

FROZEN SECTION BIOBSY IN BREAST ONCOPLASTIC SURGERY

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Abstract

Background: Frozen Section Procedure (FS) is a pathological laboratory procedure, which realizes a quick microscopic analysis of biopsy sample. Technical name of this procedure is Cryosection; daily practice of medicine has been described by Dr. Luis Wilson in 1905, which developed techniques performed by Dr. William Mayo (surgeon & founder of the Mayo Clinic). Intraoperative consultation is the name that has been determined this action by the pathologist, which includes not only the FS, but gross assessment of the sample, cytological examination etc.

Aim: This is one of the basic techniques used inseparably during conservative treatment and oncoplastic breast surgery at Hygeia Hospital Tirana and Oncology Service in U.H.C.

Material and methods: We select all cases of patients with FNA of breast lesion C2-C4 and Throw-cut uncertain where clinically and in image were doubtful for oncological pathology in mammary gland. These cases were reviewed for the period January 2011- august 2012 by their presenting at Hygeia Hospital Tirana and Oncology Service at the University Hospital Center.

Results: In the main use of FS is the examination of tissue during surgical act, which is done for various reasons:

- If the tumor is suspected to have metastasizes& in this case brought a part of the suspicious area to confirm.
- If the tumor is removed, but not known his lips (margin status).
- In linfonod sentinel biopsy (SLN) to determine the continuation of further (ADLN).

One of the most important factors for an adequate oncological surgery in patients with BC during breast conservative surgery is intraoperative frozen section

analysis (FSA) for the assessment of margin status.

In everyday practice in surgical activity & breast conservative treatment in our service, this procedure has found a use about 40% in the case of an FNA preoperative that resulted C2-C4, which confirmed the diagnosis of oncological problem.

Conclusions: In the case of conservative surgery this technique is used 100% of cases, with a very low negative false result. This caused to our patients to avoid a second surgery, so traumatic for an individual already with psych emotional alterations, it was confirmed also from our psychosocial advisory at our service.

Key words: frozen, breast surgery.

Introduction**Background**

Frozen Section Procedure (FS) is a pathological laboratory procedure, which realizes a quick microscopic analysis of biopsy sample. Technical name of this procedure is Cryosection, daily practice of medicine has been described by Dr. Luis Wilson in 1905, who developed techniques performed by Dr. William Mayo (surgeon & founder of the Mayo Clinic). Intraoperative consultation is the name that has been determined this action by the pathologist, which includes not only the FS, but gross assessment of the sample, cytological examination etc.

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This is one of the basic techniques used inseparably during conservative treatment and oncoplastic breast surgery at Hygeia Hospital Tirana and Oncology Service in U.H.C.

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Procedure: Crucial instrument of cryosection is cryostat, which is a microtome within freezer. Microtome makes thin cutting as a micrometer, histological cutting more usable are 5-10 micrometers. Surgical sample is placed in a metal device, which freezes so quickly in a temperature -20 ° c to -30 ° c. Logging stained with hematoxylin & eosin. This technique is very fast, about 10 minutes (traditional technique takes about 16 hours).

Results

In the main use of FS is the examination of tissue during surgical act, which is done for various reasons:

- If the tumor is suspected to have metastasizes & in this case brought a part of the suspicious area to confirm.
- If the tumor is removed, but not known his margins (margin status).
- In linfonod sentinel biopsy (SLN) to determine the continuation of further (ADLN).
- In rapid exploratory surgery where examination of the lesion may help in identifying the possible reason of symptoms; etc.

One of the most important factors for an adequate oncological surgery in patients with BC during breast conservative surgery is intraoperative frozen section analysis (FSA) for the assessment of margin status:

- Surgical standard practice is to achieve clean microscopic margins (RO e" 1mm) even it requires a second surgical procedure.
- FSA leads surgeon during BCT to realize resection in clean margins of primary tumor, it is given with an accuracy of 97%. Through this is avoided a second surgery (two-stage procedure) in a large number of patients.
- If is no use of FSA during lumpectomies, a two-stage procedure may be necessary in 38-54% of patients, etc.

In the analysis were obtained 89 patients who underwent surgical procedures in breast gland for mammary pathology doubtful of oncological

problems. It is worth mentioning that major surgical procedures performed are those conservative, breast conservation, which has been the desire and patient selection for this procedure.

The average age of patients was 41.5 + / - 16.3 (28 - 72) years.

Age-group	Patients number	Percentage (%)
28-50 years	63	70.78
51-65 years	16	17.97
Over 65 years	10	11.25

Predominance of 28-50 year old age group, because patients in this group have demanded the conservation of the breast and are used surgical breast conservatie techniques where was necessary verification of marginal resection status regarding the presence of oncological pathology.

In the age group over 50 years, the main purpose of using the FS has been the preoperator realization of FNA (Fine Nedle Aspiration) with a result of C2-C4 where clinically and in imagery these cases were suspicious for oncological pathology.

In relation to family history for oncology mammary pathology:

Family history	Patients number	Percentage (%)
Negative	63	70.78
Pozitive	17	19.10
Unknown	9	10.12

Most of the patients had a negative family history.

Tumor size in 55% of cases were in group T1 (up to 2cm), while others have resulted T2.

Predominant surgical technique performed in breast conservative surgery was it of ultraconservative oncoplastic in approximately 73% of cases, which are used shift and rotations of neighboring mammary lembo. For specific quadrant of breast, are used special techniques of oncoplastic surgery. Most of these cases have had an anatomopathology investigation preoperator of lesions, through throw-cut biopsy.

In 27% of cases is used Madden modified radical surgery, where FS has had value in breast malignant

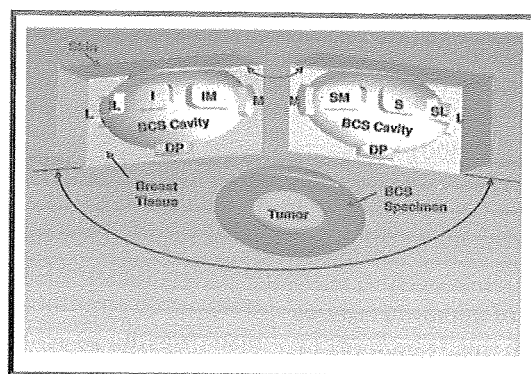
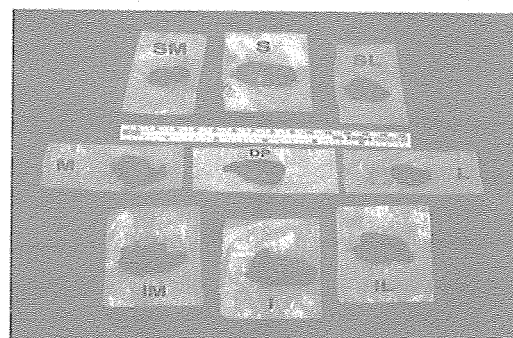
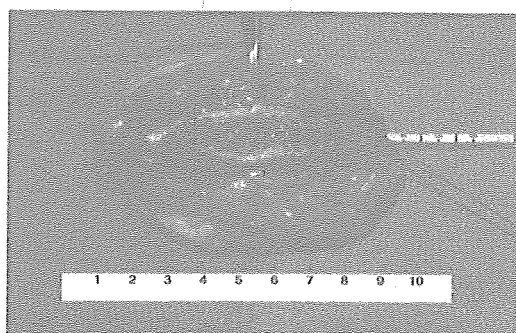
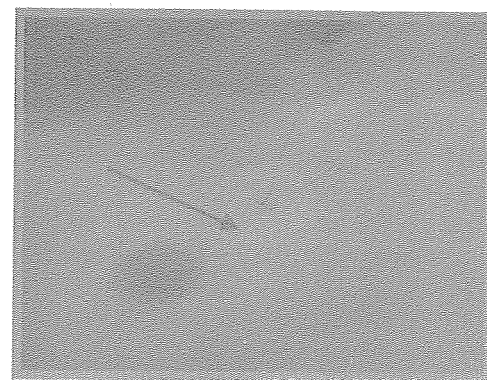
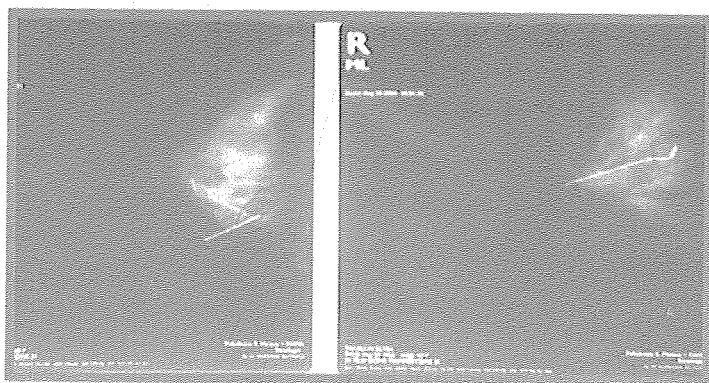
pathology confirmation. In these cases, most of the preoperator anatomopathology investigation was FNA which has resulted C2-C4 (C5 is malignant process).

In 25% of cases in conservative surgery is used the assistance to localize malignant area (microcalcifications in mammography, lesions not palpueshme, etc.) by means of establishing preoperator hook, under echo or mammography. To confirm the resection of all interested area with microcalcifications is performed mammography of resection area along the hook, before this area go for FS (in 12% of cases involving the use of a hook procedure).

In orientation of resected area from the breast, which is send for FS, is necessary to have special care regard to:

- * *Orientation by the surgeon*
- * *Macroscopically description of margin*
- * *Margin inking*
- * *Status of surgical margins*
- * *Distance of closest margins*

It is used in over 90% of cases orientation of resected area through the use of surgical sutures making positioning of resected area according to the field of the clock. This is sent immediately to the laboratory of pathological anatomy for FS and for a period of time 30 - 45 min has been a response from them.



Discussion

In FSA (Frozen Section Analysis) have influences many factors which may include:

1. Tumor size: Many authors do not recommend FSA in BC when there are no palpable lesions / preinvasive lesions. If the accuracy of the FSA in cases with BC when the lesion is more than 1cm is 97%, studies show that in non palpable lesions & preinvasive (microcalcifications) have a very low accuracy & the best result is one that is reached in the definitive histological report. False negativity reaches up to 9%, in these cases is better preoperative stereotactic biopsy.

2. Preoperative diagnosis: Throw cut preoperative biopsy demonstrated a high probability of a negative low false in clinical FSA. This is because it gives the surgeon the opportunity to perform wider resections.

3. Neoadjuvant Therapy: After her patients have a high risk of false negative in clinical FSA. The higher risk to perform a second operation is dependent on grade, age, size of the tumor. Is seen that after BCT patients who have committed neoadjuvant therapy, have increased local recurrences (1-2%), morbidity & a poor survival.

4. Final pathological examination: his results do not alterate significantly after the FSA, even in small lesions & non palpable.

Diagnostic errors: In retrospective analysis is seen that diagnostic errors associated with intraoperative consultations are divided into 4 groups: 1. related to the interpretation (57%); 2. microscopic sampling (24%); 3. gross sampling (9.5%); 4. no communication between the pathologist & surgeons (9.5%).

BC diagnosis (Breast Cancer) FS:

Diagnostic sensitivity of FS is 97.3%.

Diagnostic clinical specificity is 99.5%, when taken as a reference diagnosis in paraffin sections.

False negative diagnosis goes to 1.8%, while the false positive diagnosis ranges 0.7%.

FS in SLN detection (Sentinel Lymph Node):

FS diagnosis for SLNs is reliable.

Patients with negative SLNs by means of FS avoid a second surgery for ALND.

FS may fail in the determination of micro-metastases (<0.2mm), especially in cases with small tumors (T1).

There is a relationship between mikrometastasis and false negative, in such cases is made a detailed examination of the SLN with more sections & IHC.

FS disadvantage in LNSB: 1.cost; 2.additional time needed for diagnosis.

BC detection by FS in contrast Throw-cut:

FS results in FNA are compared with FS excisional biopsy.

Sensitivity of breast cancer detection by using FS in FNA is 77%.

The sensitivity of carcinoma detection in Throw-cut shows that the content of the carcinoma in paraffin sections is 92.8%.

Specificity of FS in breast needle biopsy is 86.4% & lacked the result of false positivity.

Interpretation of FS in needle biopsy of breast lesions is reliable when is performed by experienced surgeon & interpreted by experienced pathologist.

FS disadvantages in FNA (Fine Needle Biopsy):

- small size breast lesion.
- Possibility that biopsy do not fall in lesion.
- Fear of needles that have some patients.

Advantages of the technique:

- Saves time.
- The cost is low.
- It is simple & safe. (Security is high with a low percentage of false negative results & practically no false positive diagnosis)

Disadvantages of excisional biopsy:

- High cost.
- Longer time in operational room.
- Possibility of complications such as infection, hematoma in 8-10% of patients.

Conclusions:

In the case of conservative surgery this technique is used 100% of cases, with a very low negative false result. This caused to our patients to avoid a second surgery, so traumatic for an individual already with psych emotional alterations, it was confirmed also from our psychosocial advisory at our service.

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