

PREVALENCE OF SHOULDER PAIN AND ADHESIVE CAPSULITIS IN POST MASTECTOMY PATIENT

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ABSTRACT

Objectives: To determine the prevalence of shoulder pain and adhesive capsulitis in post mastectomy patients.

Material and Methods: This cross sectional study was conducted in IRNUM hospital Peshawar and Khyber Teaching Hospital Peshawar from September 2015 to January 2016. A Self modified Questionnaire was used to collect data from 150 post mastectomy patients.

Results: The mean age of the participants was 44.7 ± 13.7 years. 142/150 (94.7%) patients suffered from some type of pain and disability on operated site. Clinical examination revealed that 11/150 (7.3%) patients were having adhesive capsulitis. Analysis of question regarding pain with different activities showed that in 27.5% patients, pain was severe when lying on the involved side and 30.3% was having severe pain when reaching for something on a high shelf. Analysis of question regarding disability showed that 21.2% patients were having difficulty in washing back, and 23.3% patients were having difficulty in placing an object on a high shelf.

Conclusion: Majority of patients who underwent mastectomy are prone to shoulder pain and disability and adhesive capsulitis. Proper referral to rehabilitation settings should be practiced to prevent musculoskeletal problems in post mastectomy patients.

Key words: Adhesive capsulitis, mastectomy, Pain, Shoulder.

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INTRODUCTION

Breast cancer is the most common type of cancer in females¹. The management of Breast cancer depends on varied factors, for example, on the stage of the cancer, clinical characteristics and demographic profile of the patient². Breast Cancer in advance stages is commonly treated with surgery when the tumor is localized, which can be followed by chemotherapy or radiotherapy, or both³. Standard surgeries for breast cancer include mastectomy, quadrantectomy and Lumpectomy⁴.

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Surgeries for Breast cancer especially mastectomy results in restricted arm/shoulder mobility and thus can cause arm/shoulder pain and fibrosis⁵. The incidence of shoulder morbidity has been found to be significantly higher in females who underwent mastectomy (17%)⁶. Connective tissue fibrosis of shoulder joint is common among post mastectomy patients⁷. That's why following mastectomy, majority of patients experience some type of pain and associated impairment in shoulder⁸. Shoulder pain and adhesive capsulitis in post mastectomy patients is associated with incredible human sufferings and financial costs^{9,11}. Majority of studies regarding shoulder pain and adhesive capsulitis in post mastectomy patients are conducted in western countries. Literature is scarce about complications in post mastectomy patients in Pakistan. Statistics about adhesive capsulitis and shoulder pain in post mastectomy patients in Pakistan is necessary to plan preventive and curative strategies and thus to improve quality of

life of post mastectomy patients in Pakistan. Therefore, there was a dire need to conduct this study in order to determine the prevalence of shoulder pain and adhesive capsulitis in post mastectomy patients in Pakistan.

MATERIAL AND METHODS

This cross sectional study was conducted in IRNUM hospital Peshawar and Khyber Teaching Hospital Peshawar from September 2015 to January 2016. Approval was obtained from the Mahboob school of physiotherapy Gandhara university ethical committee and director Institute of Radiotherapy & Nuclear Medicine hospital Peshawar and Director Khyber Teaching Hospital Peshawar for collecting data from the patients. After taking informed consent, sample of 150 post mastectomy patients having age between 40 to 60 years were included in the study. Those mastectomy patients having severe medical problems, traumatic history to shoulder joint or any other upper limb pathology not related to mastectomy were excluded from the study.

A self modified Questionnaire was designed and distributed in patients fulfilling the inclusion criteria. Demographic information and clinical characteristics were noted. As most of the patients were uneducated that's why questions were translated to local language. Investigators were present to help in filling the questionnaire. Subjective and objective examination was performed for the possible diagnosis of adhesive capsulitis. Adhesive capsulitis was confirmed in those patients having progressive shoulder stiffness, severe pain and complete or near complete loss of passive and active external rotation of the shoulder. Presence of all the three features is the hallmarks for diagnosis of frozen shoulder^{12,13}. Data was analyze using SPSS version²⁰. Missing values were calculated using multiple imputations.

RESULTS

A total of 150 female post mastectomy patients were examined and all of them filled self modified questionnaire. The mean age of the participants was 44.7 ± 13.7 years. 127 (84.7%) patients were uneducated while remaining 23 (15.3%) were having different levels of education (From primary level to B.A). One hundred & forty nine (99.4%) patients were married while 1 (0.6%) was single/divorced. One hundred & forty six (97.4%) patients were house wives while 4 (2.6%) were having different jobs. One hundred & forty two (94.7%) patients suffered from some type of pain and disability on the operated side while 8/150 (5.3%) patients were having no pain and disability. Clinical examination revealed that 11/150 (7.3%) patients were having adhesive capsulitis. 113/142 (79.6%) of patients describe their worst pain as

mild and moderate while 29/142 (20.4) describe their worst pain as severe. Shoulder pain and disability was significantly ($P < 0.05$) higher in those post mastectomy patients who were diagnosed with adhesive capsulitis as compared with those having no adhesive capsulitis.

Analysis of question regarding pain with different activities showed that in 39/142 (27.5%) patients, pain was severe when lying on the involved side, 43/142 (30.3%) was having severe pain when reaching for something on a high shelf, 35/142 (24.6%) was having severe pain when touching the back, while remaining 25/142 (17.6%) was having severe pain when Pushing with the involved arm. Analysis of question regarding disability showed that 16/142 (11.3%) patients were having difficulty in washing hairs, 30/142 (21.2%) patients were having difficulty in washing back, 25/142 (17.6%) patients were having difficulty in putting on an undershirt or pullover sweater, 33/142 (23.3%) patients were having difficulty in placing an object on a high shelf, 17/142 (11.9%) patients were having difficulty in carrying a heavy object of 10 pounds, 21/142 (14.8%) patients were having difficulty in removing something from pocket.

DISCUSSION

Shoulder pain, disability and impaired movements is frequently reported complication in post mastectomy patients¹⁴. The results of current study showed that 94.7% post mastectomy patients suffered from pain and disability. Shoulder Pain and disability in mastectomy patients can be minimized or even prevented in majority of cases but due to lack of awareness, most of the cases went unreported and thus psycho-social life of patient is distressed¹⁵. Awareness about prevention, early detection, and timely management of shoulder problems in post mastectomy patients is necessary to minimize human sufferings and financial costs¹⁶.

Though causes of adhesive capsulitis in majority of cases is unknown yet certain conditions and surgeries are reported that can lead to adhesive capsulitis¹⁷. Trauma or surgical procedures in shoulder region, diabetes, and cerebrovascular accidents (CVA) are some conditions that are reported to be associated with adhesive capsulitis¹⁸. Results of current study showed low prevalence (7.3%) of adhesive capsulities among post mastectomy patients, yet sufferings due to pain and restriction in shoulder joint in adhesive capsulitis can be prevented with proper guidance, counseling and referral. As compared to current study, Previous studies reported somewhat high prevalence of adhesive capsulitis (8.2%) in post mastectomy patients¹⁹ but these differences can be explained by differences in physical examination, type and extent of mastectomy

and adjunct therapies in these patients.

In majority of cases, mastectomy result in shoulder stiffness and pain, thus leading to decrease musculature strength and limitation of range of motion (ROM)²⁰. The residual effects of surgical scarring following mastectomy could have effect on the mechanics of the shoulder region because of tethering of soft tissues¹⁹. Results of current study showed that in 27.5% patients, pain was severe when lying on the involved side, 30.3% was having severe pain when reaching for something on a high shelf, 24.6% was having severe pain when touching the back while remaining 17.6% was having severe pain when pushing with the involved arm. Previous studies also reported that patients who underwent mastectomy are 6 times more likely to suffer from shoulder ROM restrictions and shoulder pain as compared to those patients who are conservatively treated¹⁹

Upper limb (UL) impairments and decrease quality of life has been reported in post mastectomy patients²¹. The asymmetry of soft tissue mobility and mass distribution across the chest wall that arises from loss of a breast will have effect on upper limb movements and contribute to trunk or arm symptoms²². That's why scapular and shoulder kinematics are commonly disturbed in post mastectomy patients due to which these patients have difficulty in activities of daily living²³. Results of current study also showed that 11.3% patients were having difficulty in washing hairs, 21.2% patients were having difficulty in washing back, 17.6% patients were having difficulty in putting on an undershirt or pullover sweater, 23.3% patients were having difficulty in placing an object on a high shelf, 11.9% patients were having difficulty in carrying a heavy object of 10 pounds, and 14.8% patients were having difficulty in removing something from pocket. Previous studies also reported that due to pain and limited shoulder ROM majority of post mastectomy patients cannot perform ADL's effectively²⁴.

The facts and figures presented in this research paper are alarming. It indicates that almost all patients who underwent mastectomy are prone to shoulder pain and disability. It is necessary to educate post mastectomy patients about complications of mastectomy and they should be guided how to minimize or prevent these complications. Moreover, proper referral to rehabilitation settings should be practiced to prevent musculoskeletal problems in post mastectomy patients. To the authors' knowledge this was the first study conducted in Pakistan which reported shoulder pain and adhesive capsulitis in post mastectomy patients. The facts and figures presented in this study will develop standard protocols for prevention of shoulder pain and adhesive capsulitis in post mastectomy patients in Pakistan.

LIMITATIONS

Due to small sample size, generalizability of the study is questionable because current study was conducted only in a single clinical setting that's why true prevalence of adhesive capsulitis cannot be reported on the basis of results of current study. Large trials and prospective studies are required to truly determine the prevalence and consequences of shoulder pain and adhesive capsulitis in post mastectomy patients in Pakistan.

CONCLUSION

Post mastectomy patients are at risk of developing shoulder pain and adhesive capsulitis and need preventive/curative measures to minimize its consequences.

RECOMMENDATIONS

Preventive strategies including patient and attendant education and education of health care professionals' regarding shoulder pain in post mastectomy patients is necessary to minimize burden of shoulder pain in these patients.

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REFERENCES

1. Beyaz SG, Ergönerç JŞ, Ergönerç T, Sönmez ÖU, Erkorkmaz Ü, Altıntoprak F. Postmastectomy pain: a cross-sectional study of prevalence, pain characteristics, and effects on quality of life. *Chinese medical journal*. 2016;129(1):66-71.
2. King M, Kenny P, Shiell A, Hall J, Boyages J. Quality of life three months and one year after first treatment for early stage breast cancer: influence of treatment and patient characteristics. *Quality of Life Research*. 2000;9(7):789-800.
3. Singletary SE. Surgical margins in patients with early-stage breast cancer treated with breast conservation therapy. *The American journal of surgery*. 2002;184(5):383-93.
4. Kaur N, Petit J-Y, Rietjens M, Maffini F, Luini A, Gatti G, et al. Comparative study of surgical margins in oncoplastic surgery and quadrantectomy in breast cancer. *Annals of surgical oncology*. 2005;12(7):539-45.
5. Oliveira M, Gurgel M, Miranda M, Okubo M, Feijó L, Souza G. Efficacy of shoulder exercises on locoregional complications in women undergoing radiotherapy for breast cancer: clinical trial. *Brazilian Journal of Physical Therapy*. 2009;13(2):136-43.
6. Blomqvist L, Stark B, Engler N, Malm M. Evaluation of arm and shoulder mobility and strength after modified radical mastectomy and radiotherapy. *Acta oncologica*. 2004;43(3):280-3.

7. Dilaveri CA, Sandhu NP, Neal L, Neben-Wittich MA, Hieken TJ, Mac Bride MB, et al. Medical factors influencing decision making regarding radiation therapy for breast cancer. *International journal of women's health*. 2014;6:945-51.
8. Dudkiewicz I, Oran A, Salai M, Palti R, Pritsch M. Idiopathic adhesive capsulitis: long-term results of conservative treatment. *The Israel Medical Association journal: IMAJ*. 2004;6(9):524-6.
9. Arif A, Afzal MF, Shahzadi T, Nawab F, Amjad I. Effects of myofascial trigger point release in plantar fasciitis for pain management. *Journal Of Medical Sciences*. 2018;26(2):128-31.
10. Kiani N, Marryam M, Malik AN, Amjad I. The effect of aerobic exercises on balance in diabetic neuropathy patients. *Journal Of Medical Sciences*. 2018;26(2):141-5.
11. Amjad M, Amin M, Amanullah M. Bone Diseases: Prevalence And Associated Factors In The Population Of District Multan, Pakistan. *Journal Of Medical Sciences*. 2017;25(1 Suppleme):177-86.
12. Wong P, Tan H. A review on frozen shoulder. *Singapore medical journal*. 2010;51(9):694.
13. Uddin MM, Khan AA, Haig AJ, Uddin MK. Presentation of frozen shoulder among diabetic and non-diabetic patients. *Journal of Clinical Orthopaedics and Trauma*. 2014;5(4):193-8.
14. Springer BA, Levy E, McGarvey C, Pfalzer LA, Stout NL, Gerber LH, et al. Pre-operative assessment enables early diagnosis and recovery of shoulder function in patients with breast cancer. *Breast cancer research and treatment*. 2010;120(1):135-47.
15. Stuiver MM, ten Tusscher MR, Agasi-Idenburg CS, Lucas C, Aaronson NK, Bossuyt PM. Conservative interventions for preventing clinically detectable upper-limb lymphoedema in patients who are at risk of developing lymphoedema after breast cancer therapy. *The Cochrane Library*. 2015.
16. Armer JM, Hulett JM, Bernas M, Ostby P, Stewart BR, Cormier JN. Best-practice guidelines in assessment, risk reduction, management, and surveillance for post-breast cancer lymphedema. *Current breast cancer reports*. 2013;5(2):134-44.
17. Neviasser AS, Hannafin JA. Adhesive capsulitis: a review of current treatment. *The American journal of sports medicine*. 2010;38(11):2346-56.
18. Wylie JD, Bershady B, Iannotti JP. The effect of medical comorbidity on self-reported shoulder-specific health related quality of life in patients with shoulder disease. *Journal of shoulder and elbow surgery*. 2010;19(6):823-8.
19. Crosbie J, Kilbreath SL, Dylke E, Refshauge KM, Nicholson LL, Beith JM, et al. Effects of mastectomy on shoulder and spinal kinematics during bilateral upper-limb movement. *Physical therapy*. 2010;90(5):679-83.
20. Skalsky AJ, McDonald CM. Prevention and management of limb contractures in neuromuscular diseases. *Physical medicine and rehabilitation clinics of North America*. 2012;23(3):675-87.
21. Stan DL, Rausch SM, Sundt K, Chevillie AL, Youdas JW, Krause DA, et al. Pilates for breast cancer survivors. *Clinical journal of oncology nursing*. 2012;16(2):40-47.
22. Elhameed REE-DA, Ibrahim ZM, Nosier AA. Evaluation of Isokientic Activities of Shoulder Muscles Post Mastectomy in Different Age Groups.
23. Levy EW, Pfalzer LA, Danoff J, Springer BA, McGarvey C, Shieh C-y, et al. Predictors of functional shoulder recovery at 1 and 12 months after breast cancer surgery. *Breast cancer research and treatment*. 2012;134(1):315-24.
24. Chevillie AL, Tchou J. Barriers to rehabilitation following surgery for primary breast cancer. *Journal of surgical oncology*. 2007;95(5):409-18.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

- Ali B:** Formulating objectives Performa ,literature review of the topic writing
Conclusion and recommendation at the end of the study.
- Arsh A:** Critically revised the manuscript.
- Khalil AA:** Conception of the idea
- Zahoor M:** Statistical analysis and methodology

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.