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A Staged Strategy for Early Abdominal Wall Closure in a Case Involving Ruptured Abdominal Aortic Aneurysm Requiring Open Abdomen in Which Primary Fascial Closure was Difficult to Achieve: A Case Report

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Abstract
Open abdomen is sometimes necessary to save lives after ruptured abdominal aortic aneurysm repair. We report a case in which a staged strategy for early abdominal wall closure was applied to prevent the severe complications due to the extended period of open abdomen. An 81-year-old man with ruptured abdominal aortic aneurysm was transported to our hospital. After the first operation, which required open abdomen, prolonged visceral edema and retroperitoneal hematoma made primary fascial closure difficult. Mesh mediated fascial traction was undergone to reduce the gap in fascial dehiscence under negative pressure wound therapy. However, primary fascial closure could not be accomplished, and abdominal wall reconstruction was performed using bilateral anterior rectus abdominis sheath turnover flap method. Moreover, the skin along the abdominal wall was too tight to be closed primarily. Thus, a bipedicled skin flap was applied. The patient was transferred to another hospital without any remarkable complications. In the present case, the application of a staged closure strategy, which was based on the duration of open abdomenand the condition of the fascia and skin was considered to be important for achieving definitive abdominal closure and preventing the severe complications.
Key words: ruptured abdominal aortic aneurysm, negative pressure wound therapy, open abdomen, bilateral anterior rectus abdominis sheath turnover flap method, bipedicled skin flap