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A rare case report on Intraductal papilloma of nipple in a young female – radiographical and histopathological correlation

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ABSTRACT

Our purpose was to determine mammographic, and ultrasonographic features of breast papilloma and to correlate the features with histopathological findings. Intraductal papillary neoplasms of nipple includes a wide variety of spectrum ranges from benign intraductal papilloma occupying one end of spectrum and papillary carcinoma at the other end. They are broadly classified into central and peripheral types. Intraductal papilloma are usually located centrally or in the retro areolar region, when symptomatic, patient presents with bloody nipple discharge. These lesions were most commonly observed in perimenopausal patients. However, with more widespread use of ultrasound, solitary or multiple papilloma's are being detected with increasing frequency at very young age in symptomatic or asymptomatic patients.

Keywords: Intraductal Papilloma, Nipple, Radiological, Histopathology, Ultrasound Scan

1. INTRODUCTION

Intraductal papillomas is a benign tumour found within the lactiferous ducts. Incidence is 2–3%, they develop in women between the ages of 30 and 77 years (Ganesan et al., 2006). It is rarely found in male population (Vagios et al., 2019). Intraductal papilloma makes up < 10% of benign breast lesions and < 1% of malignant breast tumours (Karadeniz et al., 2016). Solitary or numerous papilloma's are two different types of papilloma's. They can be separated into central papilloma's, which are typically found in the subareolar region, and peripheral papilloma's develop in the terminal duct lobular unit. According to earlier research, the peripheral position is linked to the occurrence of numerous papilloma's, atypia, and a higher risk of malignant potential (Ohuchi et al., 1984; Boufelli et al., 2018). Risk factors include contraceptive usage, HRT, long-term estrogen therapy and family history (Poehls et al., 2019).

Clinically, bloody discharge from the nipple is seen in 72% of cases (Poma and Longo, 2011). Ultrasound and Mammography play a crucial role for arriving at the diagnosis. However, to exclude the possibility of papillary carcinoma and for the confirmation of diagnosis histopathological examination is always necessary. Here, we report a case of, 23-year-old female presenting with bloody discharge from the nipple in which correlation between radiological and histopathological findings was carried out.

2. CASE REPORT

A 23-Year-old female was referred from surgery department with complaints of bloody discharge from left nipple for 2 months and itching in the left nipple near the nipple area associated with swelling. Swelling of the left nipple gradually increased in size and was associated with pain. She gave history of fever. There was no history of trauma. Menstrual history was normal. Past history revealed colon cancer in her relative. On clinical examination (Figure 1) size of the swelling was approximately 3 x 2 cm over the left nipple area, hard in consistency and moved along the nipple. Ulceration and bloody discharge were noted near the left nipple. Right sided breast and axilla appeared normal.

The patient is advised for routine blood and urine investigations and all the values are within normal limits, Pus culture and sensitivity from the wound is done and shows no pus cells or organisms is seen in the smear. On ultrasound scan of the left breast (Figure 2), a well-defined lobulated mildly heterogeneous hypo echoic lesion measuring about 8.3 x 5.1 mm was visualized at 3'o clock to 8'o clock position of left nipple. The lesion was wider than taller and showed mild internal vascularity on colour doppler. No evidence of ductal dilatation. No axillary / intramammary lymphadenopathy. Mammography (Figure 3A, 3B) revealed a soft tissue density lesion measuring ~ 10.2 x 8.5 x 13.8 mm in the left nipple from 3'o clock – 8'o clock position. No evidence of extension of mass lesion in sub areolar space. Rest of the breast parenchyma appeared normal.

The patient is evaluated for nipple discharge, Cytology shows areas of squamous cells and cluster of atypical cells and findings were suspicious of malignancy and were advised for Edge Wedge Biopsy of Nipple Areolar Complex (Nipple areolar complex) was performed with nipple reconstruction. Biopsy showed a proliferative papillary lesion (4 mm) - Intraductal papilloma possibly benign (Figure 4A, 4B). Frozen Section of left nipple tissue was performed. Frozen section bits show squamous epithelium with underlying multilobular ductal proliferation of ductal epithelial cells forming papillary structures. Few proliferative ducts are also seen. Foci of apocrine metaplasia appreciated in few areas. Myoepithelial cells are seen in many ducts and it is not identified in some papillary structures? Papillary ductal lesion and it was advised for IHC with P63, ER, CK5/6 and CK14 for confirmatory diagnosis.

Excision biopsy (Paraffin Block): Showed fragments of neoplastic cells arranged in branching papillae and tubules lined by bilayered epithelium including epithelial and myoepithelial layers. Foci of sclerosis were noted. Overlying skin was unremarkable. On Immunohistochemistry: P63: Highlighted myoepithelial layer in all the tubules and papillae. CK5/6: Highlighted myoepithelial layer in all the tubules and papillae. ER was positive and Ki- 67: 5 to 10%, Immunohistochemistry proved Intraductal Papilloma of Left Nipple.

Figure 1 Clinical examination shows a ulcerative lesion over the left nipple.

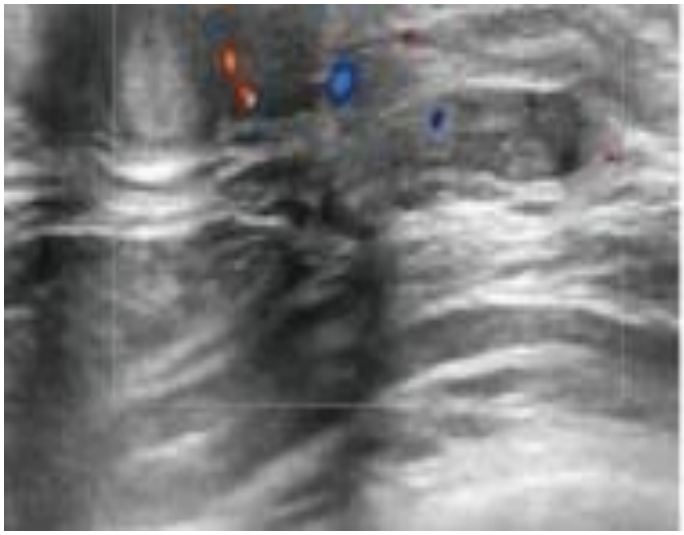

Figure 2 Ultrasound shows a well-defined lobulated mildly heterogeneous hypo echoic lesion with minimal vascularity is seen within the lesion.

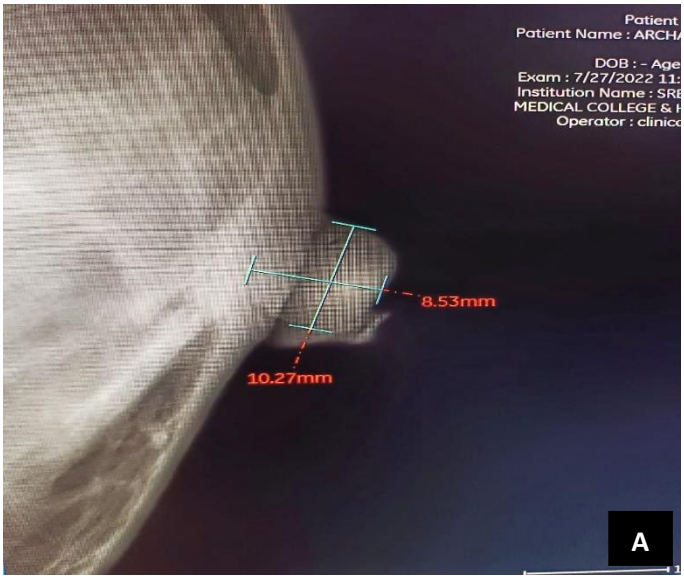

Figure 3A Mediolateral oblique view of mammogram shows soft tissue density lesion in the left nipple from 3'o clock – 8'o clock position.

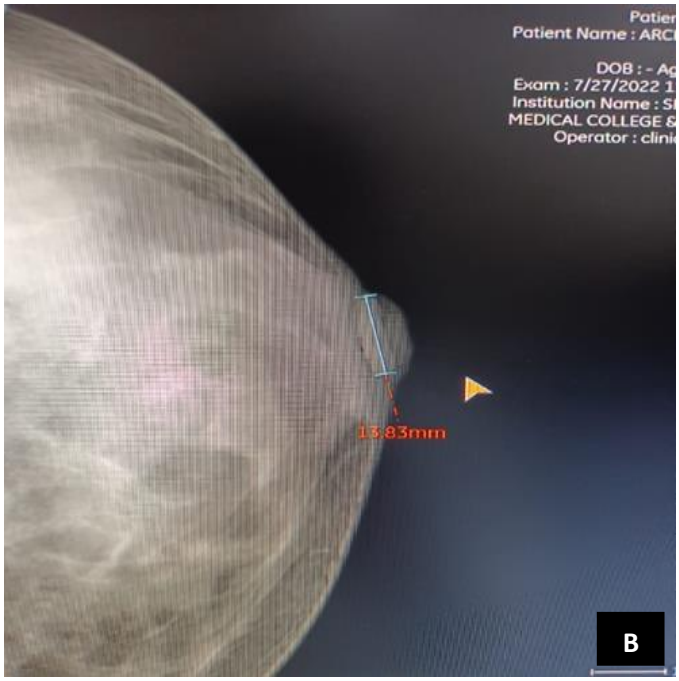

Figure 3B Craniocaudal view of mammogram shows a soft tissue density lesion in the left nipple from 3'o clock – 8'o clock position.

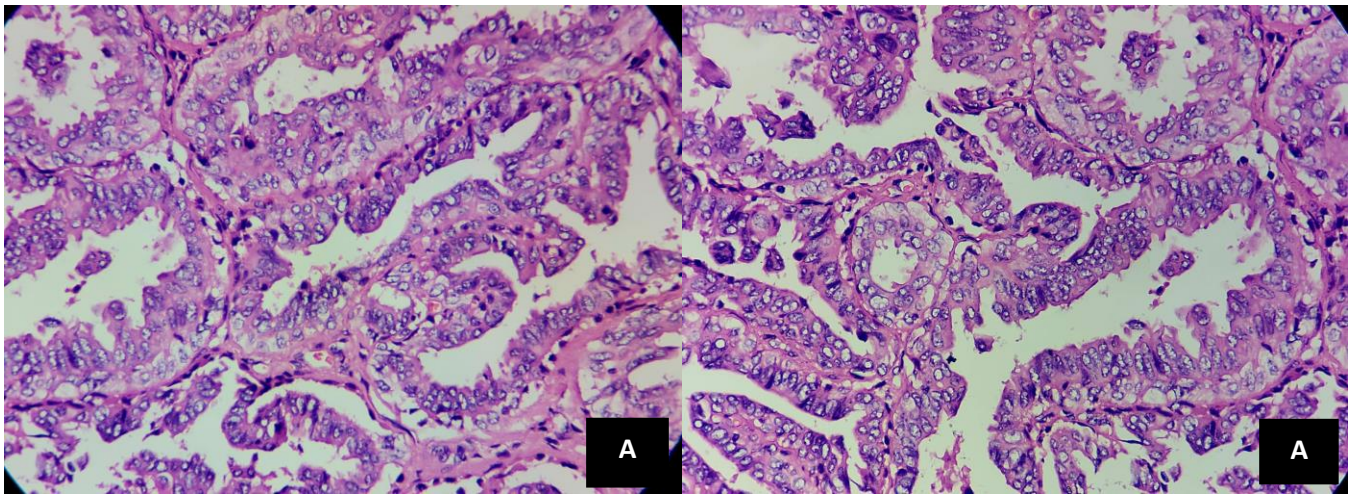

Figure 4A High Power image of NAC reveals papillary lesion of the nipple.

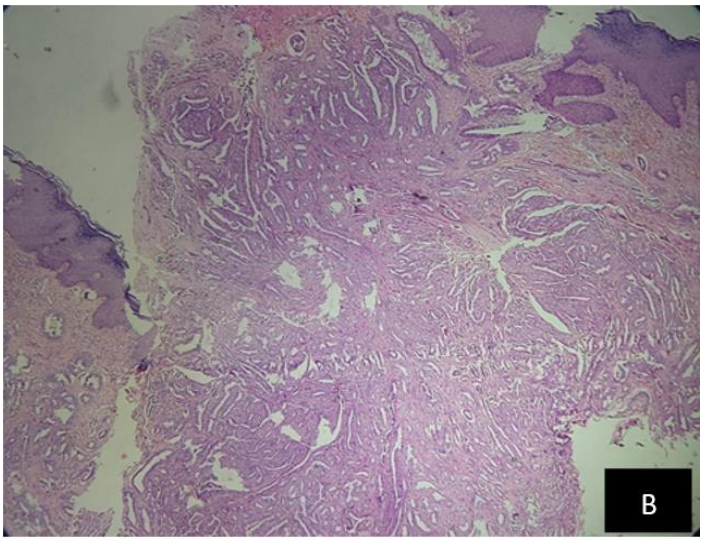

Figure 4B Low power image of NAC reveals papillary lesion of the nipple.

3. DISCUSSION

The most typical growths found inside the lactiferous ducts are intraductal papillomas. Despite being benign tumours, they might have atypia or cancer in some places. Clinically 72% of the cases present with nipple discharge. They are found exclusively in women and very rarely in men. The Diagnostic approach for intraductal papilloma includes Clinical examination, Ultrasound, Mammography and histopathological examinations like biopsy and immunohistochemistry.

Here we reported a case of 23-year-old female who presented herself to OPD with bloody discharge from the nipple for 2 months which was accompanied with swelling of left nipple and ulceration near to the left nipple area. Ultrasound scan revealed a heterogeneous hypo echoic lesion at 3'o clock to 8'o clock position of left nipple. Mammography revealed a soft tissue density lesion in the left nipple from 3'o clock – 8'o clock position. Radiological imaging was suspicious of intraductal papilloma; hence, histopathological examination was carried out for the confirmation of diagnosis and to rule out papillary carcinoma. Edge Wedge Biopsy of NAC was performed with nipple reconstruction. It showed a proliferative papillary lesion-Intraductal papilloma possibly benign. Frozen section bits revealed a papillary ductal lesion. Immunohistochemistry showed myoepithelial layer in all tubules and papillae, confirming the diagnosis as Intraductal papilloma of the left nipple.

In a study by Tarallo et al., (2012) 51-year-old perimenopausal woman presented with bloody discharge from the right nipple. USG showed a solid mass measuring 2.45 mm (long axis) within a dilated duct in the anterosuperior quadrant of the right nipple. Histopathological examination revealed an intraductal papilloma. A study by Roy et al., (1985) reported a giant intraductal papilloma which presented as 15cm nipple mass. A study by Shih et al., (2020) reported two cases of intraductal papilloma of nipple which were confirmed by histopathological examination (Sahu et al., 2012; Mesurolle et al., 2006).

4. CONCLUSION

This case reveals the importance of imaging plays a vital role for approaching to the diagnosis of intraductal papilloma of nipple. However, Histopathological examination is always necessary for the confirmation of diagnosis. The findings of radiological imaging correlated well with the findings of histopathological examination in this case.

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Authors' Contributions

Lekha priya M: From the inception of the research proposal through its conclusion, I organized and supervised the whole project and participated in all aspects of the study.

Murugan G: Primary responsibility for the research's discussion and conclusion and participated in its development through its many stages.

All authors have confirmed that they have no current or historical financial relationships to any organizations that would have an interest in the submitted work and that they have no other affiliations or activities that might be construed to have influenced the work.

Informed consent

Written & Oral informed consent was obtained from individual participants included in the study.

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Conflict of interest

The authors declare that there is no conflict of interest.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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