

A PROSPECTIVE STUDY OF POST MASTECTOMY SKIN FLAP ANCHORING AND SEROMA MONITORING

Background

Breast cancer is the second most common in women, and it was estimated approximately 167 million of new cases in breast cancer in 2012 (25% of total cancer). The breast cancer in Asia is escalating more rapidly than in the west, for instance, in Singapore the Age-Standardized Incidence Rate (ASR) of breastcancer had increased from 202 per 100,000/year between 1968 and 1972 to 549 per 100,000/year between 1998 and 2002 [1]. Breast cancer was also a common cancer in women in India. The incidence of breast cancer in India in 2012 amounted to 48,998 people (30.5%) of the total 160,833 people affected by cancer. The mortality rate 19,750 people or 21.5% of total mortality caused by cancer are 92,821 people. The prevalence of breast cancer in Indonesia for latest 5 years was 171,005 (41.7%) [2]. Although several non-invasive techniques have been developed for the treatment of cancers, surgery is the gold standard for most of life-threatening diseases. Surgery for operable breast cancer has evolved a long way since W. Halsted first described this malignancy [3]. The type of surgery depends on the stage of the breast cancer at the time and surgeon's choice. The different surgical treatment options available include simple mastectomy, modified radical mastectomy and breast conservation surgery. Among these procedures, modified radical mastectomy (MRM) is the

most commonly performed procedures (in about 70% women) [4]. Seroma, an accumulation of fluid can infrequently occur after any surgical procedures and is the most prevalent postoperative sequel after breast surgery, with an incident of 10% to 85% leading to significant morbidity and discomfort and possibly delaying adjuvant therapy [5]. An ideal skin flaps fixation will minimize the intrusion of lymph fluid and serum leakage, provide a way of holding the skin flaps safely to the structure of the chest wall, obliterate the dead space and allows the intrusion more quickly that are formed. A number of fixation techniques of skin flaps or wound drainage necessary to be conducted, as well as restriction of shoulder movement of post-operative and the using of glue, have been studied to improve primary healing and to minimize the production of seroma [6]. The study was to evaluate the effect of obliteration of dead space with suture fixation of mastectomy skin flaps on chest wall so as to prevent the incidence of seroma formation.

Seroma :

Seroma is defined as a serous fluid collection that develops under the skin flaps during mastectomy or in the axillary dead space after axillary dissection (Pogson et al, 2003). Seroma formation generally begins on the seventh day post surgery, reaches a peak rate of growth on the eighth day and slows continuously until the sixteenth day when it generally resolves (Menton and Roemer, 1990).

METHODS:

Patients undergoing flap fixation had flaps anchored to the underlying muscle using multiple rows of interrupted 2/0 polyglactin (vicryl) sutures. Sutures were placed approximately 2.5 cm apart and all sutures were buried . Care was taken not to include the long thoracic nerve in the suture when anchoring the axillary flaps. Patients having drainage had one or two suction drains sited beneath the mastectomy flaps and in the axilla (if axillary dissection was performed). Drains were removed when draining less than 20 ml of serous fluid for two consecutive days. The effect of flap fixation over early drain removal and seroma formation are studied.

OBSERVATION AND INFERENCE

50 (25 +25) consecutive patients admitted to the Institute of General Surgery, RGGGH were studied. The post operative day of drain removal done for cases : about 4% in 3rd pod, 76% in 4th pod, 20% in 5th pod.

The post operative day of drain removal for controls : about 4% on 4th pod, 20% on 5th pod 28% on 6th pod 36% on 7th pod 12%on 8th pod.

About 8% cases developed seroma.

About 20% controls developed seroma.

Discussion

This study demonstrates that reduction of the dead space after mastectomy using flap fixation reduces seroma formation and seroma aspirations. For many decades, breast surgeons have used closed suction drainage to reduce dead space. However, seroma formation and its sequelae continued to cause postoperative problems in these patients, proving that wound drainage is insufficient in combating seroma. Flap fixation combined with low suction drainage significantly reduces seroma formation and the need for seroma aspiration after mastectomy.

The key to reducing seroma formation seems to partly lie in the obliteration of dead space. However, the techniques used to achieve this goal are subject of much controversy and debate . In a randomised controlled study, it was difficult to elucidate whether reducing the dead space or ligation of lymphatics or a combination of both were responsible for reduction of seroma formation . The extent of the dissection plane seems to be an important factor in seroma formation, and therefore, obliteration of dead space in patients undergoing mastectomy or modified radical mastectomy seems to be pivotal. Pressure garments or compression bandages are not effective in combating seroma; however, quilting of the skin flaps or skin flap fixation seems to be much more effective. Different techniques have been employed to obliterate the dead space (under flaps and the axilla) to reduce seroma formation. Halsted first advocated

creating a short superior flap and suturing it with interrupted silk to the fascia below the first rib and skin grafting the remaining part of the defect.

In 1951, Orr used tension sutures tied over rubber tubing bolsters to tack flaps to the chest wall. In 1953, Keyes et al. used through and through sutures to attach the skin flaps to the chest wall. Besides these techniques, suturing of flaps with subcutaneous tissue, avoiding use of axillary drains following breast conservation therapy, and obliterating axillary dead space by muscle approximation have all been tried for reducing seroma formation. Coveney et al. compared suturing skin flaps to underlying muscle with conventional skin closure and observed a lower incidence of seroma formation in the flap suture group, although flap suturing did add to total operating time. A recent randomized study compared a combination of skin flap suturing, ligation of lymphatics and obliteration of axillary dead space to conventional skin closure after mastectomy. As a result, the incidence of seroma formation decreased to 2% with the combination of techniques. Although effective, the authors stated that it was impossible to determine which of the three techniques, or any combination, actually produced the observed effect. Mechanical pressure has also been applied to obliterate dead space following surgery. The use of a pressure garment does not reduce postoperative drainage and has low tolerance and a higher complication rate.

Conclusion

Flap fixation is a surgical technique that reduces the dead space in patients undergoing mastectomy for invasive breast cancer or DCIS. It appears to reduce the occurrence of seroma and the need for seroma aspirations.

KEY WORDS : SKIN FLAP ANCHORING , MASTECTOMY , SEROMA.