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Lobular Carcinoma in Situ (LCIS) breast cancer Awareness and Prevention of LCIS Breast Cancer

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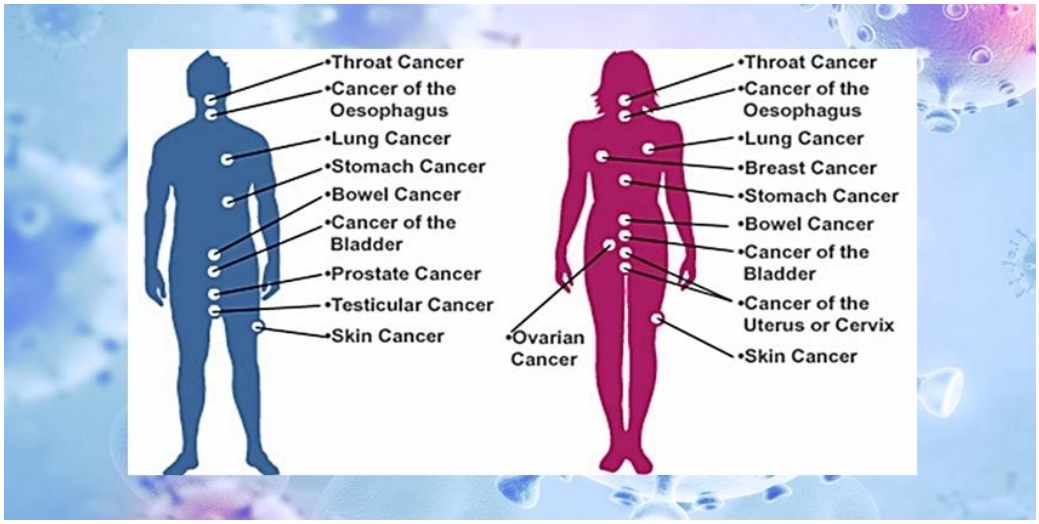
Abstract: Lobular carcinoma in situ (LCIS) is a rare breast condition where abnormal cells grow in the milk-producing glands, or lobules, of the breast. The abnormal cells remain in the ducts and don't spread to other breast tissue or the body. LCIS is not breast cancer, but it does increase the risk of developing it. It's unclear if LCIS is a pre-cancer or just a risk factor.Lobular carcinomas in situ (LCIS) represent 1-2% of all breast cancers. Both significance and treatment remain widely debated, as well as the possible similarities with DCIS

Key words :local recurrence, radiotherapy, breast-conserving surgery, prognosis, and decision analysis

- **CANCER:-** A disease in which abnormal cells divide uncontrollably and destroy body tissue. Cancer is a multifactorial, heterogeneous and chronic Disease. Basically, cancer itself is a group of diseases, because of its frequency, reciprocal influences-even minor influence may lead to a major impact.
- Epidemiological studies clearly indicate that risk for several types of cancer (including pancreas cancer.
- Liver cancer, breast cancer, urinary tract (colorectal) cancer is too high for mortality and morbidity.
- Obesity, hyperglycemia, and increased oxidative stress may also contribute to increased cancer risk

Types of cancer :-

- Bladder cancer
- Breast cancer
- Colorectal cancer
- Kidney (Renal Cell) Cancer
- Lung Cancer
- Lymphoma
- Pancreatic Cancer
- Prostate Cancer
- Skin Cancer
- Uterine Cancer



Breast cancer

- Breast cancer is now the commonest cancer in UK.
- Every yearMore than 40,000 women, and 300 men, will find they haveBreast cancer.
- Overall nearly one in nine women will developThe condition at some time during their lives.

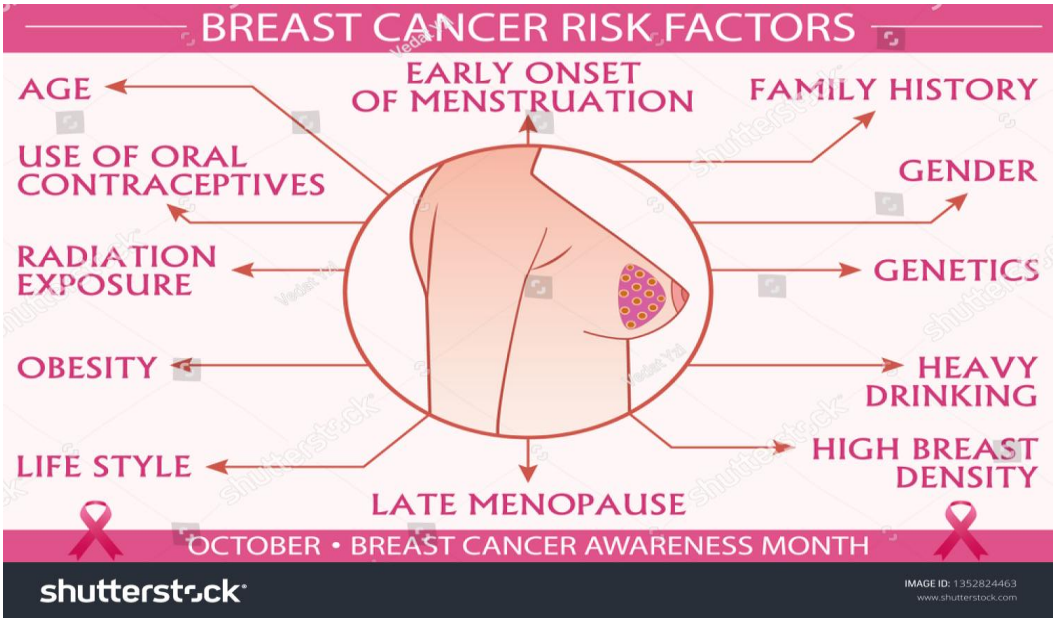
- **Causes of Breast cancer (LCIS) :-** Pre-invasive lobular carcinoma (lobular …The exact cause of Lobular Carcinoma In Situ (LCIS) is unknown, but it's associated with changes in DNA within the cells of the breast's milk-producing glands (lobules). While LCIS itself isn't cancer, it significantly increases the risk of developing invasive breast cancer later on.

- **Factors that increase the risk of LCIS:**

1. ***Age:*** LCIS is more common in women between 40 and 60 years old.
2. **Family history:** Having a family history of breast cancer, especially in close relatives, increases the risk.
3. **Hormo*nal* factor:** Early menstruation (before age 12).

- Late menopause (after age 55).
- Not having children.
- Long-term use of hormone replacement therapy (HRT), particularly estrogen and progestin combined, after menopause, can also increase risk.

4. **Personal history brest condition :** Having a previous diagnosis of LCIS or atypical hyperplasia increases the risk of developing invasive breast cancer.
5. **Breast density:** Women with dense breast tissue, as seen on mammograms, may have a higher risk.
6. **Lifestyle factors :** Smoking and excessive alcohol consumption are also associated with an increased risk of LCIS, similar to breast cancer.



Symptoms:-

- Lobular carcinoma in situ doesn't cause signs or symptoms.
- It's usually found after a procedure to remove some breast tissue, such as a breast biopsy or a lumpectomy.
- Lobular carcinoma in situ, also called LCIS, isn't cancer.
- It's a sign that you have an increased risk of breast cancer in the future.

Mechanism of Development :-

Non-obligate Precursor: LCIS is not a cancer itself but is understood to be a non-obligate precursor, meaning it increases the risk of developing invasive breast cancer.

Hormonal Influence: Fluctuations in estrogen and progesterone during the reproductive years may influence the development of LCIS.

Cellular Changes: The abnormal cells in LCIS are characterized by changes in their DNA and exhibit a loss of cell adhesion due to E-cadherin inactivation, leading them to proliferate within the milk-producing glands. Treatment Options

Active Surveillance: For classic LCIS, doctors may recommend regular monitoring through annual mammograms and physical exams. This approach allows for the early detection of any new invasive breast cancer that may develop.

Clinical features:-

Lobular carcinoma in situ (LCIS) does not typically cause noticeable clinical features such as symptoms or a palpable mass. It is a non-invasive condition and is most often discovered as an incidental finding during a breast biopsy performed for another reason.

Common clinical characteristics

The following features are associated with LCIS, though most are not noticeable without diagnostic testing:

- Lack of symptoms: LCIS rarely causes any symptoms. There is no associated lump, pain, nipple discharge, or changes to the skin's appearance, which are more common signs of invasive breast cancer.

- Non-invasive nature: The term "in situ" means "in its original place." The abnormal cells of LCIS are confined to the milk glands (lobules) and do not invade surrounding breast tissue.

- Incidental finding: A diagnosis of LCIS is most commonly made after a breast biopsy performed for other reasons, such as investigating suspicious calcifications or a mass found on a mammogram.

- Microscopic diagnosis: The abnormal cells characteristic of LCIS can only be identified by a pathologist examining breast tissue under a microscope. LCIS is defined by loosely cohesive, uniform cells that fill and distend the lobules.

- Imaging occult: Classic LCIS is not typically visible on a mammogram or ultrasound. However, it is sometimes detected due to associated imaging abnormalities like microcalcifications or architectural distortions.

LCIS variants

Certain variants of LCIS can present with clinical features that may lead to their detection:

- Pleomorphic LCIS (P-LCIS): This variant features cells that are larger and more abnormal than classic LCIS. P-LCIS is more often associated with mammographic findings, such as calcifications or a mass, which may prompt a biopsy.

- Florid LCIS (F-LCIS): In this variant, abnormal cells form a mass within the lobules. F-LCIS can also be associated with central necrosis (an area of dead cells) and calcifications, making it more likely to be seen on a mammogram than classic LCIS.

Pathophysiology

- Breast cancer is a malignant tumor that starts in the cells of the breast. Like other cancers, there are several factors that can raise the risk of getting breast cancer. Damage to the DNA and genetic mutations can lead to breast cancer have been experimentally linked to estrogen exposure. Some individuals inherit defects in the DNA and genes like the BRCA1, BRCA2 and P53 among others. Those with a family history of ovarian or breast cancer thus are at an increased risk of breast cancer.

- The immune system normally seeks out cancer cells and cells with damaged DNA and destroys them. Breast cancer may be a result of failure of such an effective immune defence and surveillance.

- These are several signalling systems of growth factors and other mediators that interact between stromal cells and epithelial cells. Disrupting these may lead to breast cancer as well.

- **Diagnosis:-**

Diagnosis of LCIS relies on biopsy and microscopic evaluation; imaging such as mammography, ultrasound, or MRI may show findings like microcalcifications or nodules, but these are often incidental, can have other causes, or may not be visible at all, especially in dense breasts. Therefore, while imaging helps assess the breast tissue, LCIS is confirmed by histological examination of a tissue sample.

Imaging findings in LCIS

- **Mammography:**

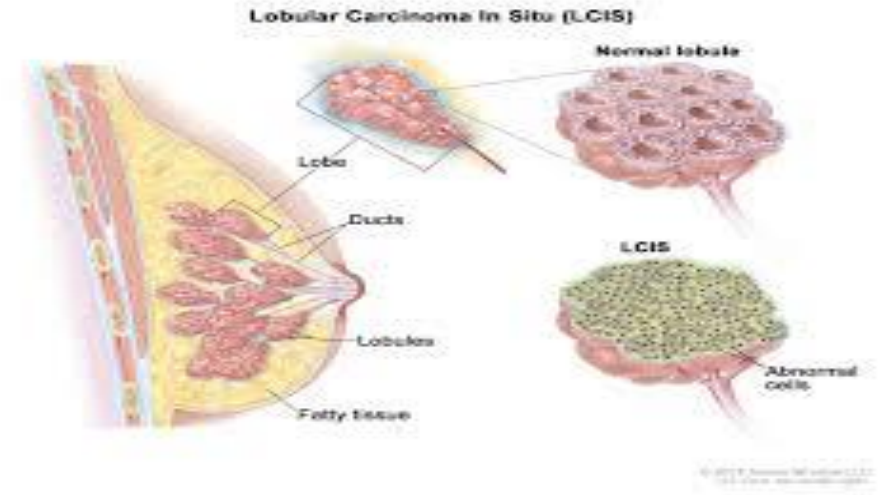
Can show microcalcifications, though these are often an incidental finding or related to other benign conditions.

- **Ultrasound:**

May detect solid nodules, but these are not a classical finding and can be associated with other lesions.

- **MRI:**

Can detect masses, non-mass lesions, or extensive enhancement, but can also be negative or show subtle changes. It is more effective at finding the extent of invasive lobular carcinoma but may not be beneficial for LCIS itself.



Etiology :-

• Many risk factors for LCIS are similar to those established for DCIS and invasive breast carcinoma

• Exposure to hormones likely plays a role in etiology; the majority of LCIS shows a strong diffuse expression of ER

• Increased risk of LCIS is associated with a family history of breast cancer, a previous benign breast biopsy, nulliparity, older age at first full term birth, older age at menopause and high mammographic density

• In postmenopausal women, the risk of LCIS increases with the use of unopposed estrogen replacement therapy

Preventive Medications:

- These medications aim to lower the risk of developing invasive breast cancer.
- Selective Estrogen Receptor Modulators (SERMs): Such as tamoxifen, can be used for ER-positive breast cancer.
- Aromatase Inhibitors: Another option for reducing the risk of ER-positive breast cancer, their use depends on menopausal status.

Surgery:

- Lumpectomy: This procedure removes the affected area and some surrounding healthy tissue.
- Mastectomy: A more extensive surgery that removes all or nearly all breast tissue.
- Risk-Reducing Surgery: In some cases, such as with a strong family history or BRCA gene mutation, patients may opt for a prophylactic (risk-reducing) mastectomy to significantly lower their future cancer risk.

Lifestyle Changes:

Adopting a healthy lifestyle can help lower your overall risk:

- Maintain a healthy weight.
- Exercise regularly.
- Limit alcohol intake.
- Eat a balanced diet rich in fruits and vegetables.
- Avoid smoking.
- Factors Influencing Treatment Decisions
- The best treatment plan for you depends on:
- The specific type of LCIS (classic, florid, or pleomorphic).
- Your personal and family medical history.
- The presence of other risk factors.
- Your personal preferences.

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