Simplified Cavernostomy Using Wound Protector for Complex Pulmonary Aspergilloma

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A 64-year-old man presented with dyspnea, chest pain, cough, expectoration, and continuous low-grade fever. Chest radiography and computed tomography revealed a right-sided, thick-walled cavity with diseased lung parenchyma, and sputum microscopy confirmed fungal forms of aspergillus. He subsequently developed a left-sided pneumonia caused by aspiration of the right-sided abscess. Because lung resection was considered too invasive, we performed simplified cavernostomy using the Alexis Wound Protector (XXS) using local anesthesia. In addition to the excellent drainage outcomes, this procedure was both simple and efficient. Moreover, the procedure was associated with less pain and physical limitation for the patient.

Technique

A 64-year-old male patient was referred to our hospital with uncontrolled pneumonia and lung abscess. He had a 3-month history of dyspnea, chest pain, cough with expectoration, and continuous low-grade fever. His past medical history revealed that he had received chemoradiotherapy for small cell lung cancer 10 years ago. On admission, chest radiography and computed tomography (CT) revealed a thick-walled cavity and diseased parenchyma in the right lung. Test results for Aspergillus infection were negative on serum antibody testing, but it was clearly demonstrated on sputum microscopy; therefore, a diagnosis of complex pulmonary aspergilloma was made, and treatment with intravenous antifungal drugs was initiated. On treatment day 11, his clinical symptoms worsened with increased sputum production, spike fever, and tachypnea. The urgent chest CT revealed fluid collection in the cavity in the right lung with left-sided pulmonary infiltrates (Fig 1). Therefore, we diagnosed left-sided aspiration pneumonia secondary to the right-sided fluid collection.

Right-lung resection was considered too invasive for this patient; therefore, we performed a simplified cavernostomy using the Alexis Wound Protector (XXS) and local anesthesia. The patient was positioned in the right lateral recumbent position to prevent additional aspiration of the right-sided abscess. The optimal incision site was determined with chest CT to be dorsally located in the right sixth intercostal space, close to the dependent part of the abscess. We made a 2-cm skin incision before incising the abscess with electrocautery and placing the Alexis Wound Protector using local anesthesia. In addition to the excellent drainage outcomes, this procedure was both simple and efficient. Moreover, the procedure was associated with less pain and physical limitation for the patient.

Comment

Cavernostomy is a simple and effective procedure with few complications; it can be applied when a more...
extensive surgery is contraindicated [1–3]. It has been suggested that older patients with severe preoperative respiratory malfunction and peripheral pulmonary aspergilloma or lesions accessible by pneumotomy with pleural adhesions should undergo cavernostomy, whereas other cases of pulmonary aspergilloma should be treated using lung resection [4]. In general, the choice of the surgical technique is based on the aspergilloma location, the pulmonary function, the patient’s clinical condition, and the surgeon’s preference [5]. In our patient, life-saving treatment was needed in the form of urgent drainage of the abscess fluid. A simplified cavernostomy with the Alexis Wound Protector was then possible, allowing successful treatment of the pulmonary aspergilloma.

The Alexis Wound Protector can accomplish a maximum orifice through a small incision while absorbing the wound margin. To date, only the Alexis Wound Protector has a tether at the inner ring. If the sheath of the item is damaged and the inner ring falls into the pulmonary cavity, we can pull it out with the tether attached to the inner ring. Furthermore, particular care was taken with specific aspects of the surgical procedure. First, we did not roll the external ring inward too strongly to avoid damaging the sheath from excessive tension resulting from body motion. Second, we protected the skin site under the external ring to prevent complications such as a decubitus ulcer, blistering, or contact dermatitis. In addition to the excellent drainage outcomes, this procedure was both simple and efficient for use as an urgent treatment. Furthermore, the procedure was associated with less pain and fewer physical limitations for the patient.

References