



Prevena[™]
Incision Therapy

Case studies: Series 1

Note: As with any case study, the results and outcomes should not be interpreted as a guarantee or warranty of similar results. Individual results may vary, depending on the patient's circumstances and condition.

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Introduction

This booklet includes case studies across several surgical specialties, including orthopedic, thoracic, plastics, trauma, and obstetric and gynecologic surgeries. As with any case study, the results and outcomes should not be interpreted as a guarantee or warranty of similar results. Individual results may vary depending on the patient's condition and circumstances.

Case study 1 – Total knee replacement

Patient:

A 72-year-old female with a prior history of distal thigh sarcoma underwent total knee replacement. The patient's medical history is significant for multiple prior surgeries of the leg, including wide resection of the tumor. Her healing capabilities of the area around the knee were a concern prior to surgery. At the time of surgery, the patient's prior surgical incision was used.

Diagnosis:

The patient had an extensive scar, oedematous soft tissue, and impaired skin integrity as a result of prior radiation therapy and surgery.

Initial incision treatment/application of 3M™ Prevena™ Therapy:

At the conclusion of the knee arthroplasty procedure, the 3M™ Prevena™ Incision Management System with Peel and Place Dressing - 20cm was applied over the closed incision at -125 mmHg to optimize wound healing (**Figure A**). The sterile dressing remained in place until removal on day 7 (**Figure B**).

Discharge and follow-up:

By 6 weeks post surgery, the incision healed without postoperative complications (**Figure C**).



Figure A. Application of 3M™ Prevena™ Therapy over the closed incision.



Figure B. Incision after dressing removal on postoperative day 7.



Figure C. Healed incision at 6 weeks post surgery.

Case study 2 – Knee fracture

Patient:

A 47-year-old male with a history of refractory Hodgkin's lymphoma on chemotherapy fell down a flight of stairs and suffered a complex proximal tibial fracture (**Figure A**).

Diagnosis:

The patient received initial closed reduction and initial external fixation, after which he developed significant medial skin blisters and was eventually treated with open reduction with internal fixation with a lateral locking plate (**Figure B**). At 7 months post surgery, the patient had a range of motion of -5 to 75 degrees after multiple rounds of physical therapy (**Figure C**). He subsequently underwent a total knee arthroplasty after the removal of hardware and lysis of adhesions (**Figure D**).

Initial incision treatment/application of 3M™ Prevena™ Therapy:

Following the total knee arthroplasty, the 3M™ Prevena™ Incision Management System with the 3M™ Prevena™ Customizable Dressing was applied over the closed incision at -125mmHg (**Figure E**).

Discharge and follow-up:

Prevena Therapy was discontinued after 3 days (**Figure F**). Patient was discharged from the hospital on postoperative Day 3. At 2 weeks post surgery, the incision was progressing toward healing (**Figure G**). By 3 months post surgery, the patient had a range of motion of 0 to 110 degrees, and the incision had healed well with no drainage or incision problems (**Figure H**).

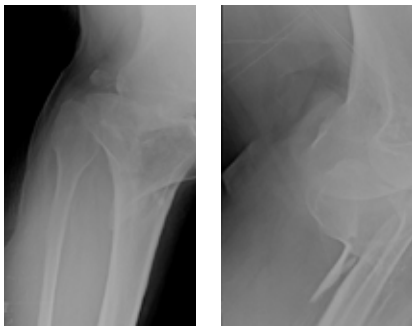


Figure A. X-rays of complex tibial plateau fracture after falling down a flight of stairs. Patient had initial closed reduction and external fixator placement.



Figure B. X-rays post open reduction and internal fixation.



Figure C. X-rays at 7 months post surgery. Range of motion was -5 to 75 degrees after multiple rounds of physical therapy.



Figure D. Removal of hardware and lysis of adhesions, showing the extensive incision/dissection for the total knee arthroplasty.



Figure E. 3M™ Prevena™ Therapy with 3M™ Prevena™ Customizable Dressing placed over the closed incision.



Figure F. Incision after the 3M™ Prevena™ Customizable Dressing was removed on postoperative day 3.



Figure G. Incision 2 weeks post surgery.



Figure H. Healed incision at 3 months post surgery.

Case study 3 – Periprosthetic femur fracture

Patient:

A 67-year-old male with a history of obesity (BMI = 36.9) presented with a periprosthetic femur fracture (Figure A).

Diagnosis:

Patient underwent total hip arthroplasty (THA) revision to repair the injury (Figure B). After replacement of the THA hardware, fascial closure could not be obtained.

Initial incision treatment/application of 3M™ Prevena™ Therapy:

The 3M™ Prevena™ Incision Management System with the 3M™ Prevena™ Customizable Dressing was applied over the closed incision at -125mmHg.

Discharge and follow-up:

Prevena Therapy was discontinued after 7 days, and the patient was discharged to a rehabilitation facility. At the postoperative month 5 follow-up visit, the incision remained intact (Figure C) with no postoperative incision complications.



Figure A. Periprosthetic femur fracture at initial presentation



Figure B. Total hip arthroplasty repair

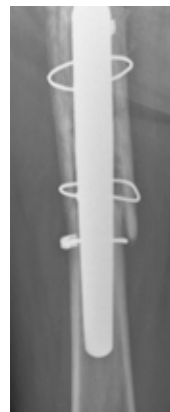


Figure C. Wound appearance at postoperative month 5 follow-up visit

Patient data and photos courtesy of H. John Cooper, MD; Lenox Hill Hospital, New York, NY.

Case study 4 – Cesarean section

Patient:

Patient was a 30-year-old female, gravid 4, para 3 with a history of late prenatal care. Medical history also included anemia, smoking, pre-pregnancy weight of 250lbs (BMI = 40.4), and Class III Obesity (BMI = 41.4) (**Figure A**) at time of surgery.

Diagnosis:

Patient underwent a cesarean section (C-section) at 39 weeks gestation.

Initial incision treatment/application of 3M™ Prevena™ Therapy:

3M™ Prevena™ Incision Management System with Peel and Place Dressing was applied to the incision Prevena Incision Management System post C-section (**Figure B**).

Discharge and follow-up:

Prevena Therapy was discontinued after 7 days (**Figure C** and **D**).



Figure A. Day 0: Patient prior to surgery.



Figure B. Day 0: Application of 3M™ Prevena™ Therapy.



Figure C. Day 7: Dressing prior to removal.



Figure D. Day 7: Surgical incision after dressing removal.

Case study 5 – Sternotomy incision

Patient:

A 58-year-old diabetic female presented with a sternal wound (**Figure A**) following a three-vessel coronary artery bypass graft (CABG).

Diagnosis:

The patient was admitted for a sternal infection 2-3 weeks following the CABG. Symptoms included a 2-3 day history of drainage from the incision, presternal pain, and erythema. Comorbidities included a history of diabetes.

Initial incision treatment/application of 3M™ Prevena™ Therapy:

The patient was taken to the operating room for soft tissue and sternal debridement. A nonunion of the sternal bone was found, and hardware was removed (**Figure B**). Well-vascularised muscle flaps were needed to obliterate the dead space in the presternal area. A submuscular dissection was performed below the pectoralis major muscle (**Figure C**). The elevated pectoralis muscle flaps were then advanced into the midline to fill the presternal area (**Figure D**). The soft tissue was approximated and the skin closed with horizontal mattress sutures over closed suction drains (**Figure E**). 3M™ Prevena™ Incision Management System with Peel and Place Dressing - 20cm was applied over the closed incision at -125mmHg (**Figure F**).

Discharge and follow-up:

3M™ Prevena™ Therapy was discontinued after 5 days, and upon removal of the dressing, the incision showed no signs of dehiscence, tension, or infection (**Figure G**). The patient was discharged from the hospital on postoperative Day 7 with no complications. The outpatient postoperative course was uneventful. At 21 days post surgery, the incision remained closed and healed (**Figure H**).



Figure A. Presentation of sternal wound.



Figure B. Wound debridement showed the patient had a nonunion of the bone.

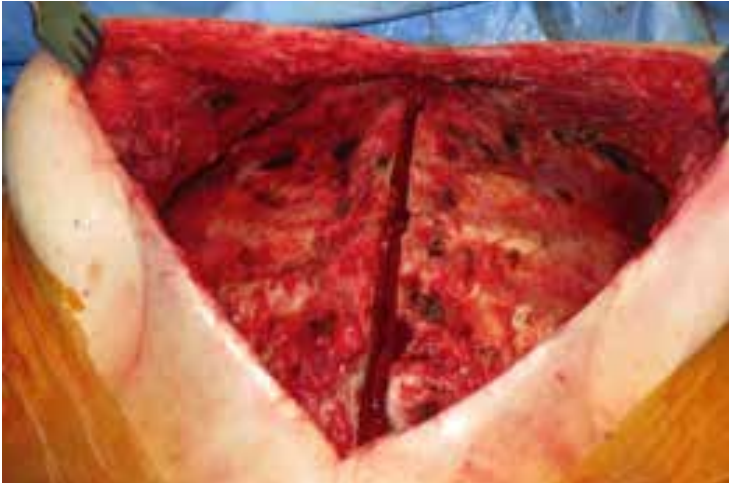


Figure C. Submuscular dissection was performed below pectoralis major muscle.



Figure D. Pectoralis muscle flaps were advanced into the midline.



Figure E. Sternal incision was closed following soft tissue approximation.



Figure F. 3M™ Prevena™ Peel and Place Dressing was applied over the sternal incision.



Figure G. Incision on postoperative day 5.



Figure H. Incision on postoperative day 21.

Case study 6 – Sternotomy incision

Patient:

A 67-year-old female with a previous history of cholecystectomy and myocardial infarction presented with dyspnea on exertion and angina with activity. Patient comorbidities included diabetes, obesity, sleep apnea, degenerative joint disease, osteoporosis, hypertension, and hyperlipidemia.

Diagnosis:

Blood work was initiated and revealed creatinine levels of 1.6mg/dL, chronic kidney disease Stage III, and normal hematocrit. The patient was admitted to the hospital with acute myocardial infarction.

Initial incision treatment/application of 3M™ Prevena™ Therapy:

The patient was taken to the operating room for an aortic valve replacement and coronary artery bypass graft. Following closure of the incision (**Figure A**), 3M™ Prevena™ Incision Dressing with the 3M™ Prevena™ Peel and Place Dressing was placed over the incision at -125mmHg (**Figure B**).

Discharge and follow-up:

Prevena Therapy was discontinued after 5.5 days. The patient was discharged from the hospital on day 6 with no complications. The incision was well approximated on postoperative day 10 (**Figure C**). At follow-up (13-weeks post surgery), the incision remained intact with good reapproximation.

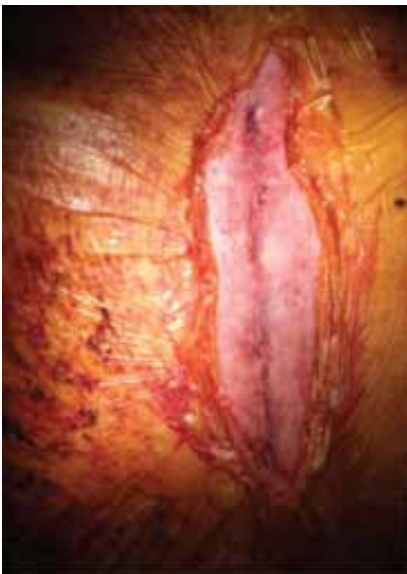


Figure A. Clean closed 15cm incision.



Figure B. 3M™ Prevena™ Dressing in place with negative pressure applied.



Figure C. Incision was well approximated on postoperative day 10.

Patient data and photos courtesy of Dr. V. Seenu Reddy.

Case study 7 – Sternotomy incision

Patient:

A 64-year-old male presented with dyspnea on exertion and angina with minimal activity. Patient comorbidities included diabetes, obesity, hypertension, hyperlipidemia, and chronic obstructive pulmonary disease. Medical history included severe, poorly-control diabetes (HbA1c of 8) and poor nutrition with low preoperative albumin (3.1g/dL).

Diagnosis:

The patient was admitted to the hospital with multivessel artery disease and acute myocardial infarction.

Initial incision treatment/application of 3M™ Prevena™ Therapy:

The patient was taken to the operating room for an aortic valve replacement. 3M™ Prevena™ Incision Management System with the 3M™ Prevena™ Peel and Place Dressing was placed over the closed incision at -125mmHg (**Figure A**).

Discharge and follow-up:

Prevena Therapy was discontinued after 5 days. The patient was discharged from the hospital with no complications on day 5. The incision was well approximated on postoperative day 10 (**Figure C**). At follow-up (13-weeks post surgery), the incision remained intact with good reapproximation.



Figure A. Placement of 3M™ Prevena™ Dressing over the closed 17cm incision.



Figure B. 3M™ Prevena™ Therapy applied for 5 days.



Figure C. Incision edges were well-approximated at dressing removal (postoperative day 5).

Case study 8 – Breast reconstruction

Patient:

A 27-year-old female with a history of obesity, preoperative chemotherapy for breast cancer, and axillary dissection of the left breast.

Diagnosis:

Patient (**Figure A**) received reduction-pattern mastectomy on both breasts.

Initial incision treatment/application of 3M™ Prevena™ Therapy:

Following surgery, the 3M™ Prevena™ Incision Management System with the 3M™ Prevena™ Customizable Dressing was placed over the closed incision at -125mmHg (**Figure B**).

Discharge and follow-up:

Prevena Therapy was discontinued after 5 days, and patient was discharged from the hospital on day 6. The patient experienced a superficial dehiscence in the left breast, which resolved with local wound care. Both incisions were intact at 4 weeks (**Figure C**) and remained intact at 2-months post mastectomy surgery (**Figure D**). Patient underwent breast reconstruction with silicone implants, fat injections, and nipple reconstruction with good results at 2-months post reconstruction surgery (**Figure E**).



Figure A. Patient prior to reduction pattern mastectomy.



Figure B. Application of 3M™ Prevena™ Therapy following reduction pattern mastectomy.



Figure C. 4-weeks post mastectomy surgery.



Figure D. 2-months post mastectomy surgery.



Figure E. 2-months post breast reconstruction surgery with silicone implants, fat injections, and nipple reconstruction.

Patient data and photos courtesy of Dr. Allen Gabriel.

Case study 9 – Panniculectomy

Patient:

An obese female patient presented with end-stage renal disease. She was on dialysis and awaiting a renal transplant. However, the patient's transplant surgeon requested a plastic surgery consultation prior to her renal transplant to evaluate the patient for a panniculectomy for her large, overhanging abdominal pannus (**Figure A**) in order to reduce the complexity and risk of the renal transplant procedure.

Diagnosis:

After consultation with the plastic surgeons, the patient underwent a panniculectomy for her abdominal pannus.

Initial incision treatment/application of 3M™ Prevena™ Therapy:

Post panniculectomy (**Figures B and C**), 3M™ Prevena™ Plus Incision Management System with the 3M™ Prevena™ Customizable Dressing was placed over the complete closed incision at -125mmHg (**Figures D and E**). The patient was discharged home on postoperative day 1 with the dressing in place.

Discharge and follow-up:

Prevena Therapy was discontinued after 7 days. At postoperative day 13, the incision remained intact with good reapproximation (**Figure F**). The patient did not have any postoperative incision complications.



Figure A. Patient with overhanging abdominal pannus.



Figure B. Removal of pannus.



Figure C. Removed pannus.



Figure D. Complete closed incision.



Figure E. Application of 3M™ Prevena™ Therapy for 7 days.



Figure F. Incision at postoperative day 13.

Patient data and photos courtesy of Dr. Devinder Singh and Dr. Ron Silverman, University of Maryland, School of Medicine, Baltimore, MD and Senior Vice President and Chief Medical Officer, Acelyty, San Antonio, TX.

Case study 10 – Duodenal perforation repair

Patient:

A 61-year-old female presented with blunt traumatic perforation of the duodenum, grade I-II pancreatic injury, grade II liver laceration, partial necrosis of the right retroperitoneal zone II, left sacral fracture, severe sepsis, septic shock, and a pulmonary contusion sustained after a motor vehicle accident. Medical history included Crohn's disease and immunodeficiency due to methotrexate usage to manage rheumatoid arthritis.

Diagnosis:

Radiological examination of the abdomen and pelvis revealed duodenal edema (**Figure A**) and extravasation of contrast (**Figure B**).

Initial incision treatment/application of 3M™ Prevena™ Therapy:

The patient was brought into the operating room (OR) where surgical confirmation of a duodenal D1-D2 junction perforation was made (**Figure C**). Primary intestinal repair was accomplished by double layer duodenorrhaphy with G-tube and distal J-tube placement (**Figures D and E**). Following surgery, the 3M™ Prevena™ Plus Incision Management System with 3M™ Prevena™ Plus Customizable Dressing was applied over the closed incision at -125mmHg (**Figure F**).

Discharge and follow-up:

Postoperative radiography revealed successful repair, with no leakage observed at the duodenum (**Figure G**). After 7 days of treatment, Prevena Therapy was discontinued; incision continued to heal well at postoperative day 14 (**Figure H**). The patient was discharged from the hospital on postoperative day 19 and transferred to a long-term acute care facility. By postoperative day 33, the incision remained intact (**Figure I**) as the patient underwent a low residue/GI soft diet with normal bowel movements and physical therapy.



Figure A. Pre-operative CT scan of abdomen/pelvis; arrow showing duodenal edema



Figure B. Pre-operative CT scan of abdomen/pelvis; arrow showing extravasation of contrast



Figure C. Arrow showing duodenal D1-D2 junction perforation



Figure D. Double layer duodenorrhaphy



Figure E. Postoperative incision showing G-tube and distal J-tube placement.



Figure F. 3M™ Prevena™ Therapy with the 3M™ Prevena™ Plus Customizable Dressing placed over the closed incision.

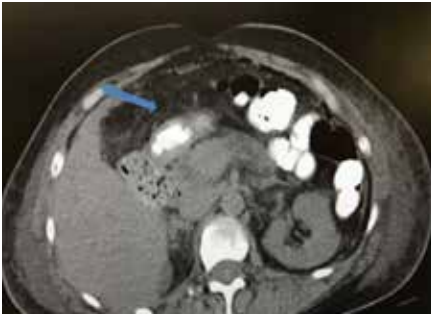


Figure G. Postoperative CT scan of abdomen/pelvis; arrow showing no leakage at duodenum



Figure H. Postoperative day 14 incision appearance (7 days post removal of 3M™ Prevena™ Plus Customizable Dressing)



Figure I. Postoperative day 33 incision appearance

Summary

The 3M™ Prevena™ Incision Management System incorporates all of the functional elements of NPWT necessary for the management of a variety of closed surgical incisions. Our portfolio of portable and flexible dressings and therapy units provides combined benefits of ease of use and flexibility to manage and protect surgical incisions following primary closure.

It is optimized for patient safety with the following features:

- Visual and audible alarms.
- Interface layer contains 0.019% ionic silver that may help reduce bacterial colonisation within the interface fabric. The silver is not intended to treat infection.
- Replaceable canister holds exudate away from the incision site.

Ordering information

Item #	Product name	Qty
PRE1001.S	3M™ Prevena™ Peel and Place Incision Management System – 20cm (For use on up to 20cm linear incisions)	1
PRE1055.S	3M™ Prevena™ Peel and Place Dressing – 20cm (For use on up to 20cm linear incisions)	5
PRE1101.S	3M™ Prevena™ Peel and Place Incision Management System – 13cm (For use on up to 13cm linear incisions)	1
PRE1155.S	3M™ Prevena™ Peel and Place Dressing – 13cm (For use on up to 13cm linear incisions)	5
PRE1095.S	3M™ Prevena™ 45ml Canister	5
PRE4001.S	3M™ Prevena™ Plus Customizable Incision Management System – 90cm (For use on non-linear or up to 90cm linear incisions)	1
PRE4055.S	3M™ Prevena™ Plus Customizable Dressing (For use on non-linear or up to 90cm linear incisions)	5
PRE4095.S	3M™ Prevena™ Plus 150ml Canister	5
PRE9090.S	3M™ Prevena™ Y-Connector	10

Note: Specific indications, contraindications, warnings, precautions and safety information exist for these products and therapies. Please consult a clinician and product instructions for use prior to application. This material is intended for healthcare professionals.



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