Modified Radical Mastectomy and Wound Drainage

Peer review status:
No

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Article ID: WMC004822
Article Type: Review articles
Submitted on: 28-Feb-2015, 01:59:50 PM GMT  Published on: 02-Mar-2015, 01:31:33 PM GMT
Article URL: http://www.webmedcentral.com/article_view/4822
Subject Categories: GENERAL SURGERY
Keywords: Breast cancer , MRM , suction drains , vacuum suction

How to cite the article: Prakash JS, Luther A, Deodhar M. Modified Radical Mastectomy and Wound Drainage. WebmedCentral GENERAL SURGERY 2015;6(3):WMC004822

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Source(s) of Funding:
Self funded

Competing Interests:
Nil
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Abstract

Modified Radical Mastectomy [MRM] is a commonly practised surgical procedure for management of operable breast cancer. Necrosis of skin flaps, wound dehiscence, hematoma, seroma, venous thromboembolism and infection are early complications. Late complications include lymphedema, sensory loss, shoulder dysfunction etc. Suction drains are employed to minimize incidence of fluid collection, seroma, hematoma and lymphedema. Paucity of Indian studies comparing outcome of different vacuum suction drains is an indication to undertake topical prospective comparative studies.

Introduction

Radical mastectomy was first carried out in 1882 and described in 1894 by William Stewart Halstead. For a number of decades it remained standard operation for early breast cancer. Modified radical mastectomy combines removal of all breast tissue from the affected breast with lymph node removal from the armpit from the affected side of body. MRM typically includes removal of both the nipple and areola but the surgery can be performed using skin and nipple sparing technique. The purpose of MRM is removal of breast cancer. MRM may be combined with total breast reconstruction at the same time in accordance with patient’s preference.

Review

Breast cancer is the most common cancer among women worldwide with an incidence of 120.9 per 100,000 new cancer cases with a mortality of 21.9 per 100,000 women. In India the age standardized incidence rate of breast cancer varies from 9 to 32 per 100,000 women. Around 130,000 fresh cases of breast cancer are reported annually in India. Of every 2 women diagnosed with breast cancer one dies because of it. Ca breast has remained the second leading cause of cancer death among women worldwide for the last 3 decades. Breast cancer is a disease of the developed world. It is commoner in West in nulliparous women or in women who refuse breast feeding.

Two main types of management options are: local and systemic. These include lumpectomy, mastectomy, ± radiation therapy. Chemotherapy, hormone therapy, targeted therapies are systemic because they affect the whole body. Beside these, neoadjuvant and adjuvant therapies are utilized pre & post surgery to help shrink the size of tumor or to kill cancer cells. Treatment of breast cancer varies with the TNM staging of disease which is usually carried out during detailed diagnostic stage following examination and investigations.

In general, complications following breast surgeries include wound infection, wound dehiscence, seroma, hematoma, chronic pain, venous thromboembolism VTE, surgical dog ear; late sequel - breast fibrosis, sensory loss, shoulder dysfunction, lymphedema, and chronic / recurrent breast cellulitis. Of these, seroma poses a major threat.

Observation

In any surgery which entails creation of a dead space, the body has a natural tendency to fill the space with fluid or air. Earlier, usage of a drain was not routinely recommended after clean surgical procedures. However, studies claim that use of drains results in seroma or hematoma reduction.

Discussion

Use of drains has been a common surgical practice to obliterate the dead space created during surgery. Drains are used both prophylactically and therapeutically. Common use is prophylactic post surgery to prevent accumulation of fluid e.g. blood or pus. Various types of surgical drains are used after procedures on the thyroid, breast, axillary and abdominal areas, joint replacements, amputations, external fixations etc.

Drains may be classified as active or passive drains. Passive drains depend on the higher pressure inside wound in conjunction with capillary action and gravity [postural] to draw fluid out of a wound [i.e. the difference in pressures between the inside and outside of the wound forces the fluid out from wound]. Passive drains like penrose or corrugated rubber drains do not require special attention. When saturated, the dressing is changed.
Active drains require special maintenance and offer certain advantages. The end of drainage tube inserted inside the wound has multiple openings on the inner side through which fluid is evacuated from the wound. The wound should be closed before the clamps on the drain are opened, otherwise the vacuum will be lost as the tube sucks in atmospheric air. Collection reservoir of an active drain [e.g. Romovac Romsons – an Indian brand] expands as it collects fluid drainage by exchanging negative pressure for fluid. The drain becomes ineffective if the vacuum is lost. If the drain is attached to a reservoir then the reservoir is emptied or changed when it is full. Once every 24 hours the Resident/nurse marks the volume of drainage collected before charging/clamping/emptying the container.

Active drains utilizing negative pressure therapy are safe and feasible in low resource settings. Vacuum drains are classified according to the degree of pressure used. Typical bottled vacuum drains [e.g. Redivac] use high negative pressure. Bulb shaped suction devices [e.g. Jackson Pratt] and collapsible 4 channel vacuum drains [e.g. J Vac ,Blake] use low negative pressure.

Suction drainage in the management of mastectomy patients was used first in 1947. It has been accepted as effective in reducing morbidity. Studies comparing the intensity of negative drain suction as well as early or late removal of drains have shown mixed results. High vacuum drains had a higher incidence of vacuum loss but a lower incidence of leakage around the drain. No suction or high suction drainage both may contribute to higher incidence of seroma formation and longer hospital stay [02, 04, 10].

Conclusion

Knowledge about whether no suction or low negative suction or high negative suction drain provides greater benefit to the patient in terms of wound healing and hospital stay assumes importance for the treating surgeon. During our search we could find very few studies globally comparing effects of different drainage systems in mastectomy patients [04,17, 03,02]. One Indian study was found comparing full vacuum suction drain versus half vacuum suction in mastectomy patients [06]. More comparative/prospective topical studies should be undertaken and are the need of the hour.

Bibliography

14. Prakash JS, David VK, Bhatly SM, Deane A: Across wrist external fixation for distal radius fractures
in adults: WMCPLS00500: 2015:


