

Antimicrobial PP Meshes for Hernia Repair

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Abstract

Polypropylene devices are commonly used for reinforced operated muscles of hernia incision globally; however, recurrence has become common due to post operative mesh infection. To achieve the better efficacy of implants we study and has come to the point to modified the structure of implants to developed the antimicrobial efficacy of PP mesh. Here in we modified pp mesh with oxygen plasma and coated pp mesh with β -cyclodextrin with silver nano particle. Subsequently cyclodextrin was coated onto the meshes by treating them with a DFM solution, for the better therapeutic efficacy the antimicrobial agent silver nano particle was poured on to the modified PP during coating of cyclodextrin. The modified meshes were characterized by AFM, SEM, FTIR and Antimicrobial activity against *s. aureus*. The modified pp mesh CD-NP-PP showed significant antimicrobial efficacy against *Staphylococcus aureus*, *Escherichia coli*. We received hundred percent reduction of bacteria on modified implants CD-NP-PP. Thus, modified pp mesh could potentially lead to a marginal reduction in post operative infection and a lower recurrence rate in hernia incision.

Index Terms

Hernia, Polypropylene, Devices, Cyclodextrin, Silver Nanoparticles