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**Inhibition mechanism of acellular dermal matrix on capsule formation in expander-implant breast reconstruction after postmastectomy radiotherapy****Jae-Woo Heo, Ung Sik Jin**

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**Purpose:** Acellular Dermal Matrix (ADM) has widely used to prevent and treat capsular contracture in expander-implant breast reconstruction. However, little is known about how ADM reduces the capsule formation around breast prosthesis in both irradiated and non-irradiated patients.

**Method:** Capsular tissue was obtained from patients undergoing second-stage breast reconstruction to exchange a tissue expander for a breast implant. All tissue expanders were covered with pectoralis major muscle and ADM (CryoDerm®). Capsular tissues (1×0.5 cm<sup>2</sup>) under pectoralis major muscle and ADM were harvested from patients who had no radiotherapy (n=10) and had prior radiotherapy (n=10). H&E analysis, immunohistochemistry for α-smooth muscle actin, CD31, F4/80 in capsular tissue was performed.

**Result:** Thickness of subADM capsule was thinner compared to sub-muscular capsule in both non-irradiated and irradiated patients. αSMA-positive cells presenting myofibroblast were decreased in subADM capsule. αSMA and CD31 co-expressing cells which mean endothelial-mesenchymal transition (EndoMT) were observed only in sub-muscular capsule. F4/80-positive macrophage recruitment in subADM capsule was decreased compared to sub-muscular capsule. All the differences between sub-muscular and subADM capsule were predominant in irradiated patients.

**Conclusion:** ADM reduces activated myofibroblast and macrophage recruitment and EndoMT, leading to inhibition of capsule formation. Our findings provide mechanistic insights into how the coverage of ADM leads to decreased periprosthetic capsular contracture.

**Biography**

Ung Sik Jin is Plastic Surgeon in Seoul National University Hospital, Republic of Korea. He has expertise in breast reconstruction and aesthetic breast surgery and his area of specialization is microsurgical reconstruction and adipose-derived stromal cell.

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