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*Complications of axillary node dissection for breast
carcinoma as perceived by patients*

Powikłania po usunięciu węzłów chłonnych jamy pachowej u chorych
leczonych z powodu raka piersi w ich subiektywnym odczuciu

The benefits of axillary node dissection, apart from prognostic information provided by histopathological examination, still remain obscure. Since the publication of the National Surgical Adjuvant Breast Project Trial B-04, it has generally been accepted that the dissection of negative lymph nodes does not influence disease free period or overall survival (5). However, some question the statistical power of Trial B-04, and claim that detecting small differences in survival by smaller and more detailed trials has confirmed the possibility of longer survival after axillary lymph node dissection (3,4). The omission of lymph node dissection arouses concern about local recurrence of the disease, since some studies reported the 28% rate of local recurrence in patients who had undergone tumour resection only (7). The concern about local recurrence is smaller with patients treated with breast conservation surgery and lymph node dissection, because it has been proved that radiation is an effective treatment which limits the rate of local recurrence to 6-8% (12).

Complications of axillary lymph node dissection are well-recognised and comprise wound infections, arm lymphoedema, limitation of the arm movement, lymphangitis, and numbness of the arm (1,14,11). Axillary node dissection usually requires general anaesthesia and hospitalisation. The incidence of arm oedema and limitation of arm movement is greatly varied and depends on research techniques and surgical skills. Very few studies have been conducted to characterise late complications of lymph node dissection; fewer still have been designed to survey patients for complications (8).

This study is an attempt to determine the influence of axillary node dissection on daily activities of patients treated for breast cancer. It has also been our intention to determine which factors are responsible for the development of the complications.

MATERIAL AND METHODS

Our survey was conducted on a total of 211 female patients aged 31-79 (the median age was 56) who received a form of surgical treatment in the years of 1993-1997 in the Surgical Department at the Oncology Centre in Lublin. All the patients had been in Stage I and II of clinical advancement and were free of recurrent disease at the time of this survey. The questionnaires were filled in during the follow-up examination in Poly-clinic, and included the following issues: type and extent of surgery, adjuvant treatment, and additional tests (X-ray examination of the chest, ultrasonography of the abdomen, morphology). The questions addressed the following symptoms: pain or numbness of the breast, chest, axilla, or arm on the side of the surgery, limited motion of the shoulder, and oedema of the arm. All the patients were classified according to three-degree scale which rated the severity of each of the reported complications (mild, moderate, severe) and their impact on daily activities. The questionnaire also included questions concerning the episodes of inflammation in the arm and/or breast since the time of surgery, and the treatment used for these complications i.e. hospitalisation, the administration of antibiotics, and any further rehabilitation. Additional questions were aimed to document the basic characteristics of the patients such as height and weight, handedness, time since surgery, type of surgery, and type of adjuvant therapy.

RESULTS

The patients' characteristics are shown in Table 1. A total of 211 female patients was identified for this study; 85 of the patients were younger than 50 years, and the other 126 were older. 184 of the patients (87.2%) had undergone modified radical mastectomy, and the other 27 had been treated with breast conservative surgery. Only 61 of the patients had no positive lymph nodes, 92 had up to 3 positive nodes, 47 had 4-10, and 11 had more than 10. All the patients who had undergone conservative surgery, as well as 11 of the patients who had been treated with radical mastectomy and had demonstrated bad prognostic factors, had subsequently received radiotherapy. 78 patients had undergone chemotherapy according to CMF pattern, and 108 had received hormonotherapy with a positive estrogen receptor.

116 of the patients i.e. 55% reported at least one symptom. 30% had only one complication, 14% reported two symptoms, 7% three, 3% four, and 1% had five symptoms. The most common symptom which was reported by 76 patients was numbness or tingling of the chest, breast or scar after mastectomy, axilla and arm on the side of the lymph nodes dissection. These symptoms were rated as mild by 19%, and as moderate or severe by 27% of the patients. 34% of the patients classified their symptoms as causing mild inter-

Tab. 1 Patients' characteristics

Characteristics	No	%
Age(yrs)		
< 50	85	40.2%
> 50	126	59.7%
Type of surgery		
Mastectomy	184	87.2%
Conservative surgery	27	12.7%
Time since surgery (yrs)		
< 2	49	23.2%
2-5	162	76.7%
No. of positive lymph nodes		
0	61	28.9%
<3	92	43.6%
3-10	47	22.2%
> 10	11	5.2%
Radiotherapy		
Postmastectomy	11	5.1%
Postconservative surgery	27	12.7%
Chemotherapy	78	36.9%
Hormonotherapy	108	51.1%

ference with their daily activities, and only 5% considered their symptoms to be severe interference.

Pain of the shoulder and arm on the side of the surgery was rated as severe only by 5% of the patients, as moderate - by 12%, and as mild - by 21%. 4% of the patients reported that pain caused severe interference with their daily activities, and 27% said it caused mild interference.

Arm oedema was reported by 21% of the patients, and limitation of shoulder movement - only by 9%. 11% reported inflammation of the arm or breast.

The medical records of the patients were reviewed to compare the patient-reported complications with those recorded by physicians in the medical records. As a result, it was found that numbness was not mentioned in any of the records. However, more serious postoperative problems such as inflammation/infection, for example, were described in the medical records. The review also revealed that three patients who had inflammation, did not report it in the questionnaire.

DISCUSSION

Studies surveying breast cancer patients for the adverse effects of axillary lymph node dissection have rarely been performed. The study by Warmuth, for example, proved the statistical significance of the association of patients' younger age both with the more frequent reporting of complications ($p=0.001$), and with the higher incidence of arm oedema on the side of the surgery ($p=0.004$). This study also revealed that the use of chemotherapy and the number of removed lymph nodes did not have any statistical significance. Another interesting observation was the association of the adverse effects of hormonotherapy (Tamoxifen) with the restriction of shoulder motion (8).

Our study, however, did not confirm that the patients' younger age or the use of Tamoxifen were associated with a higher number of complications.

In a cohort study, MaunSELL et al. surveyed 223 patients at 3 months and again at 18 months after their surgery. 93% of the patients had undergone the axillary lymph nodes dissection. At 3 months after surgery 82% of the patients reported at least one arm complication which included: oedema – 24%, weakness – 26%, limitation of the arm movement – 32%, stiffness – 40%, pain – 55%, and numbness – 58%. The prevalence of these complications did not change significantly at 18 months. The patients who reported more than 2 complications, were found to have higher levels of distress (10).

Ivens et al. assessed the prevalence of complications by surveying 126 subsequent patients who had had all their axillary lymph nodes removed at least 6 months before the survey (2). 54 of these patients had undergone surgery at least 2 years before the survey. The symptoms reported by the whole group included: numbness of the arm – 70%, pain – 33%, arm weakness – 25%, arm oedema – 24%, and stiffness – 15%. None of the patients rated their symptoms as severe, although 39% said that they caused interference with their daily activities. The patients who had undergone surgery over 2 years before the survey, reported lower incidence of pain and numbness, however, this difference did not have statistical significance.

Although our study was not designed to make a direct comparison of patients who had undergone axillary lymph node dissection as a part of breast-conserving therapy with patients who had been treated with modified radical mastectomy, however, a few significant differences were observed. Patients who had received breast conservative surgery had inflammation both of the arm and the breast; and the frequency of these complications was increasing. 22% of the patients treated with conservative surgery reported at least one episode of infection, as compared to 5% of the women who had undergone modified radical mastectomy. These data, however, are based on small groups of patients and require further confirmation by larger trials.

It has been proved that the complications of lymph node dissection are associated with the extent of the dissection. This was also confirmed by Larson. In his studies, he discovered that the risk of arm oedema was 37% after the dissection of all the three levels of axillary nodes in comparison to 8% when only levels I and II of axillary nodes

were removed (13). The risk of oedema was also associated with the number of the removed axillary nodes; after the dissection of more than 10 nodes, oedema was observed in 28% of the patients as compared to 9% when fewer nodes were removed. Other researchers agree that larger extent of dissection is associated with higher incidence of complications (14). In some oncology centres it is the routine procedure to carry out the dissection of only levels I and II of axillary nodes (13). The exact numbers of the removed nodes are not included in our study, however, each patient had at least 11 nodes excised. The increasing use of the sentinel node dissection, the method described by Giuliano in 1994, is based on the assumption that less extensive dissection causes fewer complications. The studies on this method are still in progress, however, some oncology centres resign from lymph node dissection when there are no metastases to the sentinel node (9, 6).

Our study has confirmed again that the use of objective methods leads to underrecording of complications in medical records. Complications considered less relevant according to medical standards may still be troublesome to patients, nevertheless, in general they are not recorded by physicians. Numbness, for example, was never described in medical records, although it was the most frequent complication as perceived and reported by patients (46%). Restriction of shoulder motion was almost always mild and it was never mentioned in medical records although it was reported by 8% of the patients. Although our study was quite large, and had at least two-years' follow-up, it had some limitations. Since it was a cross-sectional study, we were not able to monitor the evolution of complications over time.

CONCLUSIONS

We conclude that the symptoms of pain and numbness of various severity were reported respectively by 38% and 46% of the patients who had undergone axillary lymph node dissection. Arm oedema was reported by 21% of the patients. Serious complications which cause interference with daily activities are rare, but do occur. Inflammations of the arm or breast are more frequently reported by patients who were treated with breast-conserving therapy than by the ones who underwent mastectomy. Patients should be informed about all the complications of axillary node dissection for breast carcinoma before the treatment is commenced in order to avoid mistaking these symptoms for recurrent disease.

REFERENCES

1. Aitken D. R. et al.: Complications associated with mastectomy. *Surg. Clin. North Am.*, 63, 1331, 1983.
2. Aitken R. J. et al.: Arm morbidity within a trial of mastectomy and either nodal sample with selective radiotherapy or axillary clearance. *Br. J. Surg.*, 76, 568, 1989.
3. Baxter N. et al.: Clinical behavior of untreated axillary nodes after local treatment for primary breast cancer. *Ann. Surg. Oncol.*, 3, 235, 1996.
4. Cabanes P. A. et al.: Value of axillary dissection in addition to lumpectomy and radiotherapy in early breast cancer. *Lancet*, 339, 1245, 1992.
5. Fisher B. et al.: Ten year results of a randomized clinical trial comparing radical mastectomy and total mastectomy with or without radiation. *N. Engl. J. Med.*, 321, 674, 1985.
6. Giuliano A. E. et al.: Improved axillary staging of breast cancer with sentinel lymphadenectomy. *Ann. Surg.*, 222, 394, 1995.
7. Haffty B. G. et al.: Breast conservation therapy without axillary dissection: a rational treatment strategy in selected patients. *Arch. Surg.*, 128, 1315, 1993.
8. Ivens D. et al.: Assessment of morbidity from complete axillary dissection. *Br. J. Cancer.*, 66, 136, 1992.
9. Krag D. N. et al.: Surgical resection and radiolocalization of the sentinel lymph node in breast cancer using gamma probe. *Surg. Oncol.*, 2, 235, 1993.
10. Larson D. et al.: Edema of the arm as a function of the extent of axillary surgery in patients with stage I-II carcinoma of the breast treated with primary radiotherapy. *Int. J. Radiat. Oncol. Biol. Phys.*, 12, 1575, 1986.
11. Maunsell E. et al.: Arm problems and psychological distress after surgery for breast cancer. *Can. J. Surg.*, 36, 315, 1993.
12. Say C. C. et al.: A biostatistical evaluation of complications from mastectomy. *Surg. Gynecol. Obstet.*, 138 370, 1979.
13. Siegel B. M. et al.: Level I and II axillary dissection in the treatment of early-stage breast cancer. *Arch. Surg.*, 124, 1144, 1990.
14. Warmuth M. A. et al.: Complications of axillary lymph node dissection for carcinoma of the breast. *Cancer* 83, 1362, 1998.

STRESZCZENIE

Przeprowadzono badania ankietowe 211 chorych leczonych chirurgicznie z powodu raka piersi na temat negatywnych następstw związanych z usunięciem węzłów chłonnych jamy pachowej. Pytano o uczucie drętwienia, obrzęku, bólów, stanów zapalnych i ograniczenia ruchomości kończyny górnej po stronie operowanej. Stwierdzono, że objawy drętwienia o różnym stopniu nasilenia występują u 46%, dolegliwości bólowych u 38%, a obrzęków kończyny u 21% chorych.