Supplementary Material:

Written Protocoll For Doctor–Nurse–Therapist Rounds

(1) The integrated team comprised the attending physician, head nurse, primary nurse, and therapist.

(2) Following the patient's hospitalization, the head nurse, primary nurse, and therapist accompanied the attending physician to conduct the initial integrated round involving the doctor, nurse, and therapist. During this round, the primary nurse measured the patient's vital signs, while the attending physician obtained the medical history and performed a physical examination. Subsequently, the primary nurse provided the patient with pertinent health education. The attending physician then informed the patient about the necessary auxiliary and laboratory examinations. The primary nurse provided the patient with essential information regarding the necessary precautions for the examination and offered guidance on dietary management during hospitalization. This facilitated the patient's acclimatization to the hospital environment and promoted cooperation with subsequent treatments. During the initial assessment, primary nurses were able to gain a thorough understanding of the patient's condition, enabling them to formulate and implement a comprehensive nursing plan. Concurrently, the therapist developed a detailed rehabilitation plan.

(3) Following the completion of the relevant examination by the patient, the attending physician communicated the diagnosis and proposed treatment plan. The primary nurse then assisted the patient in enhancing preoperative preparation, including tracheoesophageal movement exercises, respiratory training, and posture training, as

well as organizing postoperative materials.

(4) On the day preceding the surgery, the attending physician provided the patient with a comprehensive explanation of the surgical procedure, necessary preoperative preparations, and potential postoperative complications. Additionally, the attending physician issued the pertinent preoperative medical orders.On the day of the surgical procedure, the attending physician and the primary nurse facilitated a range of preoperative preparations, including ensuring the patient abstained from drinking and fasting, as well as the insertion of a catheter. They also provided support to alleviate the patient's preoperative anxiety and assisted in mental preparation for the surgery.

(5) A comprehensive round was conducted by the physician, nurse, and therapist. Upon the patient's return to the ward, the attending physician meticulously assessed the patient's postoperative condition and issued the necessary postoperative medical orders.The primary nurse monitored the patient's vital signs, wound drainage, and sensorimotor function of the limbs. In addressing postoperative pain and other discomforts, the primary nurse is responsible for timely pain assessment, administering analgesics as prescribed by the physician, and engaging in frequent communication with the patient to foster a comfortable emotional state, thereby mitigating pain exacerbation due to psychological stress. Additionally, the primary nurse assisted the patient with positional changes. The therapist offered guidance to the patient and their family regarding the implementation of the current rehabilitation plan.

(6) During the postoperative integrated rounds involving the physician, nurse, and

therapist, the primary nurse provided a comprehensive report on the patient's diet, sleep patterns, pain levels, and functional exercises from the previous day. Based on the nurse's observations and the patient's reported symptoms, the attending physician made necessary adjustments to the medication regimen for the day. The therapist then assessed and communicated the patient's current rehabilitation status and outlined the rehabilitation plan. Subsequently, the physician evaluated the patient's overall condition to determine their ability to ambulate. Upon the patient's initial mobilization from bed, the attending nurse and therapist accompanied and monitored the patient for symptoms indicative of orthostatic hypotension, including dizziness and pallor. The progression of activity was systematically structured, beginning with sitting, followed by standing, slow ambulation, and a gradual increase in activity levels.

(7) On the day of discharge, a multidisciplinary team comprising the attending physician, head nurse, primary nurse, and therapist conducted an extensive discharge consultation, collectively offering comprehensive guidance to the patient.①The patient is advised to maintain the use of a neck brace for a duration of 2-3 months post-discharge to mitigate any activities involving neck flexion, extension, or rotation.② Should the wound exhibit indications of redness, swelling, pain, seepage, or if the patient encounters severe neck pain, dysphagia, or infarction, immediate return to the hospital is warranted. ③ The patient should persist with functional exercises and attend follow-up examinations at 1 month, 3 months, 6 months, 12 months, and 24 months post-operation.④ The individual may resume work six months post-operation, but it is imperative to avoid prolonged static positioning of the

neck. It is advised to mobilize the neck every hour during extended periods of desk work.