Arch Jpn Chir 58(2), 250～256, März, 1989

Usefulness of Galactography for Minimal Noninvasive Ductal Carcinoma of The Breast

Minekatsu Nishida, Norifumi Johno, Takuo Murakami,
Takashi Suzuki, Hideshi Morioka* and Yasuo Imai*

The Second Department of Surgery, Yamaguchi University School of Medicine, Ube, Yamaguchi 755, Japan.
*Ogohri Daiichi Hospital, Ogohri, Yamaguchi 754, Japan.
Received for Publication,. Jan. 20, 1989.

Abstract

Two cases of noninvasive ductal carcinoma detected by galactography are reported with reference to our diagnostic methods of a patient with nipple discharge.

Abnormal nipple discharge with no demonstrable breast lump is rare but an important clinical sign, since it is sometimes produced by malignant lesions. Noncontrast mammography and cytologic examination is a limited diagnostic value for abnormal nipple discharge. Galactography is necessary for the detection of ductal carcinoma in early stage. The most important factor in improving the survival statics for breast carcinoma is early detection.

Introduction

Spontaneous nipple discharge in a nonlactating breast is an abnormal clinical sign that should be investigated. Nipple discharge from multiple ducts in both breasts is generally endocrine or drug induced, or is symptomatic of benign breast disease. Significant nipple discharge requiring surgery generally is limited to one or two ducts and is likely to be caused by ductal carcinoma or a precancerous lesion.

The appearance and character of the discharge have definite diagnostic value and often reflect the type of underlying lesion. In this regard, previous reports dealing with the problem of nipple discharge divided the discharge with respect to its gross appearance, but it is more significant whether or not hemoglobin is presented.

Several studies[3,4,5,7,8,9,10,11] have reported the frequency of cancer in patients with nipple discharge as approximately 10%. This incidence is increased in the presence of a breast lump. The management of the patient with nipple discharge and associated breast lump poses little problem. In such cases excision biopsy of the lump is indicated.

It is in patients with nipple discharge but no demonstrable breast lump that management may be difficult. Noncontrast mammography and cytologic examination appear to have a

Key words: Galactography, Noninvasive ductal carcinoma, Nipple discharge, Minimal breast cancer.
索引語：乳管造影，非浸潤性乳管癌，乳頭異常分泌，最小乳癌.
Present address: The Second Department of Surgery, Yamaguchi University School of Medicine, 1144 Kogushi, Ube 755, Japan.

limited diagnostic value. In this regard, galactography can be helpful in demonstrating a causative lesion of the nipple discharge, and the surgeon may undertake a more limited surgical procedure.

The most frequent lesion encountered is a benign intraductal papilloma, but ductal papillomatosis, secretory disease, and carcinoma sometimes can be identified. When diffuse benign disease is detected by galactography, no surgery is indicated. Galactography assures not only the removal and pathologic identification of the abnormal lesion, but also the minimal surgical procedure for the patient.

Methods

When a patient is seen at the clinic with a complaint of the nipple discharge, the affected duct is identified, and the nipple discharge is tested for the presence of hemoglobin by the use of a Hemostix reagent strip.

After routine noncontrast mammography is performed, the patient is placed supine upon the radiographic table. The nipple is cleaned with alcohol, and a small amount of the secretion is expressed by radial stroking of the breast and gentle squeezing of the nipple. The location of the orifice of the affected duct is thus identified.

Using sterile technique, a No. 22 blunt needle (Venula) is inserted into the duct. Cannulation usually is not difficult since ducts with a discharge seem to be dilated somewhat at the ostium. Approximately 0.5 to 2.0 ml of 60 % Urographin is injected until the patient feels a fullness or tightness in her breast. No sharp or burning pain should occur during the injection. If such pain should occur, this means that the needle has penetrated the duct wall with resulting in an intermammary injection. After successful injection the needle is removed, and mediolateral and craniocaudal films are exposed immediately. If any abnormal lesion is suspected, a spot exposure is performed.

If the nipple discharge is hemoglobin-positive or an abnormal lesion is detected by galactography, we believe that the treatment should be surgical, that is, a microdochectomy of the offending duct. Usually, microdochectomy is carried out under general anesthesia. The excised breast tissue is fixed immediately in formalin and embedded in paraffin. The histologic diagnosis is determined by the pathologist.

In cases of a hemoglobin-negative discharge and the absence of abnormal findings on galactography, repeated examination and close follow-up should be carried out.

Case reports (Noninvasive ductal carcinoma subsequent to microdochectomy)

Case 1. F.O. This 61-year-old woman was first seen in our clinic July 15, 1985 with the complaint of a discharge from her left nipple beginning 5 days prior to consultation. She had never been pregnant.

Physical examination revealed no lump, but a serous discharge was expressed from the left nipple. The axillae were normal to palpation. A radiograph of the chest, a ultrasonogram

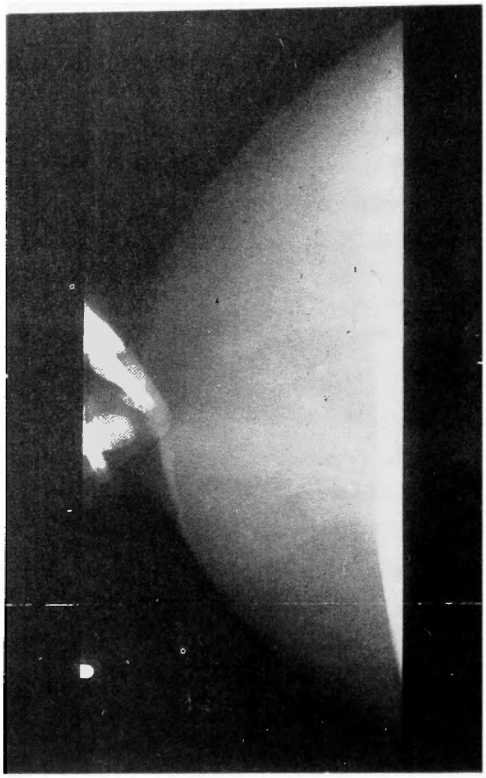

Fig. 1

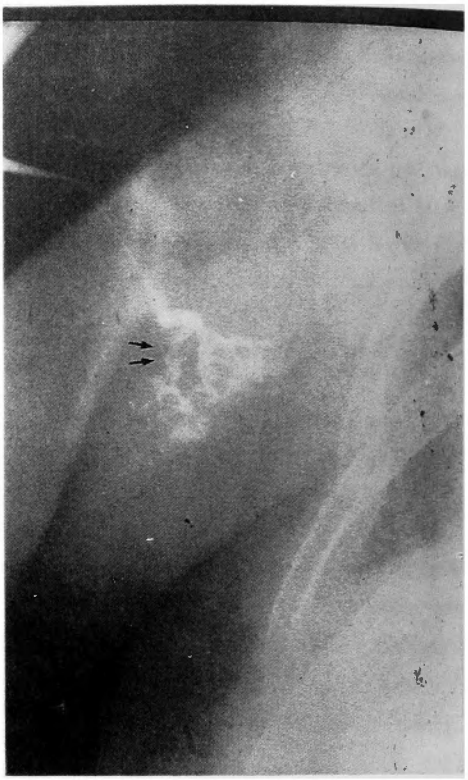

Fig. 2

Fig. 1 This noncontrast mammography shows small, round and clear calcifications.
Fig. 2 This galactography shows a filling defect and incomplete blockage of the subsegmental duct.

of the breast, and laboratory investigations were normal. The nipple discharge was hemoglobin-positive by the use of a Hemostix reagent strip. Cytologic examination was Class 2. Noncontrast mammography revealed small, round and clear calcifications, which were considered benign (Fig. 1).

Galactography of the involved duct and its branches was performed immediately after routine mammography, and the presence of a filling defect and incomplete blockage of the subsegmental duct was detected (Fig. 2). This was suspected of being an intraductal papilloma.

A microdochectomy under general anesthesia was performed. Histologic examination of the specimens revealed noninvasive ductal carcinoma (Fig. 3). A modified radical mastectomy (Auchincloss method) was performed on July 24. No carcinoma was found in the residual mammary tissue and lymph nodes.

Case 2. F.M. This 61-year-old woman was first seen in our clinic on June 10, 1986 with the complaint of a bloody discharge from her left nipple beginning 5 days prior to consultation. She had never been pregnant.

Physical examination revealed no lump in either breast, but a bloody discharge was expressed from the left nipple. The axillae were normal to palpation. A radiograph of the chest

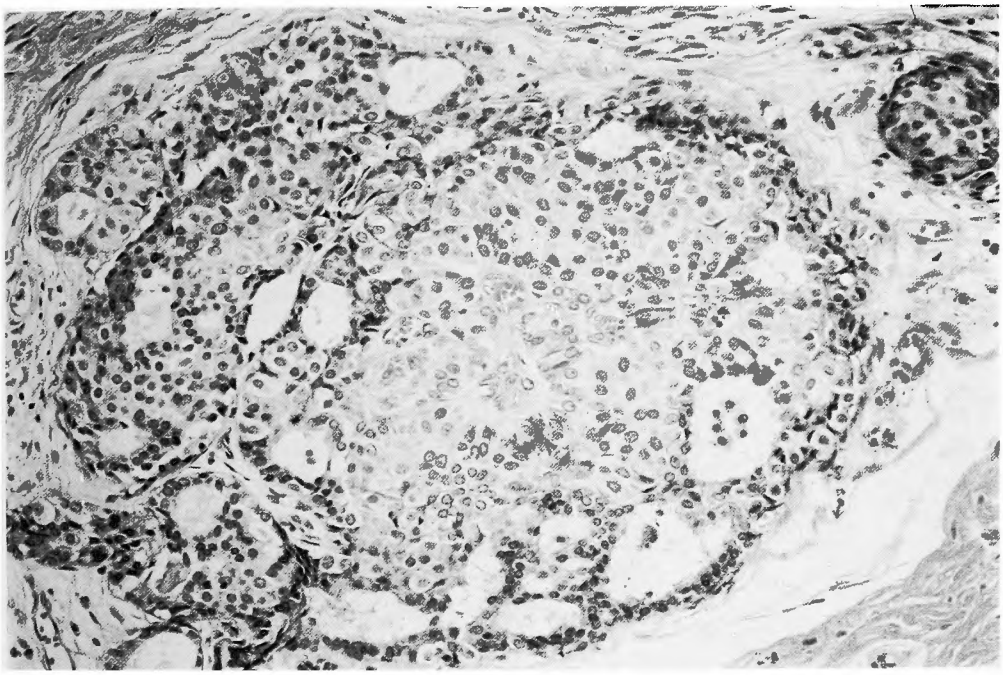

Fig. 3 Noninvasive ductal carcinoma with cribriform pattern[6] (H. & E. stain)

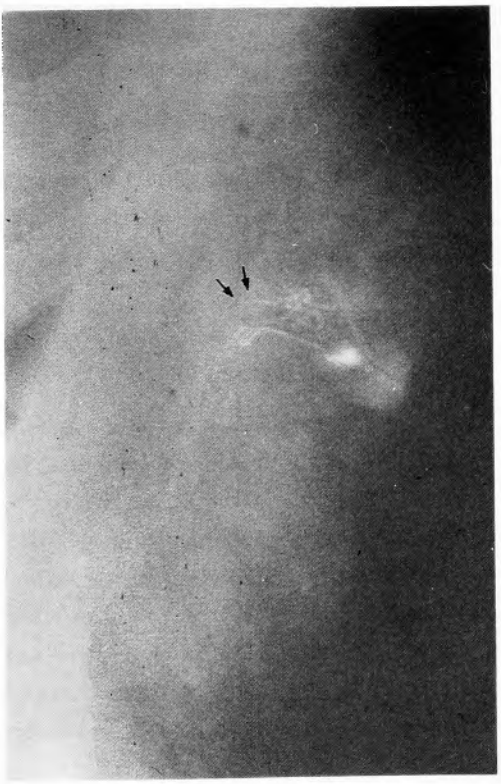

Fig. 4 Stenosis and irregular outlines of the subsegmental duct is showed.

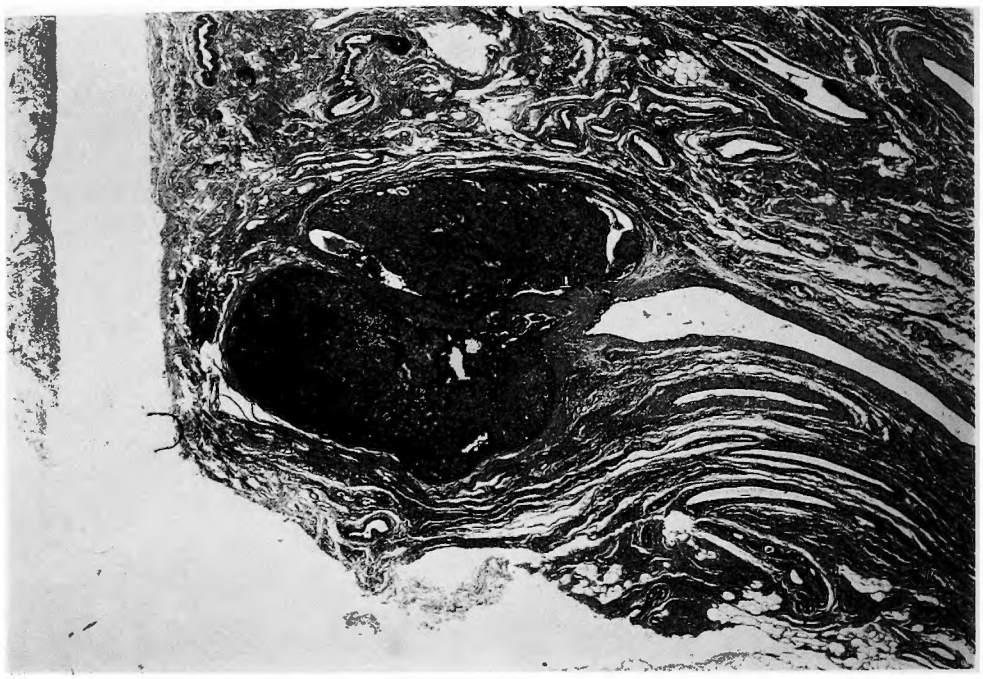

Fig. 5 Noninvasive ductal carcinoma; solid type[6]. (H. & E. stain)

and ultrasonogram of the breasts were normal. Cytologic examination was Class 2. Laboratory investigations were normal without hyperglycemia due to the diabetes mellitus. Noncontrast mammography was normal.

A galactogram was suspicious for a malignancy due to stenosis and irregular outline of the subsegmental duct (Fig. 4). Simple mastectomy was performed under general anesthesia at the patient's request. Histologic examination of the specimen revealed noninvasive ductal carcinoma (Fig. 5).

Discussion

Pathologic discharge from the nipple may be the first sign of an underlying malignant intraductal lesion, even when there is not a demonstrable lump. The gross appearance of the discharge cannot reliably predict the nature of the ductal disease. Additionally, cytologic examination cannot distinguish definitively a papilloma, a neoplastic lesion, and a carcinoma.

In the series of CHAUNDARY, et al[1]., nipple discharge secondary to carcinoma always contains hemoglobin or its metabolic products. It is useful to reduce the number of different types of nipple discharge into two groups, hemoglobin positive and negative. If the nipple discharge is hemoglobin-positive, the lesion should be treated surgically. Previously, a random biopsy or simple mastectomy was performed, but today, galactography is the procedure of choice for the localization of the involved duct.

In addition, galactography sometimes can suggest the nature of the pathologic process.

When an intraductal papilloma is present, a localized rounded or lobulated filling defect usually is seen within a dilated major duct, which may or may not by completely obstructed. With ductal carcinoma, the galactogram revealed the presence of stenosis, complete or incomplete blockage and a dilatation with a irregular outlines. In our two cases of noninvasive ductal carcinoma, galactograms suggested a malignancy, but the diagnosis was not definitive.

The value of galactography is not in predicting the nature or the extent of disease accurately, but to help select areas for surgical resection. Thus we must emphasize, without ignoring the diagnostic value of galactography, that it is the type of discharge (hemoglobin positive or not), rather than galactography itself, that provides a valid and sufficient indication for surgery.

Finally, complete resection of the involved duct by microdochectomy must considered as the best diagnostic method and treatment in these patients.

References

1) Chaundary MA: Nipple discharge . The diagnostic value of testing for occult blood. Ann. Surg., **196**: 651-655, 1982.
2) Diner WC: Galactography: Mammary Duct Contrast Examination. AJR., 137: 853-856, 1981.
3) Donney BA: Nipple Discharge; It's clinical and pathologic significance. Ann. Surg **131**: 342-355, 1950.
4) Haagensen CD: Breast Carcinoma, Risk and Detection. WB Saunders, Philadelphia, 1981, p 124.
5) Kindermann, G. E.: Early detection of ductal breast cancer: The diagnostic procedure for pathological discharge from the nipple. Tumori, **65**: 555-562, 1979.
6) Kraus FT, Neubecker RD: The differential diagnosis of papillary tumors of the breast. Cancer **15**: 444-455, 1962.
7) Lewis HP: Nipple discharge. Int. Surg. **58**: 152-165, 1973.
8) Lewis HP Jr: Nipple discharge, significance and treatment. Breast, **11**: 6-12, 1985.
9) Murad TM: Nipple discharge from the breast. Ann. Surg., **195**: 259-264, 1982.
10) Pietro SD: Nipple discharge as a sign of preneoplastic lesions and occult carcinoma of the breast. Tumori **65**: 317-324, 1979.
11) Urban JA, Egeli RA: Non-lactatinal nipple discharge. Ca-A cancer J. for Clinicians, **28**: 130-140, 1978.

和文抄録

乳管造影にて異常所見のえられた微小非浸潤性乳管癌の2症例

山口大学第二外科
西田 峰勝，城野 憲文，村上 卓夫，鈴木 敞
山口厚生連小郡第一総合病院
森岡 秀之，今井 泰雄

無腫瘤性乳頭異常分泌症を主訴に来院される患者は，比較的少ないが，早期乳癌が原因となっている場合もあり慎重な対処が必要である．しかし盲目的な生検もできず，画像診断及び細胞診に頼らざるをえないのが現状である．我々は，これらの患者に対して分泌物の潜血反応と乳管造影を必ず行い，潜血反応が陽性であるかまたは乳管造影にて異常所見を認めた場合積極的に乳管区分切除術を行なうようにしている．最近我々は，乳管造影にて異常所見のえられた微小な非浸潤性乳管癌2例を経験したので，乳管造影の方法と共に報告する．