Göteborg, 2019

MESH-BASED IMMEDIATE BREAST RECONSTRUCTION

Complications and long-term results

Akademisk avhandling

Som för avläggande av medicine doktorsexamen vid Sahlgrenska akademin, Göteborgs universitet kommer att offentligen försvaras i Hjärtats Aula, Vita Stråket , den 1 februari, klockan 13.00.

av Håkan Hallberg

Fakultetsopponent:

Docent Johan Thorfinn

Linköpings Universitet, Sverige

Avhandlingen baseras på följande delarbeten

I. **Hallberg H**, Rafnsdottir S, Selvaggi G, Strandel A, Samuelsson O, Stadig I, Svanberg T, Hansson E, Lewin R. Benefits and risks with acellular dermal matrix (ADM) and mesh support in immediate breast reconstruction: a systematic review and meta-analysis. *Journal of Plastic Surgery and Hand Surgery* 2018; 52(3):130-147.

II. **Hallberg H**, Lewin R, Elander A, Hansson E. TIGR® matrix surgical mesh – a two-year follow-up study and complication analysis in 65 immediate breast reconstructions. *Journal of Plastic Surgery and Hand Surgery* 2018; 52(4):253-258.

III. **Hallberg H**, Lewin R, Bhatti Søfteland M, Widmark-Jensen E, Kogler U, Lundberg J, Hansson E. Complications, long-term outcome and quality of life following Surgisis® and muscle-covered implants in immediate breast reconstruction: a case-control study with a 6-year follow-up. *European Journal of Plastic Surgery* 2018 https://doi.org/10.1007/s00238-018-1444-x Open access.

IV. **Hallberg H**, Elander E, Kölby L, Hansson E. A biological or a synthetic mesh in immediate breast reconstruction? A cohort-study of long-term Health Related Quality of Life (HrQoL). *Submitted*.

SAHLGRENSKA AKADEMIN
INSTITUTIONEN FÖR KLINISKA VETENSKAPER

GÖTEBORGS UNIVERSITET

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MESH-BASED IMMEDIATE BREAST RECONSTRUCTION

Complications and long-term results

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Abstract

There are few high-quality studies evaluating use of meshes in implant-based immediate breast reconstruction (IBR). This thesis analyzed current evidence of matrices and compared outcomes from the use of biological or synthetic meshes and traditional muscle-covered implants. The comparisons examined short- and long-term complications and corrections, predictors of complications, and patient satisfaction and quality of life (QOL). Manuscript I describes a systematic review and meta-analysis specifically assessing differences in outcomes between reconstructions with and without matrices. Manuscript II presents the results of reconstruction using a synthetic mesh [TIGR®; *n* = 49 patients (65 breasts)]. Manuscript III compares reconstruction outcomes using a biological mesh [Surgisis®; *n* = 71 (116 breasts)] with those from a traditional muscle-covered technique (*n* = 90; 132 breasts) regarding complications and health-related QOL. Manuscript IV compared outcomes from use of either a synthetic mesh (TIGR®; *n* = 41) or a biological mesh (Surgisis®; *n* = 53) regarding long-term patient satisfaction and health-related QOL. All patients were followed between 17 and 162 months.

Meta-analysis revealed a possible increased risk of infection upon use of an acelullar dermal matrix (ADM), but not with synthetic meshes. The result must be interpreted with caution due to severe limitations in the included studies. Additionally, the results suggested that IBR with a synthetic mesh can be performed with a relatively low complication rate. The overall complication rate was higher using biological mesh as compared to muscle-covered implants; however, no significant difference was noted in implant loss rates between the groups. Predictors of complications were mainly patient-related, although high complication rates were associated with the use of tissue expanders, especially in patients with a history of irradiation. Furthermore, long-term patient satisfaction and QOL were similar when using a synthetic, biologic or no mesh, except for complications that affected patient satisfaction with the outcome. Our findings suggest that biological and synthetic meshes provide similar long-term quality of life.

Keywords: immediate breast reconstruction, plastic surgery, acelullar dermal matrix, mesh, quality of life

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