DETERMINANCE OF OPTIMAL MASTECTOMY SKIN FLAP THICKNESS

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The authors review the scientific medical literature concerning ideal skin flap thickness for the operation of mastectomy. The review included an assessment of anatomical studies, oncological aspects, and factors affecting the viability of the flaps, and the impact of surgical technique and additional systemic therapies.

The authors discuss the importance of mastectomy as a surgical procedure in the management of breast cancer. Mastectomy remains a very important operation in patients with breast cancer and is one of the options available to the patient with regard to the management of the disease in the breast. Mastectomy is the only surgical option in patients with locally extensive invasive or in situ disease or multicentric disease not amenable to breast conservation surgery. Mastectomy is also offered as a risk-reduction procedure to patients at high risk for developing the disease. The authors indicate that in the UK, 53% of women with symptomatic breast cancer and 27% of those with Screen detected breast cancer are treated surgically with mastectomy. A dramatic increase in mastectomy rate has been reported in the USA and there may be several reasons including the availability of BRCA mutation testing, the increased usage of MRI for breast disease, the MRI indicating the presence of additional foci within the breast not shown on mammography or sonography. Furthermore there has been an increased incidence of patient request for mastectomy. Mastectomy may be combined with breast reconstruction which may be either immediate or delayed, and may involve a contralateral, prophylactic mastectomy performed simultaneously. Conservative mastectomy techniques have been developed including skin sparing mastectomy (SSM) and nipple sparing mastectomy (NSM). With all forms of mastectomy there is the requirement for the development of skin flaps, performed surgically, to achieve the correct tissue plane, for the resection of the underlying tissue. The ideal thickness for the skin flaps during mastectomy has not been clearly defined. Skin flaps left too thick may carry the risk of retaining residual breast tissue, and potentially some disease within the skin flap itself. A flap too thin carries a risk of necrosis. Skin flap necrosis is a devastating complication for the patient, both physically and psychologically, requiring further surgical procedures and often leading to delays in the commencement of systemic adjuvant therapy. The development of the optimal plane between the subcutaneous fat and the underlying breast tissue is also important in onco-plastic surgical techniques where the skin is raised over a tumour from a remote incision, such as a peri-areolar incision.

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The authors reviewed all of the available scientific medical literature on this subject. They conclude that the subcutaneous fatty layer between the dermis (skin) and the underlying breast tissue is variable in thickness, and difficult to predict prior to surgery, and may be unrelated to the body habitus of the patient. There is also no evidence of an association with age. A distinct layer of superficial fascia in the breast may be present in only up to 56% of patients. It may be impossible to remove all breast tissue at mastectomy. The authors indicate that a single, specific universal thickness for mastectomy skin flaps cannot be recommended currently based on the evidence available. The authors conclude that a complete removal of all breast tissue at mastectomy is probably not feasible. Despite the advances in mastectomy techniques, the recurrence rates of cancer over the last fifty years on the chest wall, remain at about 5%. Nonetheless the authors stress the importance of achieving “clear margins” at the time of surgery to reduce the risk of local relapse.