

Introduction

- **Sarcopenia**
 - ✓ Loss of skeletal muscle mass, strength, and function
 - ✓ Associated with aging, decreased physical activity, malnutrition, post-surgery complications
- **Wearable exoskeletal robot –assisted gait training(RAGT)**
 - ✓ Effective for sarcopenia patient
 - ✓ Differ with previous tethered exoskeleton in that it needs more patient’s active participation
- This study aimed to investigate the effectiveness of wearable exoskeletal RAGT using ANGEL LEGS M20-B-C3™ machine on patient with severe sarcopenia

Case presentation (42/F)

Chief complaints	Decreased functional ability
Onset	6 months ago
Vector	Post-surgery complications (Panperitonitis, jejunal feeding, transhepatic bile drainage), bed-ridden state for 6months, poor nutrition
Past history	None
Evaluation	✓ Body weight: 33kg(weight loss 20kg over 6months)
	✓ Hand grip strength : 6.6kg
	✓ Short Physical Performance Battery (SPPB) score : 3
	✓ Electrodiagnostic study - generalized peripheral sensorimotor neuropathy, primarily of the axonal loss type

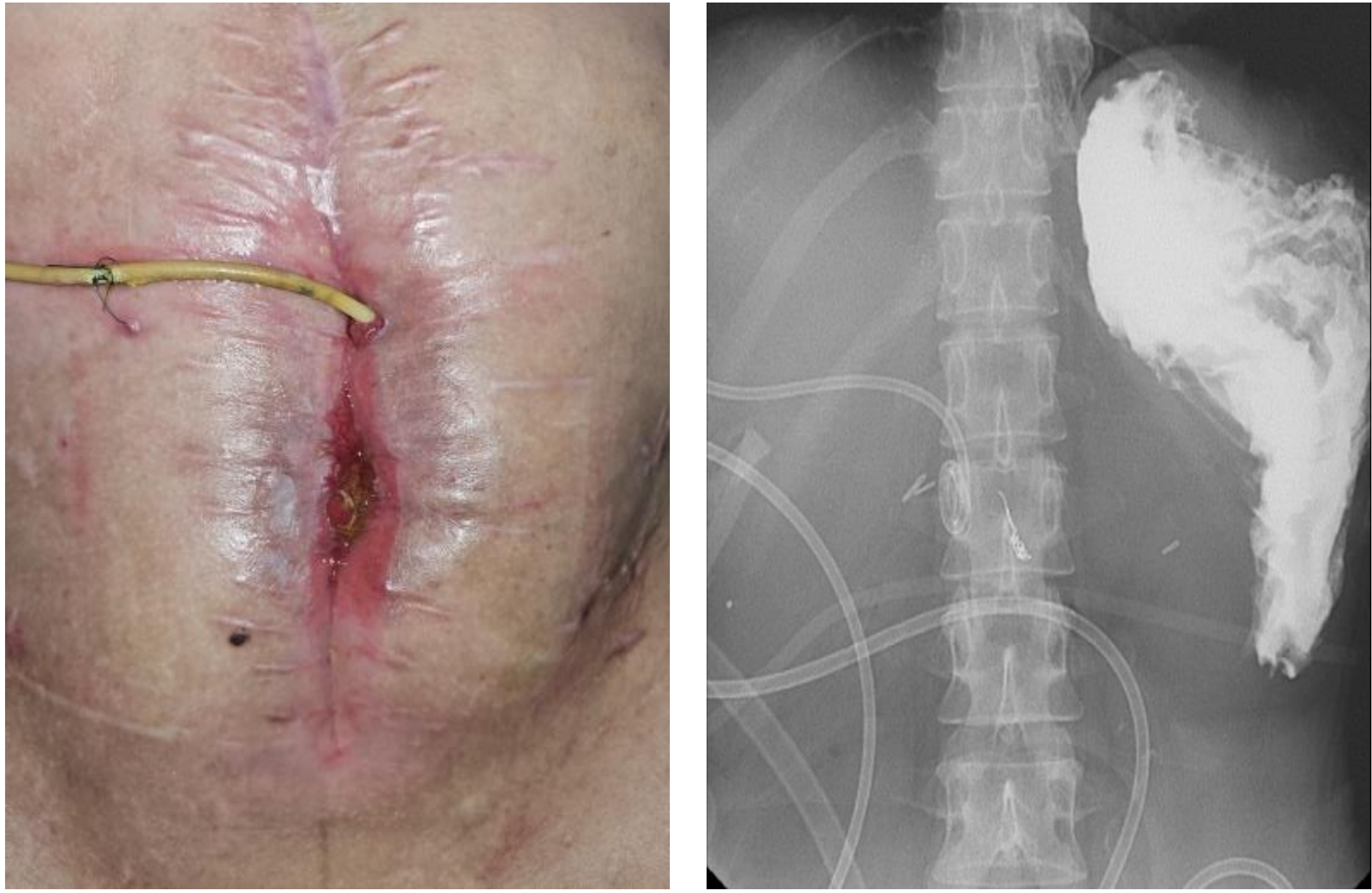
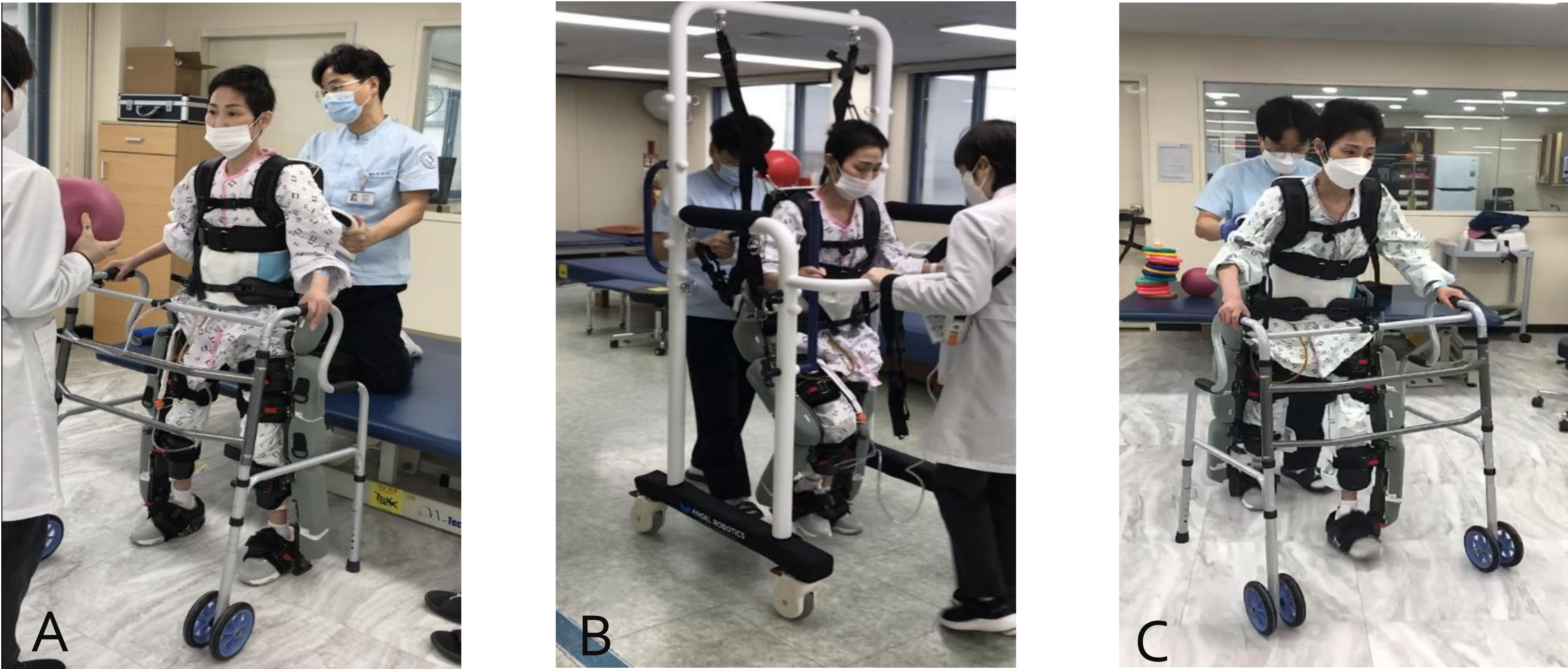


Figure 1. Current operation site wound and delayed gastric emptying in gastrographin test.

Figure 2. Rehabilitation protocol



The patient received step-by-step training through RAGT for 30 minutes once a day, 5 days a week, for 3 weeks.

- A. In the initial first week, the patient underwent sit-to-stand exercises and standing balance training.
- B. In the second week, the patient used a weight-supported gait training device with a harness for assistance and received weight support from two therapists during the training.
- C. In the third week, the patient used a standard rolling walker and received weight support from one therapist.

	Before training	3weeks after training
FAC	1	2
MBI	47	56
BBS	15	27
2mWT(m)	37	60
10MWT(Average speed, m/s)	0.27	0.59

Table 2. Change of evaluation before and after the training

Functional Ambulation Category(FAC), Berg Balance Scale(BBS), Modified Barthel Index(MBI), 2 Minute Walk Test(2mWT), 10meter Walk test(10MWT)

Conclusion

- Wearable exoskeletal robot-assisted gait training can significantly improve balance, gait speed, and functional ability in patients with severe sarcopenia. More research is needed to determine the effects, timing, and duration of wearable RAGT.