Visible tissue responsiveness: Metabolic and fibroblast activity during utilization of a bioabsorbable matrix in abdominal wall reconstruction

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Background

This patient was undergoing treatment for simultaneous colon and rectal cancers and had a prior low anterior colon resection procedure with a diverting ileostomy. The patient developed a significant hernia at his former ostomy site, which necessitated a repair that included a Transverses Abdominas (TAR) muscle release.

Due to the comorbidities and risk factors present, the patient, family and surgeon decided to use GORE® ENFORM Preperitoneal Biomaterial, as part of the hernia repair to reinforce the soft tissue and support the TAR procedure. The Gore 3D PGA:TMC web scaffold has been studied in the clinical literature for over 20 years and has a targeted absorption period of six to seven months through hydrolysis that ensures no material is left behind, to avoid any potential risk of long-term complications that may be associated with mesh.

Device material

GORE® ENFORM Preperitoneal Biomaterial is a fully bioabsorbable matrix composed of the tissue-building web scaffold, Gore 3D PGA:TMC web scaffold that has been shown to promote rapid vascularity and ingrowth. Demonstrated vascularity was reported within seven days[1] and tissue ingrowth within one month.[2] The optimal porosity of the scaffold elicits a specific tissue response facilitating rapid cell migration and the formation of highly vascularized tissue.[3,4] The 3D scaffold with highly interconnected pores provide tunnels for cellular migration, resulting in a structure that is similar to a collagen fiber network.

Metabolic activity observed

Patient was recovering well from the hernia repair and came in at three months for a CT scan as part of normal follow up. Additionally, the patient received a PET scan.

At three months, the patient's tissue response to the matrix material was clearly visible in the PET scan. From a metabolic standpoint: The GORE® ENFORM Preperitoneal Biomaterial was observed to be "glowing", as during the critical wound healing process, fibroblasts and collagen synthesis was occurring within the device. On subsequent follow up PET scans, the metabolic activity appeared to dissipate as the normal healing response progressed. Patient is currently doing well, with no complications or recurrences at over a year out from the index procedure.

Patient initial pre-op CT scan showing significant hernia

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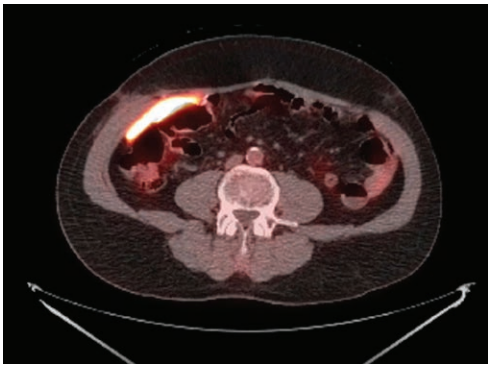
Patient PET scan at three months illustrates cellular metabolic activity



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