lesions. The preoperative measurement of lesions has special importance in cases of non-palpable tumours, in order to select appropriate cases for surgical biopsy of limited extent.

Materials and methods: 171 surgical biopsies of breast malignancy were analysed retospectively from the point of view of radiomorphology, radiological and histological tumour size, number of foci, and histopathology.

97 lesions were non-palpable excised by hook-wire localised, 74 palpable tumour did not need preoperative localisation. The size of the lesions measured by US and on the mammogram were compared with each other and with the histological size.

Results: In 59% of the 97 non-palpable cases and in 67% of the 74 palpable cases the radiological and histological size was equal, or the difference was less than 20%. In cases of in-situ carcinomas (29 cases), the radiological assessment of the size was more difficult. By the non-palpable in-situ cases (24) in the half of the DCIS cases the radiological and histological sizes was equal. In the remaining 50% the difference between the two measurements was more than 20%. In the palpable group were found only 5 in-situ cases, and only in one case proved equal radiological and histological size.

In the invasive carcinoma group the radiological measurement proved more accurate: in 61% of the non-palpable cases and in 71% of the palpable cases the radiological and histological measurements gave the same result, and in only 39%, and 29% was the difference over 20%.

Analysing the radiomorphology microcalcifications and parenchymas distorsions were those alterations by both of palpable, and nonpalpable lesions, where the radiological and histological size differed from each other significantly.

Conclusion: The preoperative measurement of tumour is important in order to orientate the surgical approach.

By the palpable lesions the measurement is more accurate than in case of non-palpable, and by the in-situ cases the measurement was not useful alone to plan the surgical biopsy.

However, in cases of microcalcifications or parenchymal distorsion, care must be taken to plan the excision on the basis of radiological size alone, in order to avoid insufficient surgical treatment.

140 POSTER

Breast ductoscopy with a 0.55 mm (1.83 F) endoscope as additional diagnostic tool for unclear cases of nipple discharge

V.R. Jacobs[1], M. Kiechle[1], H. Schaaf[2], S. Paepke[1]. [1]*Technical University Munich, Frauenklinik (OB/GYN), Munich, Germany;* [2]*PolyDiagnost GmbH, Pfaffenhofen, Germany*

Objective: Standard diagnostic tools to evaluate suspicious nipple discharge can only give indirect information about the source of the bleeding with is anticipated coming from a breast duct lesion. Microendoscopy with a breast ductoscope of only 0.55 mm (1.83 F) can offer visualization of the lesion and help in the decision to perform or avoid an exploratory breast tissue resection for histological evaluation. We discuss this new technique and its performance.

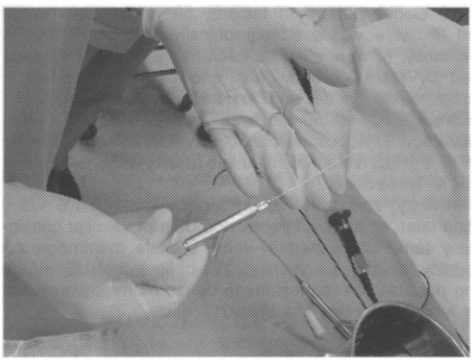

Fig. 1. LaDuScope® with 0.95 mm diameter.

Methods: We use a PolyDiagnost LaDuScope® with 0.55 or 0.95 mm outer diameter cannula and a working length of 75 mm. The optic has an outer diameter of 0.36 mm, a total length of 1200 mm, with 0° angle direct view, a field of vision of 70° and 3000 pixel resolution. Irrigation of breast duct is possible with a syringe as well as aspiration under visual control. The ductoscope is autoclavable and can be sterilized in gas or plasma sterilization. The procedure can be performed as ambulatory diagnostic procedure. The patient is awake; a slight dose of sedation eases pain and discomfort during dilatation of the mamillary duct.

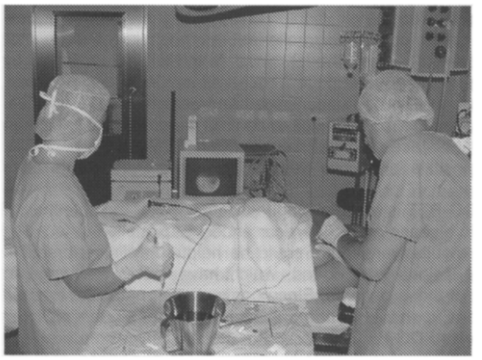

Fig. 2. OR setting for breast ductoscopy.

Results: After introduction of the ductoscope the breast ducts and walls can easily be inspected without discomfort for the patient. Instead of moving the scope rather the breast tissue is moved towards the direction of visual interest. The results of the ductoscopy can immediately be explained to the patient on the monitor, but the entire procedure is also recorded on a CD-ROM for further evaluation. The only limitation so far is that the picture on the monitor due to the resolution is rather small compared to standard endoscopy. We had no intra- or postoperative complication so far.

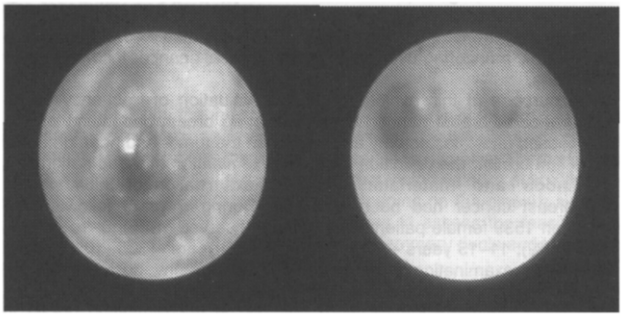

Fig. 3. Visualization of breast duct. Fig. 4. Breast duct bifurcation.

Conclusion: The procedure is safe and helpful as an additional ambulatory diagnostic tool to exclude obvious malignant causes for nipple discharge. Ductoscopy can delay or even avoid otherwise necessary operative breast tissue removal and is easily performed by an endoscopy-experienced physician. This instrument demonstrates the latest advances of technology and a trend towards a less invasive micro endoscopy of the breast ducts.

141 POSTER

Added value of [18F]-FDG-PET in staging breast cancer and detection of relapse

M. Landheer[1], M. Steffens[2], J. Klinkenbijl[1], W. Oyen[3]. [1]*Rijnstate Hospital Arnhem, Surgery, Arnhem, The Netherlands;* [2]*Rijnstate Hospital Arnhem, Urology, Arnhem, The Netherlands;* [3]*University Medical Centre Nijmegen, Nuclear Medicine, Nijmegen, The Netherlands*

Introduction: Staging of breast cancer consists is routinely performed by ultrasonography of the liver, chest X-ray and bone scanning. FDG-PET, an imaging modality utilizing the increased uptake of glucose by tumor cells, has proven to be a valuable tool in the staging and follow-up of a wide variety of malignancies. However, literature of the additional value of FDG-PET in breast cancer is limited.

The aim of the present study was to evaluate the role of FDG-PET in the staging of breast cancer and in the detection of loco-regional recurrence and distant metastases during follow-up.

Patients and methods: 45 patients were included in this prospective evaluation. Patients with either a suspected relapse of disease or with a primary breast cancer with a tumour positive top axillary lymph node were eligible for the study. All patients were subjected to conventional chest X-ray, ultrasonography of the abdomen, bone scintigraphy and if applicable X-ray mammography and/or ultrasonography of the breast. FDG-PET was performed in addition. In case of suspected abnormalities on FDG-PET,

confirmation was always attempted. If no confirmatory diagnosis could be achieved, FDG-PET was considered to be false-positive.

Results: Increased uptake was found in the breast in most cases, less frequently in the lung, liver, bones and mediastinal lymph nodes. Unexpected and later confirmed malignant lesions (i.e. lesions not diagnosed by conventional methods) were found in 10 patients by FDG-PET leading to a change in patient management in seven. However, four FDG-PET lesions remained unconfirmed and were thus false-positive. Lesions that appeared the most difficult to confirm were mediastinal lymph nodes and liver metastases. Overall sensitivity of FDG-PET was 100%, specificity 64%, positive predictive value 80% and negative predictive value 100%.

Conclusion: FDG-PET is a useful diagnostic method for the detection of (distant) metastatic disease and local recurrences. Especially the fact that no false-negative results were found could be helpful in clinical practice. Several additional lesions were found, which have led to a change in treatment of most of these patients. Since conventional methods revealed no additional lesions, it should be the objective of further studies whether it is useful to perform FDG-PET earlier in the diagnostic work-up.

142 POSTER

The frequency of the appearance of breast cancer in the breast remaining after radical mastectomy

V. Myakinkov[1], I. Sokur[2]. [1]*Kherson Province Oncology Hospital, X-ray, Kherson, Ukraine;* [2]*Kherson Province Oncology Hospital, Head of the Hospital, Kherson, Ukraine*

Purpose: Breast cancer is one of the main problems of modern oncology. In spite of the possibilities of ray diagnostics breast cancer frequently is detected on late stages and then it is necessary to do a radical mastectomy. There are contradictory data on the rate of origin of malignant tumors in the remaining breast after a mastectomy. There is also different opinion to the dynamic monitoring over patients with a breast cancer following these operations.

The purpose of this exploration is the evaluation of frequency of the appearance of breast cancer in the remaining breast depending on the time passed after mastectomy and age when the tumor had been detected in the first breast, the definition tactics of examination of these patients.

Methods and materials: Results of examination of 3664 women with breast cancer had been analyzed. During 5 years following the operation 1539 female patients were being observed (40%); 6–10 years – 1026 (30%); 11–15 years – 733 (20%); over 15 years – 366 (10%). Along with clinical examination a mammography, sonography, ductography and pneumocystography were carried out.

Results: Malignant tumors were revealed in the remaining breast in 67 women (1.8%). The frequency of diseased for breast cancer depending on the time passed after mastectomy was as follows: during 5 years after operation – 34% of cases; 6–10 years – 30%; 11–15 years – 24%; over 15 years – 12%.

The influence of age, at which breast cancer was detected for the first breast, upon the rate of development of malignant tumor in the remaining breast after a radical mastectomy was as follows: under the age of 34 years – 7%; 35–44 years – 23%: 45–54 years – 46%; 55–64 years – 13%; 65 and older – 11%.

The frequency of diseased for breast cancer at the moment of revealing the first tumor before the age of 34 – 1.7%: 35–44 years – 2.0%: 45–54 years – 2.9%; 55–64 years – 0.9%; 65 and older – 0.9%.

Conclusion: The frequency of breast cancer development in the remaining breast prevails the morbidity in the population of women of the region by 32 times. Women with established diagnosis breast cancer must be under examination all their life.

Taking into account high percent of the tumors detected during the first 5 years after the mastectomy it is necessary to examine patients carefully before the operation with using of all available diagnostic methods.

For monitoring of remaining breast after a mastectomy the following tactics of using radiation diagnostic methods was recommended: in case of the diagnosis established in the first breast at the age under 34 years– mammography and sonography; 35–54 years – annual mammography; over 55 years– mammography every 2 years. Sonography, ductography and pneumocystography were recommended in special cases.

143 POSTER

Mammographic masses in the surveillance of BRCA 1/2 mutation carriers

R. Kaas[1], R. Kröger[2], J.H.C.L. Hendriks[3], S.H. Muller[4]. [1]*Netherlands Cancer Institute, Surgery, Amsterdam, The Netherlands;* [2]*Netherlands Cancer Institute, Radiology, Amsterdam, The Netherlands;* [3]*UMC St. Radboud, Radiology, Nijmegen, The Netherlands;* [4]*Netherlands Cancer Institute, Radiology, Amsterdam, The Netherlands*

Purpose: To evaluate whether breast cancers in mutation carriers present as benign looking circumscribed lesions on the mammography.

Background: The breast cancer linkage consortium hypothesized that breast cancers in BRCA 1/2 mutation carriers may escape mammographic detection, because of rapid growth and tumor expansion and may therefore mimic benign lesions.

Patients and methods: Twenty nine carriers under surveillance developed 31 first or second primary breast cancers between 1994 and 2001 at a mean age of 44.2 years. Controls were 63 women with 67 breast cancers in the same period at a mean age of 53.8 years, also under surveillance because of a life time risk for breast cancer of at least 15%.

A review of all mammographies was done by seven radiologists.

Results:

Mammogr. lesion	BRCA 1/2 carrier		Control LTR>15%		P value
	Tumor N=31	%	Tumor N=67	%	
Circumscribed mass	7	23	3	5	0.01

Conclusion: Circumscribed mammographic lesions (usually typical for a benign lesion) are found significantly more in gene mutation carriers. These lesions should be described as at least BI-RADS 0.

144 POSTER

Clinical utility of bilateral whole-breast US in dense breasts – Is routine US examination necessary?

Y. Sahingoz[1], H. Kaya[2], E. Aribal[1]. [1]*Marmara University School of Medicine, Radiology, Istanbul, Turkey;* [2]*Marmara University School of Medicine, Pathology, Istanbul, Turkey*

Purpose: To evaluate the results of bilateral breast US examination in breasts with BI-RADS density category –3 and 4, and compare it with the results of mammographic examination.

Materials and Methods: Between November 1999 and December 2000, 1536 patients with heterogenously dense (BI-RADS density category –3) or extremely dense (BI-RADS density category –4) breasts were examined sonographically without considering asymmetrical densities in mammographies. According to the results of US and/or mammographic examination, 73 patients have undergone breast biopsy. Suggestive findings of mammography and US examinations were compared with tissue diagnoses from biopsy specimens. Sensitivity, specificity, accuracy,positive predictive value and cancer detection rate was calculated for mammography and US, separately.

Results: From 73 biopsy performed lesions, 59 were visible mammographically, and 68 were visible sonographically. Out of 16 lesions diagnosed as malignancy, 15 were seen via each modality. One malignant lesion was missed by mammography, and one by US examination. Concidering heterogenously dense and extremely dense breasts, for mammographic examinations, results were as follows: sensitivity: 94%, specificity: 97%, accuracy: 97%, positive predictive value: 25%, and cancer detection rate: 0.97%. For US examinations these results were: 94%, 96%, 96%, 22% and 0.97%, respectively.

Conclusion: Sensitivity, specificity, accuracy,positive predictive value and cancer detection rates for mammography and US were similar considering heterogenously dense and extremely dense breasts. mammography is the primary modality for breast screening. We believe that US will be useful in identifying possible missed lesions in dense mammograms and should be used as a complimentary tool in such breasts.

145 POSTER

System delay in breast cancer patients; important defect in patient's management

N. Mehrdad, M. Ebrahimi. *Iranian Academic Center for Education, Culture and, Iranian Center for Breast Cancer, Tehran, Iran*

Background: Delay in diagnosis and treatment of breast cancer leads to progression of disease and is associated with high mortality.

Delay in breast cancer care can be divided into patient delay (time from symptom recognition to initial medical consultation) and system delay