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Case Report

Radiology Section

Nipple Papilloma with Dysplasia: A Case Report

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ABSTRACT

Nipple papilloma is an uncommon benign breast tumour. Polypoid lesions arising from the surface of the nipple include nipple papilloma, fibroepithelial stromal polyp of the nipple. These must be differentiated from malignant lesions involving the nipple, like Paget's disease of the nipple, and malignant breast lesion with nipple involvement. Detailed clinical examination, and to a great extent, imaging helps to differentiate these lesions. Hereby, authors report a case of 46-year-old female presented with abnormal growth arising from the right nipple. On full field digital mammography, bilateral breasts revealed scattered fibroglandular breast parenchyma {American College of Radiology (ACR) type B}. An irregular hyperdense mass with lobulated margins is seen superior to right nipple which measured approximately 16×14 mm. The case was managed by local curative excision under local anaesthesia. On gross histopathology, the lesion showed squamous epithelium consisting of variable levels of acanthosis and hyperkeratosis, and focal parakeratosis which also shows focal ulceration and moderate to severe dysplasia and mixed inflammation consistent with papilloma. Histopathological examination has a role in differentiating the benign lesions like nipple papilloma from fibroepithelial stromal polyp of nipple and also helps in determining the presence of atypical hyperplasia, dysplasia or carcinoma in-situ.

Keywords: Adenoma, Benign, Breast tumor, Malignant, Polypoid lesions

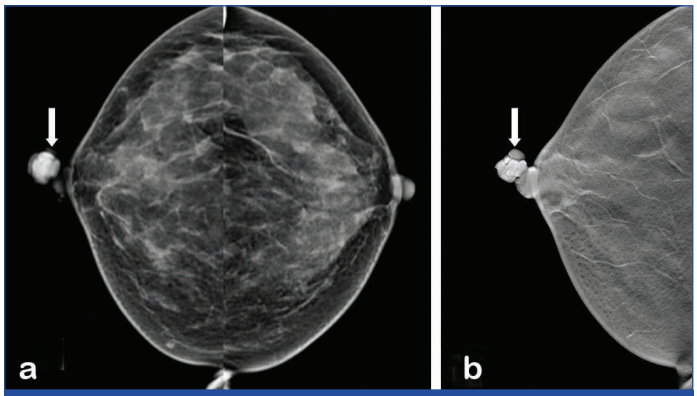
CASE REPORT

A 46-year-old female presented with abnormal growth arising from the right nipple. The patient had the mass since six years but the mass had gradually increased in size in the last one year. It was painless with no spontaneous bleed or bleed on contact. There was no nipple discharge, except serous discharge from growth since two to three days before she presented to the hospital. There was no history of lump in the left breast. She has no family history of breast or ovarian/endometrial cancer. Her first child birth was at 23 years of age. She has two children and breast fed both of them completely for one year. She attained menarche at 14 years and has not reached her menopause yet. There is no history of use of oral contraceptive pills.

On clinical examination, inspection showed a pedunculated growth arising from the right nipple with serous discharge at the time of inspection. There was no erythema or evidence of crusting around the lesion. There was no ulceration seen on the lesion. On palpation, there was a pedunculated mass measuring 1.5×1.3 cms with lobulated margins and firm consistency seen arising from the nipple [Table/Fig-1]. There was no tenderness on palpation. There was no other palpable lump in bilateral breasts or in bilateral axillary regions.

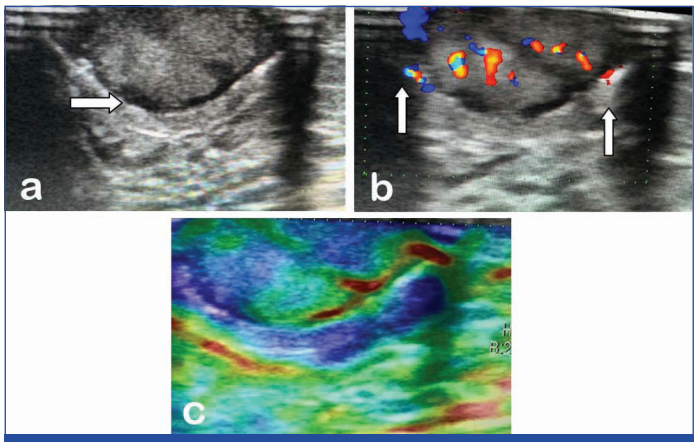
[Table/Fig-1]: Clinical picture of the right nipple showing well defined lobulated pedunculated reddish brown mass seen arising from the right nipple and extending superiorly (arrow).

On full field digital mammography, bilateral breasts revealed scattered fibroglandular breast parenchyma {American College of Radiology (ACR) type B}. An irregular hyperdense mass with lobulated margins was seen superior to right nipple which measured approximately 16×14 mm [Table/Fig-2a]. No definite masses in bilateral breast parenchyma, no macro/micro-calcification, asymmetry or architectural distortion, trabecular thickening was observed in breast parenchyma on either sides. There is no bilateral axillary lymphadenopathy. On digital breast tomosynthesis, the lesion seen in full field mammography is seen more clearly, the margins are lobulated and there is no retroareolar duct ectasia [Table/Fig-2b]. Ultrasound was done using a high frequency transducer (4 to 11 Hz), there was an oval hyperechoic mass with smooth margins seen in nipple areolar region which is showing a hypoechoic periphery [Table/Fig-3a]. On colour doppler, it shows internal vascularity. On real time elastography, it shows a firm consistency [Table/Fig-3b,c]. Limited Magnetic Resonance Imaging (MRI) sections were performed {T2 weighted images and Short-Tau Inversion Recovery (STIR)} and showed pedunculated mass arising from superior aspect of nipple and showed lobulated outline. It demonstrates

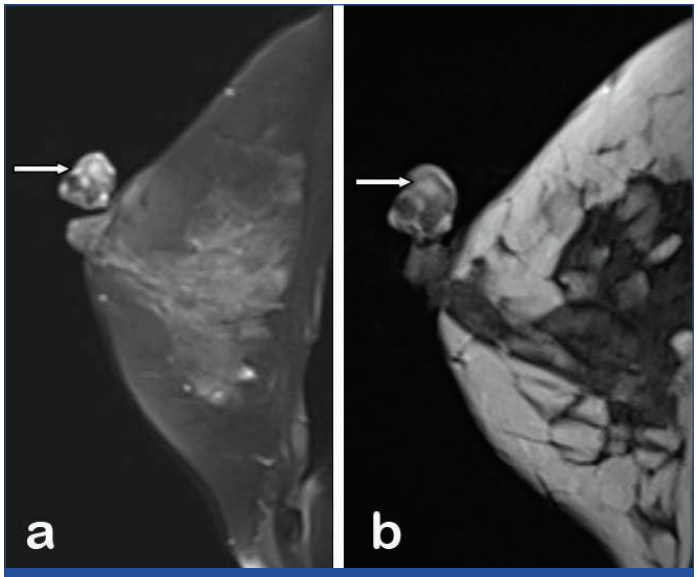


[Table/Fig-2]: a) Craniocaudal view shows mixed fibroglandular tissue with heterogeneous densities in both breasts. Irregular hyperdense lesion with lobulated margins seen arising from the right nipple on its skin surface. There is no retroareolar duct ectasia or architectural distortion associated with the lesion in ipsilateral breast; b) Digital breast tomosynthesis shows the lesion seen on mammography on the skin of right nipple (arrow).

hyperintense signal intensity with few hypointense areas on STIR and T2 weighted images [Table/Fig-4a,b]. Contrast enhanced MRI was not performed due to financial constraints.

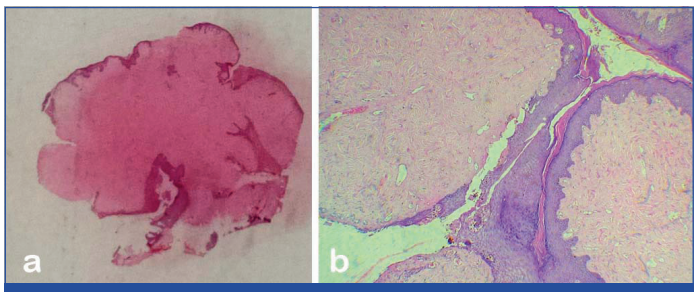


[Table/Fig-3]: a) Ultrasound image show an oval hyperechoic mass with smooth margins seen in nipple areolar region which is showing a hypoechoic periphery (arrow); b) On colour doppler, it shows internal vascularity (arrow); c) On real time elastography, it shows a firm consistency.



[Table/Fig-4]: a) Sagittal STIR image and; b) Sagittal T2 weighted image showed lobulated pedunculated mass showing hyperintense signal intensity with hypointense areas (arrow).

On clinical examination and imaging, the provisional diagnosis was nipple papilloma, Breast Imaging-Reporting and Data System (BI-RADS-4) lesion. The case was managed by local curative excision under local anaesthesia and sent for Histopathological examination. On gross histopathology, the lesion showed squamous epithelium consisting of variable levels of acanthosis and hyperkeratosis, and focal parakeratosis which also shows focal ulceration and moderate to severe dysplasia and mixed inflammation consistent with papilloma [Table/Fig-5a,b]. The patient was clinically followed-up for two years once every six months and is on annual follow-up after that period. There is no evidence of recurrence of the mass.



[Table/Fig-5a,b]: Specimen illustrating polypoidal mass of squamous papilloma with lining epithelium and fibrovascular core (H&E 40X;100X).

DISCUSSION

Papilloma of the nipple, originates from the lactiferous ducts of the nipple. It is an uncommon benign breast tumour, if presented with nipple destruction or erosion it often mistaken clinically for Paget's disease of the nipple and occasionally misinterpreted as ductal carcinoma. If there are multiple small papillomas arising from the nipple, it is called benign nipple papillomatosis. It occurs in middle-aged group women aged between 35 to 55 years [1].

Nipple papilloma commonly presents with skin changes like erythema, itching, tenderness, blood-stained nipple discharge, nipple erosion and induration or growth formation [2].

Clinically, nipple papilloma cannot be differentiated from firboepithelial stromal polyp and nipple adenomas. Imaging has an important role to assess the involvement of the ducts and fibroglandular tissue. Papillomatous lesions sometimes difficult to evaluate clinical and on mammography images. Ultrasound is an useful imaging, however MRI is good modality to evlatuate the size and extent of the intraductal lesion more accurately [3].

Nipple papilloma can present as only protruding mass, or sometimes present with nipple discharge [4]. The current case was presented in a middle age woman as painless pedunculated growth since six years, there were serous discharge present in the case on clinical examination, however no skin changes were observed.

Duct papillomas are managed by complete surgical duct excision and histopathological examination [4-6]. However, recent techniques like mammary ductoscopy offer the advantage of examining the duct involved and biopsy the duct wall as well as guide the surgeon for microdochectomy for papilloma related single duct discharge.

Rarely, patients with nipple papilloma and fibroepithelial stromal polyp present to the dermatologists as they are skin lesions and dermatologist may perform a dermoscopy which helps to differentiate nipple adenoma from other inflammatory, benign and malignant nipple lesions like Paget's disease of nipple [7].

Nipple papilloma is a rare benign breast lesion, which is also called nipple duct adenoma, papillary adenoma and papillomatosis of the nipple. Fibroepithelial stromal polyp also sometimes appears as a nipple papilloma on clinical examination [8]. As per the World Health Organisation (WHO) classification, nipple adenoma is compact proliferation of small tubules lined by epithelial and myoepithelial cells, with or without proliferation of the epithelial component, around the ducts present at the nipple areolar complex. It can develop anywhere on the breast and on the surface of the skin [8].

Human Papillomavirus (HPV) is postulated to be associated with this disorder. Since, there is a known increased risk of development of breast cancer anywhere in ipsilateral or contralateral breast in women with nipple adenomas, thorough regular self breast examination and annual mammography screening is recommended [1].

Clinically, it could be misdiagnosed as Paget's disease of the nipple, especially when it presents with erosion of the nipple or intraductal carcinoma, but imaging helps in the differentiation with no skin thickening, trabecular thickening and nipple retraction in nipple adenoma on mammography, which are features that favour a malignancy than benign lesion [5,9]. On sonography, the vascularity of the lesion can be assessed in real time and benign nipple adenoma, benign papillomatous lesions, show vascularity on colour doppler. Though the role of breast MRI in nipple adenoma is to look for intraductal extension of the nipple adenoma and look for the rest of the ipsilateral and contralateral breast for associated concurrent malignant lesion [10]. A less common benign entity of the skin that could be suspected on clinical examination could be fibroepithelial stromal polyp, which can be differentiated from papilloma on histopathology.

Benign nipple adenomas are managed by complete surgical excision for symptomatic relief, followed by thorough histopathological

examination to look for atypical hyperplasia, dysplasia or carcinoma in situ.

On histopathology, nipple adenoma was defined as a benign epithelial proliferation localised within and around the collecting ducts. Some synonyms include erosive adenomatosis and florid papillomatosis [3,9].

Postoperative follow-up of the patient is determined by the histopathology of the lesion. If there are no features of atypical hyperplasia, dysplasia or carcinoma in situ, then the patient may be referred for the routine annual follow-up as her risk of developing breast cancer in the future is slightly higher than the routine population. In cases where there is dysplasia or carcinoma in situ, the patient is suggested with regular short interval clinical follow-up every three months for atleast two years [9].

CONCLUSION(S)

Clinical and imaging features of benign pathologies like papilloma, nipple adenoma and it's differences with malignancies like Paget's disease and ductal carcinoma are important factors that are required for the adequate mangement of the diseases.

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