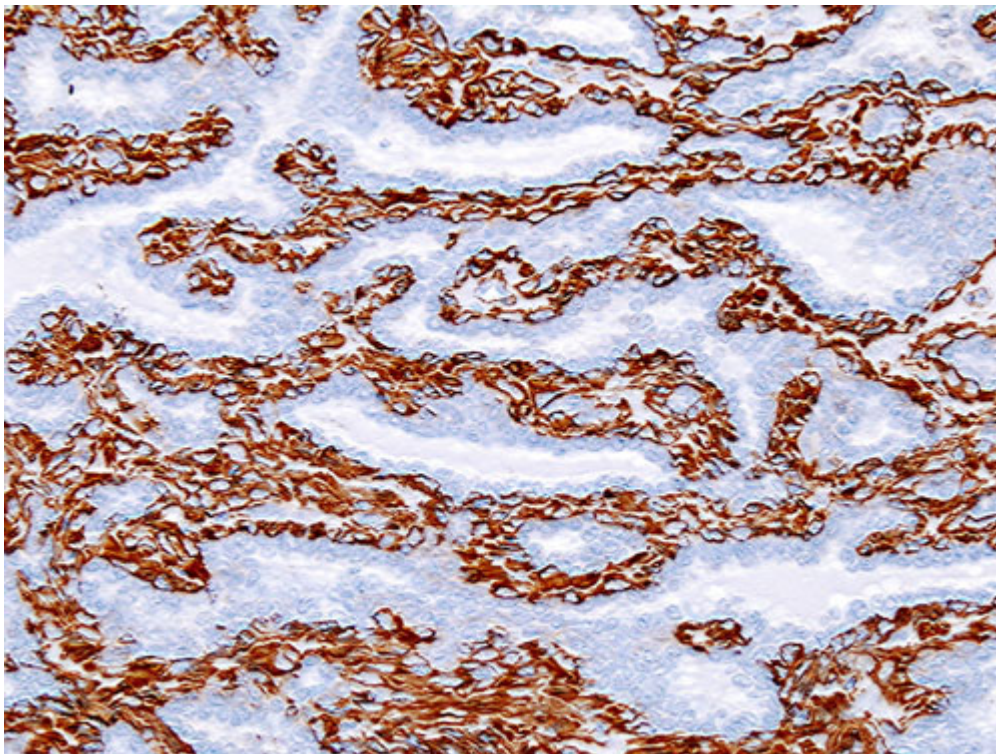


Intraductal Papilloma — Symptoms and Diagnosis

[See online here](#)

Ductal papillomas are commonly identified in women presenting with pathological nipple discharge. However, pathological nipple discharge can also be identified in patients with breast cancer. Patients with ductal papillomas can have either a solitary lesion or multiple papillomas. Solitary papillomas are usually central and large, while multiple papillomas tend to be peripheral and small in size. Whereas large solitary papillomas are not thought to be precancerous, small multiple papillomas seem to increase the risk of breast cancer. Patients with a single papilloma might benefit from microductectomy while those who have multiple papillomas are possible candidates for surgical intervention due to their increased risk of developing breast cancer.



Definition of Breast Ductal Papilloma

Ductal papilloma is defined as the **abnormal growth with a papillary configuration of breast stroma and epithelium within a breast duct**. It is a benign lesion that consists of branching fibrovascular cores with overlying layers of epithelial cells. These papillomas can be **single or multiple**, and when they occur in younger patients are known as **juvenile papillomatosis**.

Pathological nipple discharge (PND) is a term used to describe abnormally bloody, milky or another form of nipple discharge that is usually a presenting feature of different breast diseases with breast papilloma being the commonest.

Epidemiology of Breast Ductal Papilloma

Epidemiological characteristics for breast papilloma are different depending on the exact type of papilloma that is in question. For instance, **ductal papillomas** are usually found in women aged 30 to 50 years with the mean age of presentation being 48 years. The occurrence decreases beyond 70 years. **Solitary ductal papilloma** is not associated with an increased risk of breast cancer if diagnosed properly.

Approximately, 10% of women with ductal papilloma have in fact **multiple papillomas**. Multiple papillomas are more common in younger women and are thought to be associated with an **increased risk of breast cancer**. Approximately, 2 out of 6 women with multiple papillomas develop breast cancer in their lifetime.

Pathophysiology of Breast Ductal Papilloma

Intraductal papilloma is more common in patients with other benign breast diseases such as **columnar cell hyperplasia**, **sclerosing adenosis**, and **ductal hyperplasia**. This link between papillomas and ductal hyperplasia conditions can be in part explained by the common chromosomal and genetic alterations found in both conditions. **Chromosome 16 mutations** are commonly identified in multiple papillomas and solitary papillomas.

Once a papilloma is excised, it appears like a **lobulated, soft mass that has a cystic cavity**. This cyst usually contains a **bloody or serous fluid** which explains the pathological nipple discharge commonly found in patients with ductal papilloma.

Histological examination of a ductal papilloma reveals a **central branching fibrovascular core**. The **epithelium** forms a layer around this core. **Multiple foci** are usually identified. **Sclerosis** is a common finding on the histological examination of ductal papillomas.

Usual ductal hyperplasia is usually present in patients with ductal papilloma. Ductal papillomas might also have a **myoepithelial component**.

Clinical Presentation of Breast Ductal Papilloma

Intraductal papillomas are usually too small to be palpable. The most common presenting feature in solitary ductal papilloma is pathological **nipple discharge** that is either **bloody or serous**. Nipple discharge is confined to a single duct and applying **pressure** to that duct can express more discharge. This finding, however, is not specific for ductal papilloma, it can also be seen in **breast cancer**. The discharge is usually unilateral, and the patient may also present with a palpable breast mass and breast pain.

Patients with **microscopic papillomas** or **multiple papillomas** usually have small, peripheral lesions that are more difficult to diagnose because they are rarely associated with nipple discharge. Therefore, any patient with suspected ductal papilloma should be fully investigated with imaging modalities to confirm the diagnosis and to exclude breast cancer.

Diagnostic Work-up for Breast Ductal Papilloma

Due to the overlap between breast cancer and papilloma in pathological nipple discharge, any patient with a pathological nipple discharge should undergo **mammography**. Mammography should be reserved only for patients who are over 35 years of age.



Image: "Ultrasound image of intraductal papilloma." by Nevit Dilmen - Own work. License: [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/)

Mammography is mainly indicated to exclude breast cancer as the cause of pathological nipple discharge but cannot confirm the diagnosis of intraductal papilloma. Mammography can show **micro-calcifications**, which indicate possible **malignancy** and warrant further studying of the breast mass.

The next diagnostic step would be a **ductography**. Ductography shows **filling defects** in the affected breast duct. Choosing the duct to be studied is dependent on which duct expresses pathological nipple discharge on physical examination. Ductography is painful and patients might refuse the procedure.

Ultrasonography is beneficial in younger women and in women who have a **palpable mass**. Intraductal pathologies including ductal papilloma can be identified using ultrasonography and a **percutaneous core biopsy** can be performed under ultrasonography guidance to provide tissues for histological examination.

Cytological examination of the nipple discharge can exclude **atypia** and **dysplasia**, which are signs of malignancy.

More recently, **mammary ductoscopy** has been used to evaluate intraductal lesions. A thin scope is passed through the affected duct where direct visualization of the lesion and biopsy can be performed.

Treatment of Breast Ductal Papilloma

Treatment for ductal papilloma is highly dependent on the histological pattern of the lesion as well as on the patient's individual risk of breast cancer.

Patients with **multiple papillomas** are at an **increased risk of breast cancer** and should be offered possible **surgical excision** of the affected ducts. Additionally, women with **atypia** or **dysplasia** on cytological examination of nipple discharge should be thoroughly evaluated because the risk of breast cancer is considerably high.

Ductal papilloma, if diagnosed promptly, is unlikely to progress to **ductal carcinoma in situ** or other forms of breast cancer. Unfortunately, distinguishing breast cancer from ductal papilloma is a true challenge.

Patients with multiple papillomas who are young and choose to undergo conservative treatment should have **annual check-ups** with breast mammography or other imaging modality to exclude possible transformation into breast cancer.

Women with a solitary ductal papilloma and pathological nipple discharge might benefit from a **microductectomy** in which a single duct is excised. These patients are usually cured of pathological nipple discharge.

Future techniques that are less invasive such as **imaging-guided vacuum-assisted core biopsy** are proving to be both diagnostic and curative in a significant proportion of patients. Unfortunately, this method is applicable only when the intraductal papilloma is discrete and easily identifiable on ultrasonography or mammography, which is not the case in many patients.

References

Al Sarakbi W, Worku D, Escobar PF, Mokbel K (2006) Breast papillomas: current management with a focus on a new diagnostic and therapeutic modality. Int Semin Surg Oncol 3:1. doi: 10.1186/1477-7800-3-1

Legal Note: Unless otherwise stated, all rights reserved by Lecturio GmbH. For further legal regulations see our [legal information page](#).

Notes