

### **Molecular Factors of Failure in Incisional Hernia Surgery**

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#### **Abstract**

Incisional hernias occur as frequent as they did 20 years ago even if we use modern technologies in terms of suture. Sutures techniques, either primary repair or applied after failure of primary repair are characterized by high rates of recurrence. Using the hernia mesh has become mandatory in repairing of all types of hernias - inguinal, ventral or incisional. Implantation of the mesh is a relatively well-coded surgical procedure. But surgery is only the first step in the process of healing. Implantation starts a strong response with haematological mechanisms: protein absorption, complement activation, coagulation, platelet activation, neutrophil activation and tissue mechanisms: proliferation, adhesion, fibrosis. Recurrence rates are consistently lower when replacement meshes are used and a variety of meshes have been developed for this purpose. How the mesh is embedded by the human body and how the biomechanical limits of the abdominal wall are restored is still a subject of debate for surgeons. Histopathological studies and progress in design and materials are the only keys to solve this problem. Also pathological studies should determine the right material for personalized repair according to each patient's biology. This paper attempts to analyze the molecular failure factors in incisional hernia surgery, different from errors in surgery procedures. Complications can be avoided or reduced by an appropriate selection of the type of place in a particular case, and by performing a meticulous technique. Incisional hernias are considered at this moment a biological progressive phenomenon, and not only a strictly technical one, a "simple hole in the abdominal wall" that has to be firmly sutured.

**Key words:** incisional, hernias, mesh, collagen, repair

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