

dose distribution using 9-20 MeV electrons showed no significant difference in the dose delivered due to the presence of the prosthesis (the central axis depth dose values below the prosthesis were lower for all energies by as much as 3.5%) (11). According to the measurement (12), silicone gel behaves like tissue i.e. half value thickness for silicone gel and water is almost the same, as well as, linear absorption coefficients for silicone gel and water. A slight decrease in dose of approximately 8% was found only at the interface between the prosthesis and muscle-equivalent material, due to electronic disequilibrium effects that occur at the surface of the prosthesis (13).

Radiation damage Silicone gel breast implants should not be damaged by radiation. Shedbalkar et al. (14) referred to manufacturer's data, which indicates: i) little change in prosthesis with a radiation dose of 2.5 Mrad, and ii) a noticeable change in hardness at about 4.0 Mrad. In the radiotherapy dose range, there was no statistically significant difference in silicone capsule thickness compared to non-irradiated controls. Capsule morphology, can differ markedly (7). Changes following 50 Gy can be in a gel color, and formable capacity (8).

CONCLUSION

There are no specific recommended actions, dosimetry need for corrections for the presence of silicone gel breast implants, but there may be cosmetic effects.

Usage of a shield designed to protect healthy contra-lateral breast tissue from "scatter irradiation" can be considered in younger patients, patients with lower disease stages and women with either a very positive family history, known BRCA1/2 genetic mutations (15).

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Immediate and delayed breast reconstruction after radical mastectomy

KEYWORDS: Mastectomy; Breast reconstruction; Quality control

A breast represents a secondary sexual characteristics and symbol of femininity and maternity. A radical and modified radical mastectomy is a mutilate surgical intervention which causes a number of emotional and social problems. Reconstructive surgery helps to overcome psychosocial problems of a patient and his return to everyday activities. A good choice of type of reconstructive surgery and correctly undergone operation enables a patient with mastectomy to live a normal, good life. The aim of this work is to show number and cases of reconstructive operations performed on the Oncology and Radiology Institute of Serbia, surgical department from 1997 to 2001. Methodology: The aim of the reconstructive surgery is to recover enough skin, reconstruct. The breast shape, reconstruct nipple and areolar complex, symmetrisation of contralateral side. Indication for reconstructive surgery is:

1. A breast amputation
2. Psychooncology (to easier overcome psychotrauma and to delay relapse)

Contraindications for primary and postponed reconstructive surgery are:

1. A general health condition of a patient
2. Technical-operative ability of a surgeon

Eighty three operations were undergone. Average age of patients were 40 years (sd-7.5). There were 36 primary, 27 secondary, 7 mammilla reconstructions, and 13 corrections of a position and shape of the other breast. Endoprosthesis implanting were undergone with 47 patients, 11 musculocutaneous flaps of latissimus dorsi. in combination with endoprosthesis, and 9 cases of TRAM flap. Complications after surgery happened with 4 patients. There were 2 prolapses of endoprosthesis, 1 injury of the implanted substance and one partial necrosis of the flap. Well-chosen type and technically correctly undergone surgery enables a patient with mastectomy to live normally. Primary reconstruction is an imperative.



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Conserving surgical treatment of operable breast cancer

KEYWORDS: Breast-Conserving surgery; Quality assurance, Health care

Concept of the breast cancer treatment (stage I-II) by conserving operations, has been applied since seventies in the world and since eighties at Institute for Oncology and Radiology of Serbia (IORS). Since 1985 it has been included into Protocol. Conserving surgical interventions were included into the latest version of Protocol (2000), as methods of choice. Analysis of 5-year results of the surgical treatment by conserving operations of the breast cancer of stages I-II. Patients and Methods: In the period from 1996 to 2000, 3,650 patients were operated on from the breast cancer at IORS, and conserving surgical intervention was applied in 604 patients (16.5%). The patients were in III-VII decade of life. Criteria for conserving treatment were as follows: clinical T1-2, No, Mo, extempore biopsy with data on tumor size (up to 25 mm), free margin and nodal status of analysed Igl. Menstrual status and Tu localisation did not affect the method of the surgical treatment. The following surgical interventions were applied: tumorectomy, segmentectomy and quadrantectomy with axillae dissection, with compulsory post-operative irradiation. Post-operatively, the following data were used for adjuvant treatment: Tu localisation, menstrual status, status of the steroid receptors and analysis of definitive HP finding (pT, pN). X2 test was used in analysis. Average age of the patients was 47 years (R- 30-65). Right breast cancers prevailed with statistical significance (63%, $p < 0.002$). The most frequent localisation was GLK (37%, $p < 0.005$). Analysis of definitive HP finding showed the following results: non-invasive cancer *in situ* 7%, invasive cancer 93%; the most frequent tumor type was ductal cancer Gr. II 46% ($p < 0.001$). Tumor size in relation to incidence was as follows: T1 462 (76.5%), T2 132 (22%), T3 10 (1.5%). Modality status: pNo 400 (66%), pN1 204 (34%). We analysed metastases in axillary Igl in the groups by statistical assessment (1-3), (3-5) and (>5). The frequent involvement was in the group 1-3 Igl (40%). Adjuvant therapy depended on prognostic factors. Chemotherapy (FAC, CMF) was applied in 274 patients (45.36%). Hormonotherapy (Nolvadex) was applied in 302 patients (50%), and radiotherapy in 604 patients (100%). Disease relapse: local recurrences in 37 patients (5%), distant metastases in 105 patients (17%). Approximate follow-up period was 30 months (R-12 to 60 months). From total number of the patients operated on at IORS, 604 (16.5%) were operated on by conserving surgical interventions, what still is not satisfying percentage in relation to series stated in the leading European centres (65%). Probable reason is delay of examination by a patient, as well as insufficient screening in the risk group. In our series of the patients, we have achieved satisfying cosmetically aesthetic effect, what is one of the reasons of introducing this method.

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Anesthesia for conserving operation of the primary malignant breast tumors

KEYWORDS: Breast-Conserving surgery; Anesthesia

Possible consequence of conserving operations of the primary malignant breast tumors is tumor recurrence in the remaining tissue of the sick breast and due to that chemotherapy and radiotherapy are post-operatively applied. There are several causes of tumor recurrence. Anesthesia could be a contributing factor, i.e. its influence to post-operational pain, infective post-operative complications, psychological stress etc. Anesthesia, local or regional, requires application of different drugs for sedation, premedication, introduction to anesthesia and anesthesia maintenance. Many of those drugs have clinically significant effect disrupting mechanism of cell immunity: decreasing monocyte chemotaxis (ketamine, midazolam, etomidate, droperidol), decreasing IL-8 secretion from polymorphonuclear leukocytes sedative, propofol, midazolam) or decreasing phagocytosis power and oxidative burst of the phagocytotic material (diazepam, tiopental, ketamine). In all tests, only synthetic morphine analogues (fentanyl, alfentanyl) showed minimal and clinically insignificant immunomodulatory effect (ion superoxide production decrease in polymorphonuclears) but with increase of circulatory NK cell number. Extra oxygen concentration in inspiratory compound increases power of monocytously-leukocytous oxidative burst. Accordingly, anesthesia for conserving operations of the breast primary malignant tumors must be without drugs and anesthetics working immunodressively, oxygen concentration in the inspiratory compound must be increased, and the morphine analogues must be main anesthetics. Aim of investigation - to find out which of two types of anesthesia is more favorable for application in the breast cancer conserving operations. Immunodepressive potential of the two types of the general anesthesia was compared by determining a) their stressogenic characteristics and 2) number and character of post-operative infective complications. The following type of analysis was applied in the test group of 40 patients: intravenous premedication with atropine, then O2N20 with FiO2 0.5, halothane, fentanyl, alfentanyl, with muscle relaxation (GROUP I). In the control group of 40 patients we have applied the standard anesthesia: i.m. premedication by atropine and diazepam and then thiopental, O2N20 with FiO2 0.33, halothane, fentanyl, and the muscle relaxation (GROUP II). Stressogenic characteristic of the anesthesia was estimated by pulse frequency change during intubation and the first surgical cut in the region of the sick breast and infective post-operative complications (infection of the surgical wound, lung complications) were followed-up postoperatively during the first seven day. In 32 patients there was no acceleration of the pulse frequency during intubation, and in 8 patients (25%) it was approximately 7 ± 2 cycles per minute. During the first surgical cut, acceleration of the heart frequency was present only in two patients (5%) and was 51 cycles/min. There were no post-operative

infective complications. In the group II, acceleration of the pulse frequency during intubation was present in all cases (100%) and approximately it was 154 cycles/min. ($p < 0.01$). During the first surgical cut, acceleration of the pulse frequency was present in 12 patients (30%) and approximately it was 123 ($p < 0.01$). There were 7 cases with wound infection and 4 cases of post-operative bronchitis ($p < 0.01$). Conclusion - on the basis of the work results we may conclude that the anesthesia applied in the group I is more favorable for the breast malignant tumor conserving operations, for it has less immunodepressive potential. Obtained results should be checked by further clinical follow-up in order to determine length of disease-free period and survival of the patients in the both groups compared. Maybe more favorable effects of anesthesia of the group I will show in this domain too.

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Imaging of the breast-the efficiency for breast cancer follow-up after conserving therapy and breast implant following mastectomy

KEYWORDS: Breast cancer; Conserving surgery; Recurrence; Imaging

This study addresses some of current problems in breast imaging, in the differentiation of post treatment changes, from locale recurrence of breast cancer, comparing Mammography and Ultrasound with MRI. Surgical treatment modifies the normal structure of breast tissue, which is further altered by radiotherapy. Post therapeutic changes and post-operative scarring may mimic or obscure malignancy. On mammography or echotomography, the appearance of new mass is very similar to the findings of normal scar. Furthermore, the tumour bellow scar will be hard to detect. Increased opacity of tissue surrounding the scar, mask the tumour growing. The same problem has to be applied of micro calcifications. Differential diagnosis is difficult, because such lesions near the scar could be due to fibrosis evolution (fat necrosis calcifications), not only to recurrence. The presence of breast implant impairs mammography visualisation, since breast implant obscure significant amount of tissue.

To overcome the difficulties of identifying suspicious lesions, MRI of the breast is recommended. Thirty-four patients with suspicious lesions, who underwent previously breast conserving surgery, or breast reconstruction with an implant, were evaluated by triple assessment: Mammography, ultrasound and MRI. In all cases mammography and US were not contributive for a precise and definitive diagnosis. Therefore, MRI was performed, including T-1 3D FLASH pulse sequence, before and after contrast enhancement, dynamic GRE, and FAT suppressed SE. In the post operative breast after administration of gadolinium, at the site of recurrent tumour, an enhancement has been shown as the intense signal which is distinguished from fibroid tissue of scar, which has poor vascularisation and induces no signal. The pitfalls of technique are inflammatory changes, which are observed during the first 6 months after surgery and for 12 months after radiotherapy. MRI is useless during this period. Recurrence verified by histology occurred in 14 of 34 patients (35%). Contrast enhancement MRI identified 12 patients (sensitivity 91%). Mammography was most superior in revealing recurrence with micro calcifications. MRI was superior to mammography in revealing recurrences near the chest wall, and also more sensitive in detection of multifocal tumours. The use of all 3 investigations is necessary for detecting recurrence at an early stage during the postoperative follow-up.



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Breast reconstruction and cancer - better life or new dilemmas ?

Postoperative radiotherapy after conservative surgery for early breast cancer - 5 years results

KEYWORDS: Breast; Breast-reconstruction; Quality of life

KEYWORDS: Breast; Breast-Conserving surgery; Radiotherapy

Increased interest for reconstructive surgical interventions after the radical mastectomy due to breast cancer, both in patients and interested physicians, brought to new knowledge based on experience, significant improvement of quality of life, but also to many postoperative problems. Considering great experience in oncology breast cancer surgery and experience in immediate reconstructive breast surgery after mastectomy, aim of the authors is to indicate actual problems, risks and dilemmas, and to help in finding the best way to complete success - patient's long and high-quality life. Results of surgical treatment of the patients at Surgical Department of the Institute for Oncology and Radiology of Serbia, in Belgrade, during first 8 months of 2001 were analysed. Totally 534 patients were operated in that period for breast cancer. In 33 those patients, immediate surgical breast reconstruction was performed during the same intervention when mastectomy was performed. Immediate post-operative results are encouraging, however, they impose obligation of more serious follow-up of such patients, as well as new and precise preoperative indications for these surgical interventions. Fulfilment of severe preoperative and intraoperative surgical oncology criteria in correlation with patient's wish for better post operative quality of life, bring surgeon - oncologist to new temptations and dilemmas he has to solve in the right way.

Breast conserving surgery (BCS) followed by postoperative radiotherapy, as alternative too total radical mastectomy has been accepted as an optimal method for loco-regional treatment of the majority of women with early stage of breast carcinoma. The aim of the study was to assess loco-regional relapse after conservative surgery and postoperative radiotherapy. During the period from 1994 to 1996, 111 breast cancer patients with stage I and II were treated with postoperative radiotherapy after BCS. Ninety-six patients underwent quadrantectomy or segmentectomy with axillary node dissection, and 15 patients underwent only tumorectomy. After surgery 58 patients were irradiated only to the breast with TD 50Gy in 15 fractions, and in 53 patients radiotherapy was given to the breast with TD 50 Gy in 15 fractions and to the regional lymphatics with TD 45 Gy in 15 fractions. 28 patients received a boost dose (10Gy) to the tumor bed. Adjuvant systemic therapy was administered depending on the nodal involvement and steroid receptors (ER, PGR) content. 18 patients received adjuvant chemotherapy (CMF or FAC), the same number received adjuvant hormonal therapy (tamoxifen or ovarian ablation), and 6 patients received chemo-endocrine therapy. After follow up period of approximately 5 years, there was no evidence of loco-regional recurrence in anyone of our patients. Distant metastases occurred in 7 patients (6,3%) with median DFI of 27,6 months. In conclusion, according to our preliminary results, the combined surgery and radiotherapy approach provides good local control of early breast cancer patients.



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Role of somathopedist in rehabilitation of women with breast cancer after surgical treatment

KEYWORDS: Cancer; Rehabilitation; Treatment, combined

Progress of contemporary diagnostic and operative techniques contributed to longer survival of cancer patients. The breast cancer operation in females causes changes in the body image concept of the self image and complete personality. During and after completed treatment, numerous psychological, functional, social and professional problems occur. Complexity of the changes and specific problems, the operated patient faces, require multi-professional treatment approach. Teacher of the handicapped-somathopedist is a member of multiprofessional team dealing with complex rehabilitation of chronically diseased persons. Regarding rehabilitation, role of the teacher of the handicapped-somathopedist relates to invalidity prevention, secondary handicap prevention and complete social integration of the diseased. Complete rehabilitation care: health, educational and social is focused on the operated cancer patients for functional improvement of handicapped organ, substitute, complete personality development, as well as preparing for life within the family and in broader social community. Then, acquaintance of collaborators with sphere of activities of the somathopedist in oncology, for maintaining cooperation, and all of that, for better approach to rehabilitation. Rehabilitation programme can be divided in several sections depending on volume of the surgical intervention: psychoeducational-emotional, physically-therapeutic, substitute, prevention and treatment of the lymphoedema. Psychoeducational procedures may help the patients to accept emotionally the disease, correct their attitude to cancer, develop motivation for healing (cure) and psychologically accept the body mutilation caused by the surgical intervention. From the aspect of approach of the teacher of the handicapped, invalidity and handicap can be prevented by corrective programme of exercises. Operated patients need help of multidisciplinary team, which is applied by the corresponding methodology, which includes individual, group and extensive work. Experts' activities related to rehabilitation, should be coordinated to avoid overlapping. Two years of experience in the practice confirms role of the somathopedists in oncology and enables a planned, organized and systematized rehabilitation of the cancer patients.

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Hereditary breast cancer in males with bilateral gynecomastia and positive family anamnesis - case report

KEYWORDS: Male breast neoplasms; Breast; Gynecomastia

Males 100 times reared develop breast cancer than women. Breast cancer in males makes only 0.7% of all malignant tumors in the male population and it rarely develops under age of 40 years. Etiology is unknown. There are no safe data that gynecomastomy itself carries increased risk from malignancy. Gynecomastomy, denoting benign, non-neoplastic increase of the breast tissue in males, in 75% of cases develops unilaterally. Having noticed a blood in his underwear, from his right breast nipple, a patient 65 years old visited his physician. Ten days ago he had been clinically examined and it had been found that his both breasts had been symmetrically increased, of symmetric areolas and mamilla, while palpatory bilateral gynecomastomy had been expressed, more leftward, without tumor in breasts, and without provoked secretion from mamilla. Having insight into anamnesis, it was found that patient's father had died from the breast cancer when he was 75 years old and that his older brother had died from the same disease when he was 56. Referring the patient to further diagnostic examinations, bilateral adipomastia was found as well as strip-like shadow retroareolarly rightward, which can correspond to dilatory lactiferal ductus (native mammography of both breasts and ultrasound finding). After that, decision was made for the surgical biopsy of both breasts with extempore HP verification. HP finding of the removed retromamillary space of the right breast, from which the blood content was leaking, was MALIGNANT - carcinoma ductale in situ et microinvasivum, and after that radical mastectomy, was performed. Tumor size could not be precisely determined, for it was about intraductal cancer, since smaller groups of the malignant cells were present outside the channel, while definitive assessment of axillary lymph nodes did not show lymphonodal metastases in all 13 lymph nodes. HP finding of the left breast, removed by subcutaneous mastectomy for preventive (and therapeutic) reasons was: BENIGN Gynecomastia. Then the patient was referred to the Joint Committee for the breast and it was decided that the treatment should be continued by adjuvant hormonotherapy (Nolvadex®), 20 mg, daily). This case confirms the rule that breast cancer rarely develops in males younger than 40 years. Gynecomastia, which in 75% of cases developed unilaterally, was present in both breasts in this patient. We also found dilated lactiferal small channels, as one of ductal lesions described within gynecomastia. From the aspect of genetic factors, the presentation is interesting at least for two reasons: 1) hereditary factor, is evident here by the male hereditary line; 2) it is necessary to preventively control the patients descendents (son, 39 year old, daughter, 41 year).