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The Treatment of Foreign Body Reaction and Inflammation Caused by Prosthetic Material with Surgery and Negative Pressure Wound Therapy

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Foreign body reaction and deep wound infection (DWI) following sternal resection and reconstruction represent a serious problem. In recent years, negative pressure wound therapy (NPWT) have been used in clinical pratice for treatment of DWIs. However publications regarding the use of NPWT for the prosthetic material-related inflamation and DWI are yet quite rare. We present a very rare case which is charecterized with foreign body reaction and DWI after sternal reconstruction for a giant chondrosarcoma with the treatment of surgical debridement and NPWT. A 46-year-old male was admitted with chest pain and a mass of the anterior chest wall. Thorax computed tomography detected a sternal tumor destroying part of sternum body which was 6x9 cm in diameter. The patient underwent a radical en bloc resection of an 8×11cm portion of anterior chest wall including the second and third costochondral joints bilaterally, and the tumoral mass with a 2-cm margin of macroscopically normal surrounding tissue. The large chest wall defect was reconstructed with titanium contourable mesh and two titanium straight plates. Final histopathology was reported as low-grade chondrosarcoma. There was no problem in clinical condition, no sign of tumor relaps, the thoracic wall was stable. One year then surgery patient presented with DWI. We observed foreign body reaction and skin necrosis. We performed surgical debridement of necrotic sternum and scin including the old surgical incision and removed the titanium mesh and two plates under general anaesthesia. The lower and upper portions of the cruciform incision was sutured primarily, and then NPWT was applied to the central area that lost excess skin and tissue. We used NPWT for accelerated granulation tissue formation and decreased wound secretion (approximately complete after 6 sessions).During therapy, the maximum negative pressure was kept at 50 MmHg. After the sufficient thickness granulation tissue formation, the wound was repaired by split thickness skin graft. The patient was satisfied with both cosmetic and functional results. He is healthy without any complaints at one year postoperatively. Most surgeons now consider NPWT devices to be the Şrst-line treatment for deep sternal wound infection however we used to NPWT as a bridge therapy to cutaneous reconstruction. Use of NPWT for the prosthetic material-related inflamation and DWI are very rare. Management and treatment of these cases are so difficult. NPWT devices can be used as a bridge therapy with surgery. We believe that using NPWT after surgical debridement of necrotic tissue provides healing in a short time.

Keywords: Chest wall reconstruction, sternal wound infection, foreign body reaction, surgery, negative pressure wound therapy