

Case Report

The role of major duct excision and microdoectomy in the management of nipple discharge: Diagnostic and therapeutic approach

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Abstract

Mammary duct ectasia is considered as a benign condition of the mammary gland. Many theories analyses and summarized the disease regarding the pathogenesis. Firstly, the primary pathological process is due to be involutional and atrophy of the ducts. Other cause of dilation of the ducts, leading to the decrease or absent of secretion, inflammation and duct rupture. Secondly, the causative factor is inflammatory process with periductal inflammation followed by obliteration of ducts, sclerosis of duct and surrounding tissue and duct ectasia. Mostly mammary duct ectasia resolves without any treatment. Applying light warm compresses to nipple and wearing a supportive bra, can help to reduce discomfort of the patient. But If there is evidence of an infection, antibiotics will be prescribed without hesitation. It's completely prohibited to squeeze the area to increase discharge, as there is increase chance to develop inflammation and infection. If symptoms still persisted than surgery may be done to disconnect the ducts and remove the ducts, Known as Hadfield's operation. Recently sub-areolar major mammary duct excision – Hadfield's procedure is very popular and has gained widespread acceptance in management of nipple-areola complex problems like suspicious or troublesome discharge, clinical or sono-mammographic central anomalies and chronic sinus-fistula. Here two cases with nipple discharge managed with two very common surgery with microdoectomy and total duct excision held in Z.H Sikder Women's Medical College Hospital. Patients were very satisfied with the treatment as they got relief of symptoms and most importantly get rid of the fear of carcinoma.

Keywords: Duct ectasia , Microdoectomy , Hadfield's Operation.

Introduction

Duct ectasia is a benign condition and it is very important to know its pathogenesis.¹ Subareolar infection, inflammation and papillomatous growth are the major cause and carcinoma found as a minor cause of nipple discharge.² Single or Bilateral multiple nipple discharge always count as complex diagnostic and treatment challenges. Various benign and malignant diseases may manifest as nipple discharge such as duct ectasia, intraductal papillomas, breast abscesses/infections, breast cancer, pituitary adenomas, etc. According to location, duct ectasia was divided into central which defined as less than 2 cm from the nipple and peripheral locations can count as more than 2 cm from the nipple and the duct size measured by the highest length (less or greater than one cm). Ultrasonographic finding of intraductal changes expressed as homogeneous or heterogeneous echo change which is also very prominent in surrounding parenchyma^{3,8}. Detailed history and clinical examination is very important to determine the

cause and pathophysiology of nipple discharge, calculate the possibilities of malignancy, and choose the option of treatment protocol. So, combination of different tests, mammography, ultrasonography of breast, and ductography can help to establish the diagnosis and plan proper management.³

For diagnosis purpose screening core biopsy or excisional biopsy is not necessary. Radiologic-pathologic concordance is necessary.⁴ If there is indistinct peripheral duct ectasia with ductal wall thickness and hypoechogenicity of surrounding area should be considered malignancy and may need biopsy.⁵ The procedure of choice depend upon the underlying breast pathology, single lactiferous duct or multiple duct involvement, Spontaneous nipple discharge or discharge by compression. So, clinically it is difficult to distinguish Benign and malignant causes of nipple discharge. If there is spontaneous nipple discharge and indicative of benign disease then suitable option is non-operative management but if there is raise suspicion of breast cancer for unilateral spontaneous bloody discharge then Duct excision is mandatory.^{3,5}

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at a normal age and had normal menstrual periods. The patient married at 22 years old and had two child, but she gave artificial milk to her babies. She did not have a family history of cancer and she never smoked. A physical examination revealed bilateral spontaneous blackish nipple discharge, no evidence of axillary lymphadenopathy. Ultrasonogram shows bilateral dilatation of ducts with intraductal collection of fluid and debris. Mammography shows tubular, serpinginous structure converging on the nipple at the subareolar region. The secretions were inoculated into a blood plate culture done. No bacterial growth was found after being cultured. The imaging features were suggestive of marked ductal ectasia of multiple ducts of both breast. As the patient had only mild mastalgia with no features of superimposed infection, she was put on conservative therapy first with medication. As conservative treatment failed and there was persistent nipple discharge then choose the patient for total duct excision and send the tissue for histopathology.



Figure 5,6: Bilateral continuous nipple discharge

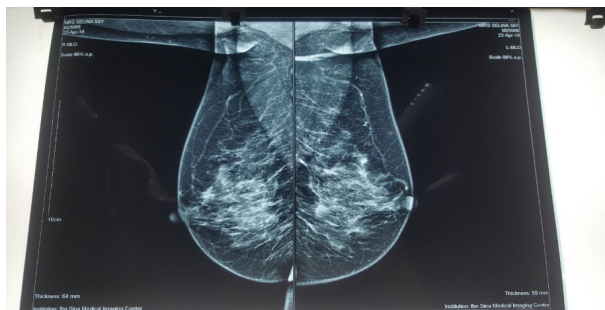


Figure 7: Mammography shows tubular, serpinginous structure converging on the nipple at the subareolar region in the fatty breast



Figure 8: Periareolar incision



Figure 9: Major duct excision done



Figure 10: Ducts behind NAC excised



Figure 11: Periareolar incision of left breast



Figure 12: Major duct excision from left breast



Figure 13: 1 month after Bilateral total duct excision

Total Duct excision

The classical Hadfield's operation is characterized by periareolar incision and raised the skin flap just below the nipple and areola where all the major ducts converging towards the nipple usually cut. Then start to excise entire subareolar duct complex beneath the nipple dermis to around 5 cm depth within breast tissue towards the chest wall.⁶ Breast parenchyma adjacent to the duct system is also removed. During the dissection, the excised tissues are assessed carefully for evidence of involved ducts extending beyond the specimen. If more ducts were visible nearby, further dissection of this area is performed

to take out the entire duct system. Finally, all grossly involved ducts, is removed en bloc and create an wide defect beneath the areola. This defect is obliterated by approximating the adjacent breast tissue with interrupted sutures and glandular reconstruction done beneath the nipple and areola.⁷ Some of the complication of this operation include nipple anesthesia, very rarely nipple-areola necrosis, recurrence of nipple discharges due to recanalization.⁸

Discussion

Duct ectasia commonly affect perimenopausal or postmenopausal women. There are many condition which suspect periductal mastitis, intraductal papilloma, cystic disease of the breast, acute suppurative mastitis, atypical ductal hyperplasia, duct dilatation, fibroadenoma and malignancy. Ultrasonography allows the diagnosis and measurement of duct diameters of >5 mm.⁹ Mammographic finding include subareolar duct dilatation, asymmetrically dilated ducts, suspicious microcalcifications.¹⁰ Ductography is not always indicated in diagnosing duct ectasia, as it is not possible to cannulate all the secreting ducts. Cytology of the nipple discharge may be a reasonably method to suspect any case and in the diagnosis of malignant disease. Histopathologically, the diagnosis can possible with peri ductal inflammation, deposits of lymphocytes, foamy histiocytes and plasma cells.^{9,10} Duct ectasia sometimes improves with conservative treatment with antibiotics and warm compression. If conservative management failed then biopsy is necessary and the abnormal ducts need to be removed surgically. Excision of ducts also offer relief of symptomatic duct ectasia. Regarding analysis of the cause, tobacco smoking is one of the major factor, but there is no association with nnumber of pregnancy, history of breast-feeding, contraceptive use, number of abortions and history of breast abscesses. Dixon et al indicated that smoking is very risky for periductal mastitis, but no association for duct ectasia. Duct ectasia mainly affects subareolar major ducts, sometime smaller ducts also involved. Unresorbed thick secretions and cellular debris usually fill the distended ducts and stay accumulated for long period of time. Fibrosis surrounding the ducts also found in association with infiltration of inflammatory cells. Different study also shows that peripheral ducts are usually involved in malignant duct ectasia and lesions were mostly ill defined.^{3,10} BROWNING et al. who reviewed histology from 1256 female patients undergoing breast surgery, mammary duct ectasia was noted in 51 (4.2%) patients who had associated symptoms and in 103 (8.1%) patients as an incidental finding.^{1,10,11} Patients had bloody nipple discharge with benign disease are intraductal papilloma (47%), Duct ectasia (53%). Patients without bloody discharge are diagnosed histopathologically as intraductal papilloma (17%) and Duct ectasia (80%), but surprisingly 3% patient diagnosed as carcinoma

in situ.¹¹ Pathological nipple discharge include intraductal papilloma (33-48%), papillomatosis (14-28%), fibrocystic disease (14-33%), breast malignancy (8-15%). and mammary duct ectasia (2-11%), three-quarters of the lesions were low grade DCIS and 15% of mammary duct ectasia lesions were malignant.^{5,7,11} Duct ectasia is not always visible when the lesions are obscured by the dense parenchyma of breast. Intraductal papilloma is rounded or lobulated filling defect within the dilated major ducts. Author explain that only 4% (2/46) of benign lesions represents a hypoechoic change and 38% (3/8) of malignant duct ectasia. One malignant lesion was due to direct infiltration of tumor cells and based on the histology two cases were proliferative lesions without atypia and fibrocystic changes.

URBA J analyse of 150 priva1.e patients revealed that 167 major duct excisions were performed and among them nine patients underwent simultaneous bilateral duct excisions. The main types of lesions found were as follows: 94 patients underwent duct excisions for dilated ducts and stasis within ducts. Eighty patients underwent operations for, papillomatosis, intraductal papillomas , duct hyperplasia; 18 patients presented atypical or malignant findings.^{7,12} Carcinoma or atypical lesions were discovered in 15 of the patients undergoing major duct excision from the patients clinically get benign intraductile lesions . Three patients subsequently develop carcinoma in the operated breast and was apparently unrelated to the intraductile lesion originally treated by duct excision.^{7,12} All the Findings go against conservative management protocol of spontaneous bloodstained nipple discharge. So, management of spontaneous bloodstained nipple discharge should include duct excision to allow symptomatic relief with complete treatment and prevent malignant lesions being missed.^{11,12}

Conclusion

Mammary duct ectasia with no clinically lump or mass or solid tumour frequently count benign condition such as fibrocystic change. But if there is peripheral, ill-defined duct ectasia with ductal wall thickening there is possibilities of a malignancy lesion such as carcinoma in situ and radiologists should not hesitate to recommend a prompt biopsy. If the discharge persists for more than nine months and ultrasonography reveals a mass or other abnormality then need further investigations including invasive interventions. Conservative approach is most appropriate for patients with nipple discharge but if required and in case of single duct discharge microdoectomy is the treatment of choice. Total duct excision has proved most satisfactory for the treatment of chronic nipple discharge and most importantly complete excision of the major duct system yields a more adequate specimen for pathological examination as well as treatment.

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