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Negative pressure wound therapy in treating spinal epidural abscess

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Isolated spinal epidural abscess (without spondylodiscitis) is a rare type of vertebral infection and accounts for 0.22% of all pathology of the spine and spinal cord. A timely surgical operation with adequate debridement of the infectious focus helps the patient to avoid the development of paralysis. The classical method of debridement of epiduritis includes decompression of the spinal cord (usually laminectomy) and wound drainage. At the same time, one of the most progressive methods of treating a purulent process is negative pressure wound therapy. We have developed a method for the surgical treatment of an epidural spinal abscess without compromising the integrity of the posterior ligamentous complex using negative pressure wound therapy. Access to the epidural space is carried out by performing a resection of 25-30% of the upper and lower adjacent arches (interlaminectomy) of the vertebrae in the projection of the infectious focus. We recommend debriding with an ultrasonic cavitator at low power to avoid damaging the nerve roots and dura mater. Next, we put a vacuum closure para spinally and make pressure -125 mm Hg in continuous mode. We carry out vacuum therapy of the wound until it is completely cleansed, and active granulations appear. Then we sew up the wound. The method was applied in 11 patients. One patient died due to sepsis (sepsis-3). Relapses of the disease were also not observed. Postoperative kyphotic deformity of the spine was not observed in any case

within 1 year. Pain syndrome decreased from 8.5 (8-9) to 1 (0-2) point on the VAS scale ($p_{Wilcoxon}=0.01$). In 67% of patients, the neurological deficit decreased (increase in the Frankel class, $p_{Wilcoxon}=0.03$). Thus, the developed method of surgical treatment of spinal epidural abscesses using negative pressure wound therapy has good results.

Recent publications

1. Vidalis B, Ngwudike S, McCandless M, and Chohan M. Negative Pressure Wound Therapy in Facilitating Wound Healing After Surgical Decompression for Metastatic Spine Disease. *World Neurosurgery*, (2022) 159, pp.e407-e415.
2. Zwolak P, König MA, Osterhoff G, Wilzeck V, Simmen HP, Jukema GN. Therapy of acute and delayed spinal infections after spinal surgery treated with negative pressure wound therapy in adult patients. *Orthop Rev (Pavia)*. 2013 Nov 6;5(4):e30.
3. Nordmeyer M, Pauser J, Biber R, Jantsch J, Lehl S, Kopschina C, Rapke C, Bail HJ, Forst R, Brem MH. Negative pressure wound therapy for seroma prevention and surgical incision treatment in spinal fracture care. *Int Wound J* 2016; 13:1176–1179.

Speaker Biography

Konilov Artyom Victorovich has completed his PhD at the age of 30 years from Vitebsk State Medical University, Belarus. He is the assistant professor at Vitebsk State Medical University, Belarus. He has over 150 publications that have been cited over 40 times, and his publication H-index is 5.

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