Team-Based Strategies for Safe Oral Feeding

Multidisciplinary Team Approach for Safe Resumption of Oral Intake: Clinical Strategies and Outcomes

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Abstract

Background: Deterioration of swallowing function markedly impairs quality of life, a problem particularly significant in Japan's rapidly aging population. Dysphagia management remains challenging due to limited clinical resources and lack of an organized support system. **Objective:** To illustrate the effectiveness of multidisciplinary collaboration in facilitating the transition from home parenteral nutrition (HPN) to complete oral intake. Case Presentation: A 66-year-old woman with severe dysphagia secondary to submandibular gland inflammation and prolonged impaired consciousness was maintained on total parenteral nutrition (TPN) during hospitalization because oral intake was deemed impossible. After discharge on HPN, a multidisciplinary home-care team—comprising physicians, nurses, registered dietitians, and certified dysphagia nurses—initiated structured dietary and swallowing interventions. The patient restored full oral feeding within one year through structured assessment and staged texture advancement. **Results:** Swallowing ability improved from RSST(Repetitive Saliva Swallowing Test) 0, MWST(Modified Water Swallowing Test) 0 and KTBC(Kuchi-Kara Taberu Check) 22 to RSST 3, MWST 4 and KTBC 53. Oral intake reached 1200 kcal/day, allowing discontinuation of HPN. **Conclusion:** Coordinated multidisciplinary collaboration with continuous information sharing between care settings enabled safe restoration of oral intake in a patient previously judged unable to eat orally. Regular reassessment of swallowing function is crucial to identify patients with recovery potential.

Keywords: severe dysphagia, home-care support, multidisciplinary collaboration, residential dietary management, quality of life

Introduction

Japan's aging rate reached 29.1% as of October 2023—the highest worldwide.[1] The proportion of patients receiving home medical care is projected to rise from 12.5% in 2014 to 18.1% by 2025, with an associated increase in home-visit needs.[2] Notably, 73.5% of older adults prefer to receive care at home,[3] underscoring the importance of services tailored to individual lifestyles.

Dysphagia prevalence increases sharply with age; aspiration pneumonia accounts for more than 60% of pneumonia cases among elderly patients.[4] Dysphagia reduces eating enjoyment, lowers quality of life, causes malnutrition, and burdens caregivers.[5] Registered dietitians are expected to provide comprehensive support that extends beyond nutrition management, but coordinating care across multiple facilities remains difficult under time constraints.[6]

Here, we report a case in which multidisciplinary collaboration successfully restored oral intake in a patient with severe dysphagia, fulfilling the family's strong wish to resume eating.

Case Report

Patient A's Information

A 66-year-old Japanese woman developed dysphagia following respiratory failure caused by submandibular gland inflammation. Her medical history included dyslipidemia.

Clinical Timeline (Fig. 1)

Year X, October: Hospitalized for right metatarsal and cuneiform fractures. Subsequently diagnosed with a brain tumor and cervical ossification of the posterior longitudinal ligament (OPLL).

Year X+1, April: Underwent laminoplasty for OPLL following chemotherapy and radiation therapy for the brain tumor, resulting in reduced consciousness, tetraplegia, and respiratory failure.

Year X+1, April–October: Consumed soft rice porridge and pureed vegetables with full assistance.

Year X+1, November: Developed hemodynamic instability secondary to submandibular gland inflammation, necessitating TPN. Fiberoptic endoscopic evaluation confirmed inability to swallow safely; only indirect training was possible.

Year X+2, March: Discharged home on HPN at the family's request.

Year X+2, April: Initiated multidisciplinary home-visit nutritional and swallowing rehabilitation.

Physical Assessment at Intervention Initiation

At baseline, the patient's consciousness level was II-30 (drowsy but responsive to stimulation) on the Japan Coma Scale (JCS), independence level M for dementia, and bedridden degree C2. She had a long-term care certification of Grade 5. Although arousal was reduced, cognitive function appeared relatively preserved, allowing limited interaction. Her primary caregiver was

her husband; children lived in other prefectures. Comprehensive home-care services were in place, including visiting nursing, rehabilitation, home bathing, and day-care programs.

Initial Assessment (Year X+2, April)

Nutritional Status:

Height 152 cm; weight 47.4 kg; BMI 20.5 kg/m².

Energy intake: 1,400 kcal/day via HPN (100% adequacy).

Laboratory values: WBC 7,600 /μL; CRP 0.27 mg/dL; Hb 12.2 g/dL; TP 6.2 g/dL; Alb 3.0 g/dL; HbA1c 5.5%.

Swallowing Function:

RSST[7]= 0 times; MWST[8] = 0 times; FILS（Food Intake LEVEL Scale)[9] = Grade 2; KTBC[10] = 22.

Intervention and Management

Team Composition

A multidisciplinary team was formed with the care manager as coordinator (Fig. 2). The physician performed weekly assessments and laboratory reviews. Visiting nurses observed and provided care for the patient's daily overall condition (presence or absence of fever, increased airway secretions, changes in consciousness level, food intake, and mobility in bed). They also provided oral care before and after meals, assisted with swallowing training, and provided care regarding food type and eating posture, sharing information with the swallowing certified nurse and registered dietitian. The physical therapist visited the patient once a week and performed postural adjustments, such as maintaining a posture that makes swallowing easier and maintaining balance while sitting, as well as breathing and mobility training to improve respiratory function. The registered dietitian visited every two weeks to evaluate the patient's nutritional status, including physical measurements such as weight and blood test results, food intake, oral condition, and lifestyle, and decided on the patient's diet based on the following criteria: no fever, no increase in respiratory secretions, no deterioration in consciousness, the patient being able to consume more than 80% of their food intake, and progress in getting out of bed (Table 1).

Intervention Protocol

The primary objective was to gradually increase oral intake without aspiration while maintaining adequate nutrition and minimizing HPN dependence. The husband was trained in functional oral care, vocalization and coughing exercises, saliva and multiple-swallow techniques, and safe feeding procedures. Communication was maintained through daily nurse reports, telephone updates among specialists, and monthly interdisciplinary conferences. For the husband, we

provided direct training such as oral massage for functional oral care, vocal training for vocalization, coughing training for throat clearing, and swallowing training for saliva swallowing, multiple swallowing, and alternating swallowing. The husband diligently implemented these interventions. The patient also participated enthusiastically with the support of her husband.

Progression of Oral Intake

Five objective criteria guided advancement of food texture: (1) no fever (< 37.5°C), (2) no increase in airway secretions (observed daily by visiting nurses), (3) stable consciousness (assessed daily by visiting nurses using JCS), (4) ≥80% meal completion, and (5) improved mobility (posture maintenance and sitting balance were evaluated by a physical therapist). These criteria were established by the authors' team based on practical decision-making in clinical practice. During the course of home care, it was difficult to perform VE(Videoendoscopic Evaluation of Swallowing) and VF(Videofluoroscopic Evaluation of Swallowing) tests due to the lack of a proper system. Therefore, we used KTBC to evaluate the patient's swallowing function and gradually improved the patient's diet.

Year X+2, April: Began with sports-drink tasting and lollipop training.

Year X+2, May: Progressed to jelly (Code 0j , JDD 2021,[11]) and thickened water (Code 0t), achieving RSST 1, MWST 3, FILS 3, KTBC 32.

Year X+2, July: Advanced to pudding and steamed egg custard (Code 1j) with oral intake ≈ 200 kcal/day; scores improved to RSST 3, MWST 4, FILS 5, KTBC 44.

Year X+2, November: Stable oral intake reached 800 kcal/day. HPN was tapered and discontinued after confirming total caloric intake ≈ 1,200 kcal/day (including 400 kcal from supplements).

Approximately one year after HPN initiation, complete transition to oral feeding was achieved (Fig. 3). Oral intake has since remained stable, and her clinical course has been uneventful and her KTBC became 53 in year X+2, December.

Nutritional Outcomes (Year X + 3, January)

Post-intervention evaluation demonstrated weight gain and improved biochemical parameters, with mild elevations in triglyceride and total cholesterol levels (Table 2.)

Discussion

This case highlights successful restoration of oral intake through systematic multidisciplinary collaboration in a patient initially considered unable to resume eating. Several factors contributed to this outcome.

1. Importance of Re-evaluation:

Regular reassessment was critical. Literature on post-discharge re-evaluation of swallowing

function remains limited,[12] and many patients diagnosed as unable to eat during hospitalization never undergo follow-up evaluation—potentially missing opportunities for recovery. A single Fiberoptic endoscopic evaluation of swallowing assessment should not determine long-term oral intake feasibility.[13]

2. Role of Multidisciplinary Collaboration:

Close collaboration among healthcare professionals was indispensable. While clinicians often recommend fasting for safety, family members typically wish to maintain oral feeding.[14]This case illustrates that coordinated teamwork—including dietitians and certified dysphagia nurses—can restore oral intake safely through structured evaluation and staged progression.

3. Family Engagement:

Active family participation was another key factor. The husband's consistent involvement in oral care and training exercises, coupled with the patient's motivation, created an optimal environment for recovery. Transparent communication and clearly defined advancement criteria prevented aspiration and ensured safety.

4. Quality of Life Considerations:

Even in complex cases, restoring the ability to eat markedly enhances quality of life for both patients and families. Although this is a single case report, the successful outcome suggests that similar multidisciplinary strategies could benefit other patients. Future studies comparing larger cohorts are warranted.

Conclusions

Patients once deemed unable to resume oral intake may achieve complete oral feeding through systematic multidisciplinary intervention. Key factors include periodic re-evaluation of swallowing function, coordinated interprofessional collaboration, active family involvement, seamless communication across care settings, and stepwise progression based on objective criteria. Healthcare systems should recognize that feeding difficulties can change over time, emphasizing the necessity of ongoing reassessment in home-care contexts. Dedicated multidisciplinary teams can restore oral intake safely and efficiently, improving patient quality of life while potentially reducing healthcare costs.

Acknowledgments

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Conflicts of Interest

The authors declare no conflicts of interest.

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Figure Legends:

Fig. 1 Clinical Course During Hospitalization
Patient A's hospitalization extended for 1 year and 7 months, and she received a diagnosis of feeding difficulty 3 months prior to discharge.

Fig. 2 Post-Discharge Support System
Multidisciplinary collaboration was established to facilitate Patient A's transition to oral intake, with the addition of specialized professionals essential for oral intake transition: a home-visit registered dietitian and a certified nurse specialist in dysphagia nursing.

Fig. 3 Progression of Food Texture and Oral Intake Volume According to Swallowing Function and improvement of KTBC score
Food texture classification is based on the Japanese Dysphagia Diet 2021 Classification.[11] And the Kuchikara Taberu Balance Chart (KTBC) was employed for evaluating overall swallowing function.[10]

Table 1. Multidisciplinary Intervention for Transition to Oral Intake

Objective	Implementation Details	Responsible Staff (Intervention Frequency)
(1 Aspiration Pneumonia Prevention	①Food texture assessment	Certified nurse specialist (1/week) Nurse (7/week) Registered dietitian (every 2 weeks)
	②Meal timing confirmation	Nurse (7/week) Registered dietitian (every 2 weeks) Family
	③Feeding assistance techniques	Certified nurse specialist (1/week), Nurse (7/week), Registered dietitian (every 2 weeks)
	④Pre- and post-meal oral care	Certified nurse specialist (1/week) Nurse (7/week) Family
	⑤Breath sounds and oxygen saturation monitoring	Physician (1/week) Nurse (7/week)
	⑥Feeding posture	Certified nurse specialist (1/week) Nurse (7/week) Physical therapist (1/week)
(2 Ensuring Adequate Nutritional Requirements	①Blood tests	Physician (1/week), Nurse (7/week), Registered dietitian (every 2 weeks)
	②Weight measurement	Nurse (7/week), Registered dietitian (1/week), Family
	③Food intake monitoring and fluid adjustment	Nurse (7/week), Registered dietitian (every 2 weeks), Family
(3 Swallowing Function Training	①Indirect and direct training	Certified nurse specialist (1/week), Nurse (7/week), Family
	②Texture-modified diet	Registered dietitian (every 2 weeks), Family

Certified nurse specialist: Certified Nurse Specialist in Dysphagia Nursing

Table 2. Changes in Nutritional Indicators After Intervention

	Year X+2 April (Intervention Initiation)	Year X+2 July	Year X+2 November
Weight (kg)	47.4	52.9	55.1
BMI	20.5	22.9	23.8
Alb (g/dL)	3.0	3.5	3.4
TG (mg/dL)	120	193	236
T-Cho (mg/dL)	222	257	242

Alb: Albumin; T-Cho: Total cholesterol; TG: Triglycerides

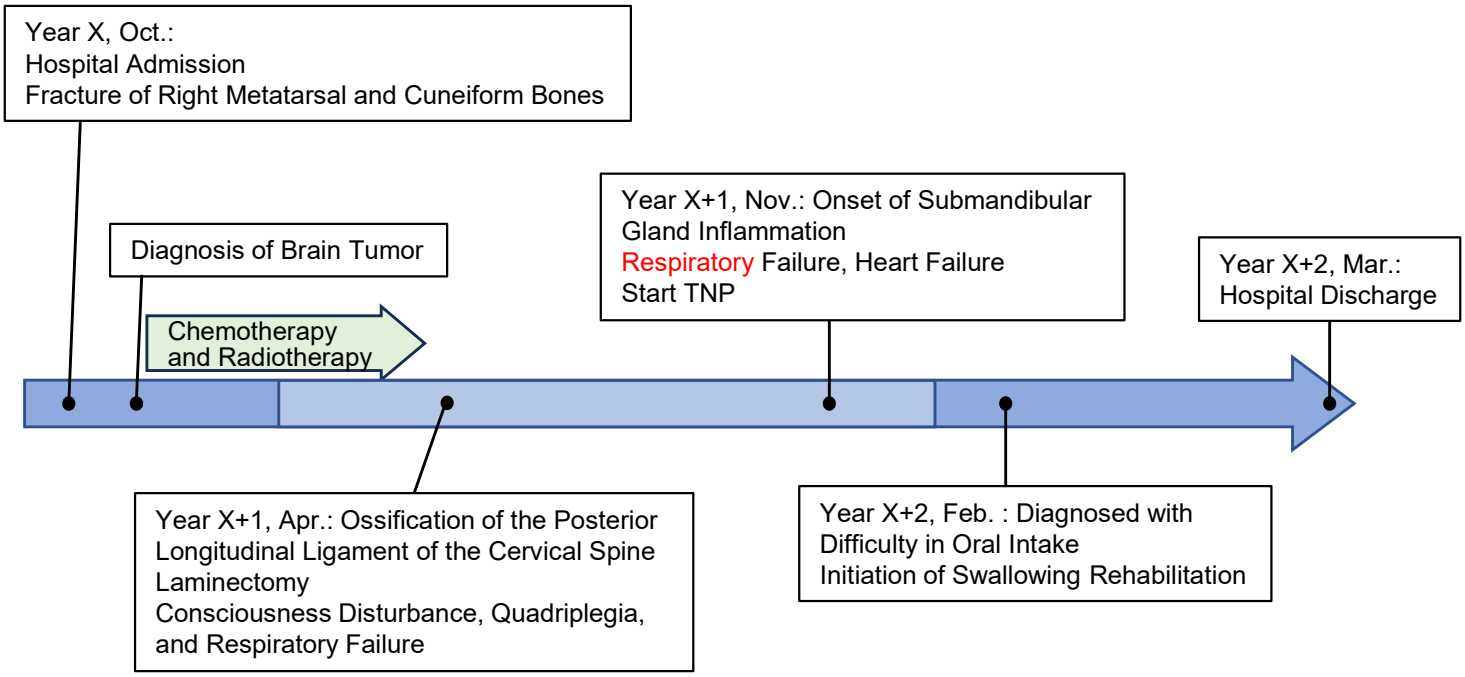

Year X, Oct.:
Hospital Admission
Fracture of Right Metatarsal and Cuneiform Bones
Diagnosis of Brain Tumor
Chemotherapy
and Radiotherapy
Year X+1, Nov.: Onset of Submandibular
Gland Inflammation
Respiratory Failure, Heart Failure
Start TNP
Year X+2, Mar.:
Hospital Discharge
Year X+1, Apr.: Ossification of the Posterior
Longitudinal Ligament of the Cervical Spine
Laminectomy
Consciousness Disturbance, Quadriplegia,
and Respiratory Failure
Year X+2, Feb. : Diagnosed with
Difficulty in Oral Intake
Initiation of Swallowing Rehabilitation

Fig.1

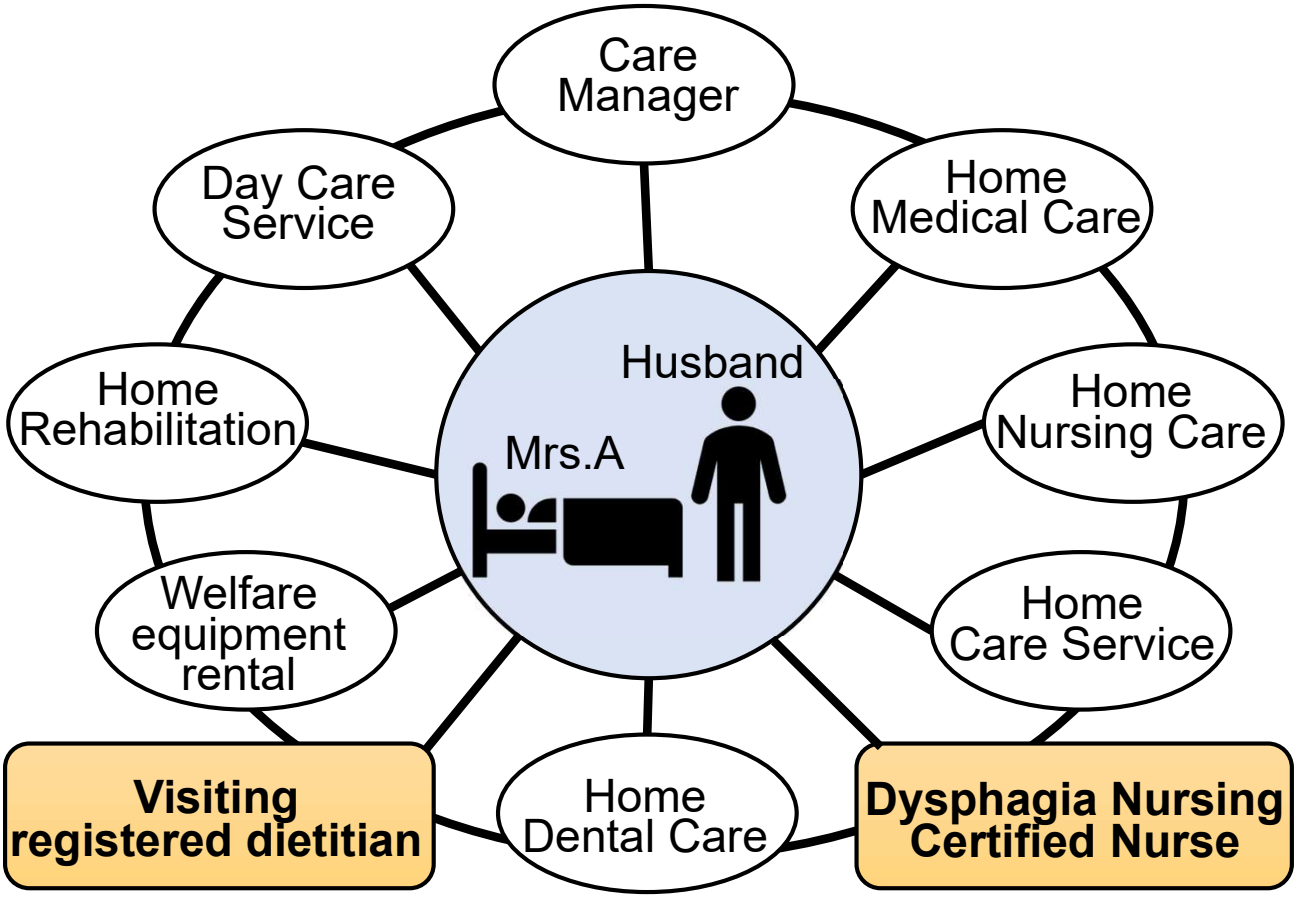
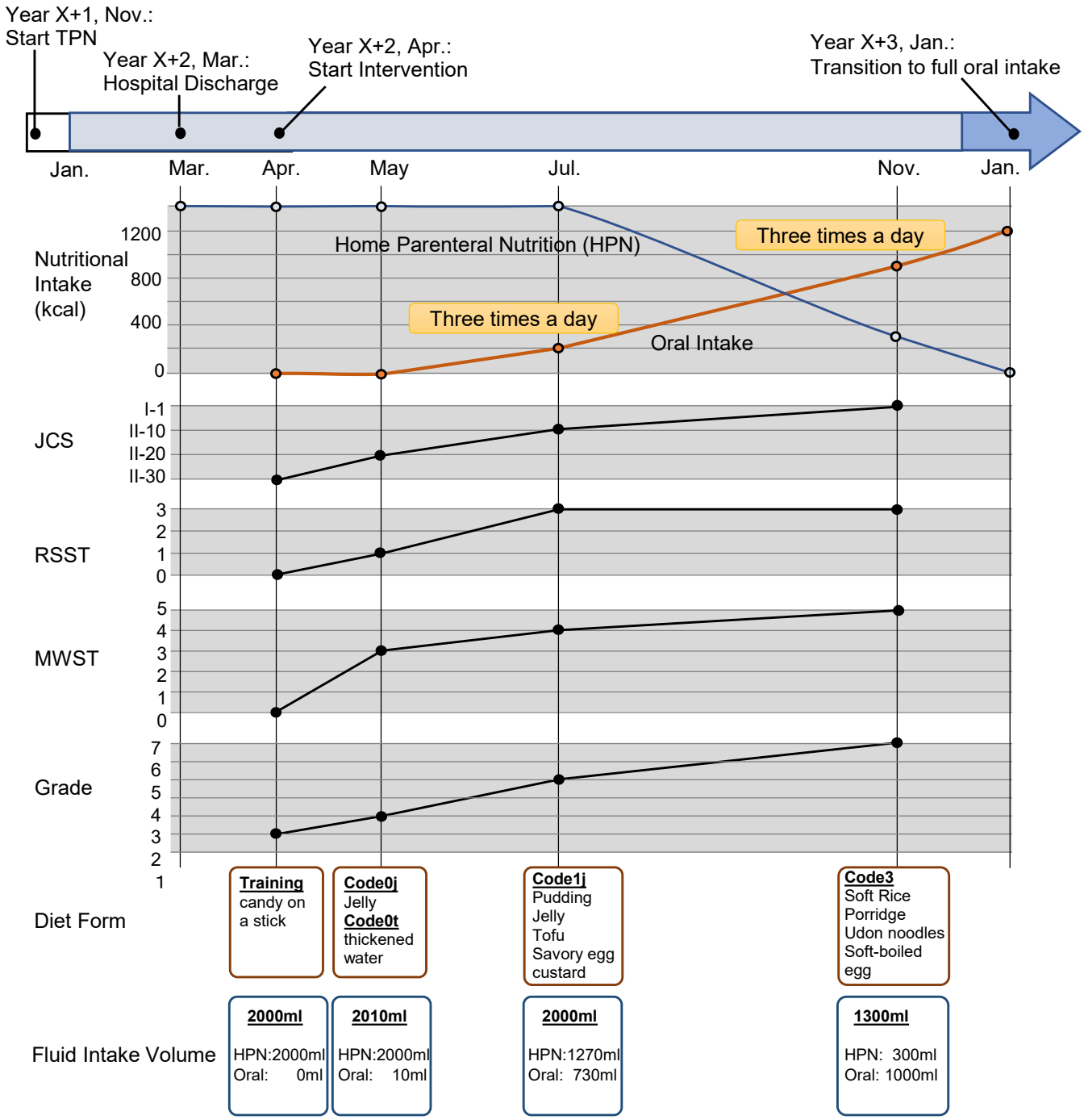

Care Manager
Day Care Service
Home Medical Care
Husband
Mrs.A
Home Rehabilitation
Home Nursing Care
Welfare equipment rental
Home Care Service
Visiting registered dietitian
Home Dental Care
Dysphagia Nursing Certified Nurse

Fig.2



1. Motivation to Eat
2. General Condition
3. Respiratory Condition
4. Oral Condition
5. Cognitive Function (During Meals)
6. Chewing/Propulsion
7. Swallowing
8. Posture/Endurance
9. Eating Behavior
10. Activity
11. Eating Status Level
12. Food Form
13. Nutrition

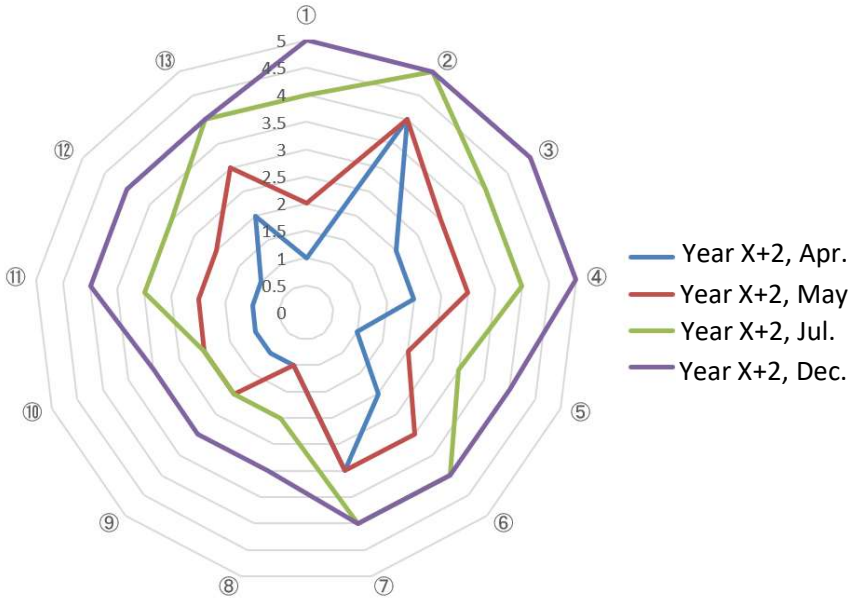


Fig.3