

Excess Skin After Bariatric Surgery

Patients' perspective and objective measurements

Akademisk avhandling

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- I. Börserud C, Olbers T, Søvik T, Mala T, Elander A, Fagevik Olsén M. *Experience of excess skin after gastric bypass or duodenal switch in patients with super obesity*. Surg Obes Relat Dis. 2014 Sep-Oct;10(5):891-6
- II. Börserud C, Nielsen C, Staalesen T, Elander A, Olbers T, Fagevik Olsén M. *Sahlgrenska Excess Skin Questionnaire, SESQ - A reliable questionnaire to assess the experience of excessive skin after weight loss*. J Plast Surg Hand Surg. 2013 Feb;47(1):50-9
- III. Börserud C, Olbers T, Staalesen T, Elander A, Fagevik Olsén M. *Understanding excess skin in post bariatric patients– objective measurements and subjective experiences*. In manuscript
- IV. Börserud C, Fagevik Olsén M, Elander A, Wiklund M. *Objective measurements of excess skin in post bariatric patients - inter rater reliability*. Submitted



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ABSTRACT

Most of the world's population lives in countries where overweight and obesity kills more people than underweight. The only effective treatment is found to be bariatric surgery. Excess skin is an undervalued, negative effect following the massive weight loss after the procedure.

Aim: The general aim of this thesis was to investigate the experience and the development of excess skin after massive weight loss following bariatric surgery.

Materials and method: Super obese patients filled in a questionnaire concerning experience and discomfort from excess skin after massive weight loss following bariatric surgery. Their experiences were correlated to circumference measurements of hip and waist. The questionnaire was developed further and test – retest was performed to test the reliability. Sahlgrenska Excess Skin Questionnaire, SESQ, aims to investigate excess skin on different body parts from the patients' perspective. In a longitudinal follow up, patients filled in SESQ and objective measurements of excess skin were made. Excess skin, ptosis and circumference were measured in a standardized way. Correlations were made between patients' subjective experiences and the objective measurements. The measuring protocol, designed to measure excess skin in massive weight loss patients, was evaluated regarding inter rater reliability by two testers.

Results: The SESQ consists of three different parts, I: demographic data, II: symptoms of excess skin and III: assessment and discomfort of excess skin on different body parts. The test-retest reliability of SESQ showed a kappa coefficient of 0.44 to 0.81 concerning parts I and II, and an ICC of 0.72 to 0.92 for part III. In addition, face validity was performed with ten post bariatric patients.

Weight loss after bariatric surgery in super obese and obese patients is associated with substantial experience and discomfort from excess skin. The excess skin is most commonly located on the abdomen, upper arms and thighs, and women experience more discomfort on several body parts than men. The excess skin causes intertriginous problems, such as fungus and eczema. It is heavy, which causes pain and hinders physical activity and is also a severe psychocosmetic problem.

Repeated, objective, measurements of obese patients demonstrate that all ptosis and excess skin measurements decreased after weight reduction due to surgery except for the ptosis on the thighs, which had increased significantly.

Comparison of objective measurements with the patients' subjective reports of experience and discomfort from excess skin gave little or low correlation for both obese and super obese patients.

The prediction analysis indicates that, for every centimeter of ptosis on the abdomen preoperatively, there is a twofold higher odds of having a postoperative ptosis on the abdomen > 3 cm (OR=2.32).

Measurements of ptosis and excess skin had high or good reliability even though the size of the ptosis varied by several centimetres and the majority of the measurements had an ICC > 0.9 despite the fact that the measurers were from different professions.

In summary: The SESQ is a reliable questionnaire for assessing excess skin from the patients' perspective and the measuring protocol represents a useful instrument for providing a consistent and objective assessment of excess skin. While the extent of excess skin that was measured is reduced in comparison with before the operation, patients seem to become more aware, inconvenienced and discomforted by it on several body parts after weight loss. Discomfort from excess skin correlates fairly well to the extent of excess skin or circumference measurements in super obese or obese patients.

Keywords: obesity, bariatric surgery, post bariatric plastic surgery, massive weight loss, excess skin, SESQ, discomfort from excess skin, objective measurements.