The Use of Lightweight, Large-Pore Polypropylene Mesh Onlay in the Repair of Contaminated Abdominal Wall Defects: A Single Center Experience

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Background: Most surgeons are reluctant to place synthetic mesh in contaminated abdominal wall repairs for fear of mesh infection. Biologic meshes are often used in this setting; however, these meshes lack long-term durability. In comparison to medium- and heavy-weight polypropylene mesh, the newer lightweight, large-pore polypropylene (LP-PP) meshes may provide the long-lasting, high-tensile strength of a permanent synthetic prosthesis with an improved resistance to developing infection. The authors present a single-center case series illustrating the safety and efficacy of using LP-PP mesh onlay in the repair of contaminated abdominal wall defects.

Methods: A retrospective review of patients who underwent abdominal wall reconstruction with lightweight, large-pore polypropylene mesh at a single institution between March 2009 and June 2015 was performed. Patient demographics, complications, and hernia recurrence rates were reported.

Results: Twenty patients were identified who underwent abdominal wall reconstruction with lightweight, large-pore polypropylene mesh in conjunction with a clean-contaminated (n=8), contaminated (n=10), or grossly infected (n=2) abdominal surgery. All meshes were placed overlying the anterior rectus sheath following fascial closure with either a unilateral or bilateral component separation. Thirteen patients had at least one risk factor for poor wound healing. Sixteen patients had uncomplicated post-operative courses. Of the four reported complications, two had seromas that resolved after needle-aspiration, and two had superficial infections that resolved after a course of intravenous and oral antibiotics. Of note, the two patients categorized as infected cases maintained an uncomplicated course. There were no mesh infections, readmissions, mesh removals, or hernia recurrences.

Conclusions and Significance: In contaminated surgical fields, abdominal wall repair with LP-PP in the onlay position may be performed with minimal wound-related morbidity and successful reestablishment of abdominal wall integrity. We believe that using PROLENE LP-PP as the mesh of choice for abdominal wall repairs in contaminated fields as an onlay results in successful closure of the abdominal wound, reestablishment of abdominal wall integrity, and minimal morbidity to the patient. This, in turn, will lead to a decreased number of readmissions with fewer returns to the operating room for recurrences and/or complications, and, ultimately, superior long-term outcomes. We aim to add to the growing body of literature that asserts the safe and reliable use of permanent synthetic LP-PP in the repair of abdominal wall defects in a contaminated field.