

Case Report

Philadelphia Academy of Surgery

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A 22 year-old female was involved in a motor vehicle accident and sustained multiple injuries including a high level cervical spinal cord injury (C2) that rendered her quadriplegic about a year ago. She had previously tried diaphragm pacemakers, but she was still requiring 24-hour full ventilator support at home due to persistent bilateral diaphragm paralysis. She was taken to the OR, and underwent bilateral diaphragm reconstruction involving bilateral innervated-vascularized rectus muscle flaps secured to the diaphragm and stimulated by diaphragm pacemakers. Six months post-operatively, she is doing well and requiring less ventilator support. This case illustrates how ventilator-dependence after cervical spinal cord injury can be challenging to treat since the effects of injury occur at multiple levels: destruction of central nerves, degeneration of peripheral motor neurons, and resulting muscular atrophy. Thus, advanced surgical reconstruction of the diaphragm must address deficits at each level in order to create opportunity for significant recovery of diaphragm function. This patient is one of many to undergo successful treatment at “Compelling Hope” – a specialized Center for Treatment of Paralysis and Reconstructive Nerve Surgery at Jersey Shore Medical Center of Meridian Health (www.compellinghope.com).