal parts with ½ tsp of Processed Alum powder with 500ml water.
- The decoction of bark of Lodhra is also used for the purpose of douching ^[18].
- Roasted chickpeas with khand and kishmish eaten regularly in the morning.
- **Natural Home remedies** ^[19]:
- Increase the fluid intake
- Include plenty of fruits and raw vegetables in the regular diet particularly bananas, oranges, lemons, green leafy vegetables etc.
- Spices such as ginger, garlic, fenugreek and coriander should be taken regularly. An infusion of coriander seeds should be consumed every day.
- Foods such as eggs, sweets, bread, mushrooms etc. should be avoided.

CONCLUSION:

In conclusion, leucorrhea is a complex condition that encompasses various types and compositions, each linked to different underlying causes. Understanding the anatomical basis and the variations in presentation is crucial for accurate diagnosis and effective treatment. While traditional treatments have provided relief for many, modern therapeutic approaches offer more targeted and scientifically validated options. Combining insights from both traditional and contemporary practices may offer a holistic approach to managing leucorrhea, ensuring better outcomes for patients. Continued research and clinical studies are essential to further refine these treatments and improve patient care.

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